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Mainstreaming Natural Capital: The Rise of Ecosystem Services in Biodiversity Conservation

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Abstract

Mainstreaming Natural Capital: The Rise of Ecosystem Services
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by

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Doctor of Philosophy in Environmental Science, Policy and Management

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This dissertation investigates the rising influence of "ecosystem services" (ES) ideas in biodiversity conservation. Once an esoteric neologism, ES now refers to the conceptual framework and burgeoning field of research and practice dedicated to analyzing in measurable, often monetary terms the various "services" provided by nature to people. Over the past two decades, diverse communities of practitioners around the world have increasingly come to accept, and even to embrace, the policy discourse formed around ES. In this dissertation, I explain how the concept of ES has come to gain such widespread currency among conservationists, what is at stake in re-envisioning biodiversity in this manner, and what the contemporary embrace of ecosystem services can tell us about the changing politics of conservation.

I explore these questions through sustained, close-quarters engagements with some of the idea's core champions. I provide a thickly-described account of the politics of ES through the experiences and perspectives of those now working at the forefront of efforts to "mainstream" its tenets across diverse contexts of environmental governance. My analysis draws on engagements with ES practitioners operating through two prominent initiatives: (a) the Natural Capital Project, and (b) the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES). Through organizational-ethnographic research embedded with ES experts, I examine concerted efforts to institutionalize ES in conservation (and beyond) as the prevailing framework for making sense of, advocating for, and ostensibly saving nature.

I describe a campaign seeking to re-assert conservation's viability by aligning it to 'fit' more neatly within dominant discursive, institutional, and political-economic orders. In this context, ES provides an important operational means for producing these re-alignments. I portray the organizational dynamics, representational practices, and expert subjects constitutive of these efforts and draw on these findings to develop three main lines of argument: (1) the micro-social practices associated with ES are deeply implicated in producing pronounced institutional shifts in contemporary conservation; (2) one of the most major consequences arising from ES relates to how it shapes the political subjectivities of those who practice it, in part by internalizing a depoliticized theory of change; and (3) ES remains a contingent site of struggle, amenable to re-negotiation, with the demonstrated potential to impede, but also perhaps to contribute, to more transformative, liberatory purposes than those now enrolling it.

I dedicate this dissertation to Tatay and Nanay and David, driving around in our VW Fox, arguing.

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participate in scholarly debates, it is also written to and for those who chose to open up their worlds to me. While analytically critical, my account is also sympathetic and I have endeavoured to write it in such a way that you can meaningfully recognize yourselves in it. While several of you asked that I try to be honest—to not pull my punches and to follow my critical intuitions wherever they might lead me—I remain uncertain whether on this score I have delivered more than you bargained for or not enough. In any case, I hope that I am giving back something of value.

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CHAPTER 1 – INTRODUCTION

> Valuation is a battlefield. Valuation is an ideological battlefield. Every time we discuss values it's going to be a war.
>
> - Official from the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)

MAKING NATURE'S VALUES KALEIDOSCOPIC

Across virtually all indicators, biodiversity loss continues to worsen on a planetary scale (GBO-4 2014; WWF 2016b). From extinctions and habitat destruction to overharvesting and climate change, the situation is dire. This growing sense of socio-ecological crisis accompanied by widespread institutional failure has prompted many in the environmental movement to look with renewed urgency toward new ideas, new strategies, and ultimately a new way forward for biodiversity conservation. At the 2016 World Conservation Congress in Honolulu, I observed Inger Andersen, the Director-General of the International Union for the Conservation of Nature (IUCN), articulate this imperative succinctly for Congress delegates:[1]

> We are losing the battle. And that is why so many people are interested in trying to find more tools, more ways, and more narratives to resonate in important places. One of the things that is most critical is trying to better resonate in the halls of power. In the boardrooms. And, in the heart of the market economy.

Over the past two decades, one such framework has been vigorously promoted as offering a new way forward in precisely these terms—"ecosystem services"—a concept whose promise of "more tools, more ways, and more narratives to resonate in important places" has seized the imaginations of the conservation movement and begun to re-mould its aims and strategies.[2]

A large number, attached to a dollar prefix, begins to spell out this notion's potency. In 1997, researchers estimated the total economic value of the "services" provided by the world's ecosystems—from wetlands and tundra to tropical forests and coral reefs—at around US $33 trillion: nearly double gross global economic output that year (Costanza et al. 1997). Despite numerous controversies, the paper was, as several of its authors note twenty years later, remarkably successful in its purpose: "ignit[ing] an explosion of research and policy interest in ecosystem services" (Costanza et al. 2017, 3). Cited now over fifteen thousand times in the literature (and counting), this notorious dollar figure heralded the emergence and exponential growth of what

[1] Sections of this chapter are excerpted from earlier work published with co-authors: Suarez and Corson (2013) and Suarez and Dempsey (forthcoming). In accordance with UC Berkeley Graduate Division policy, where these sections appear, they will be indicated with a footnote at the end of each relevant paragraph specifying which sentences are either: (i) direct excerpts, or (ii) adapted from those materials. Sentences 1-3 in this paragraph are excerpted from Suarez and Dempsey (forthcoming n.d.)

[2] Sentence 1 is adapted from Suarez & Dempsey (forthcoming).

came to be known as the science of "ecosystem services."[3] Once an esoteric neologism, ecosystem services now refers to a conceptual framework and burgeoning field of research and practice dedicated to analyzing in measurable, often monetary terms the "values" encompassed in biodiversity: mangos, clean drinking water, weekend hikes, flood protection, pharmaceuticals, whale-watching, two-by-fours, and so on ad infinitum (MA 2005).[4] Indeed, the publication inaugurated a much broader shift among conservation scientists, advocates, and practitioners who have over the past two decades increasingly re-framed their work to integrate precepts, and especially valuation methods, drawn from economics (e.g. TEEB 2010).[5]

In line with this imperative "to resonate in important places," diverse communities of practitioners around the world have in recent years come to accept, and even to embrace, the language of ecosystem services: ecologists and economists, policy-makers, activists of varying stripes, governmental and intergovernmental bureaucrats, and business leaders have together learned to talk about "nature" as stocks of "natural capital" assets generating flows of valuable services. Norgaard (2010a, 1219) observes how "over a period of about 15 years, an eye-opening metaphor intended to awaken society to think more deeply about the importance nature and its destruction […] transformed into a dominant model for environmental policy and management in developing countries and for the globe as a whole." As Redford and Adams (2009, 785) note, the concept has now become "the central metaphor within which to express humanity's need for the rest of living nature."[6]

This dissertation explores how, in what ways, and through what means the idea of ecosystem services, instantiated through a range of chimeric representations—including and especially in the form of big numbers attached to dollar signs—has come to gain such widespread currency among conservationists. What accounts for the sudden ubiquity of the concept across the sprawling networks of "mainstream conservation"?[7] What is at stake in re-envisioning nature in this manner? And what can the contemporary embrace of ecosystem services tell us about the changing politics of biodiversity conservation?

In this dissertation, I wrestle with these broad questions through sustained, close-quarters engagements with some of the idea's core champions. In other words, I explore the rise of ecosystem services specifically through the perspectives and experiences of those working at the

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[3] The article was both widely publicized and heavily criticized on methodological, strategic, ethical and political grounds. As Dempsey and Robertson (2012, 9) note, "dismissing Costanza's figure has become *de rigueur* in the ES literature," noting that its citation is customarily paired with the "scathing indictment" by Michael Toman (1998, 58), who commented that "there is little that can be usefully done with a serious underestimate of infinity."

[4] Following this framing, I use the term "ecosystem services" as a singular noun throughout this dissertation as a shorthand to refer to the broad conceptual framework of ecosystem services. In part, I use this singular noun to distinguish the chimeric *framework* of ecosystem services from the biophysical *referents* of ecosystem services themselves, i.e. the variety of specific "contributions of nature to people" (IPBES 2017) rendered legible through the knowledge practices of ecosystem services science.

[5] Sentence 4 is excerpted from Suarez & Dempsey (forthcoming).

[6] Sentence 1 is paraphrased from Suarez & Dempsey (forthcoming).

[7] "Mainstream conservation" is a term used by Brockington, Duffy, and Igoe (2008, 9) and used in critical scholarship as a shorthand for "a particular historical and institutional strain of western conservation," which "dominates the field of conservation in terms of ideology, practice, and resources brought to bear in conservation interventions." While they recognize that this term does not adequately capture the full breadth and diversity of self-described conservationists, they emphasize the particular power of its ideas and values, as well as its institutions, as expressed, for instance, in the disproportionate influence of several large conservation organizations which dominate conservation funding (see for example Armsworth et al. 2012)

forefront of efforts to "mainstream" its tenets across a diverse range of governance contexts.[8] I analyze how this emergent discourse coalition operates, and toward what ends, as it struggles to construct a broad consensus around ecosystem services as "*the* way forward for conservation" (Armsworth et al. 2007, title, emphasis added). Through over a hundred interviews and organizational-ethnographic research embedded with ecosystem services adherents circulating through transnational policy networks—"spreading the gospel" as one consultant explained—I interrogate ongoing efforts to institutionalize ecosystem services in conservation (and beyond) as the prevailing framework for making sense of, advocating for, and ostensibly saving nature.

To develop my analyses, I draw on my engagements with ecosystem services practitioners operating through two prominent initiatives: the Natural Capital Project (NatCap, established in 2006; discussed in Chapters 2, 3, and 4), an organization dedicated to "aligning economic forces with conservation" and constituted through a partnership between Stanford University, The Nature Conservancy (TNC), World Wildlife Fund (WWF), and the University of Minnesota; and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES, established in 2012; discussed in Chapters 5 and 6), formed under the auspices of the United Nations as a kind of "IPCC for biodiversity."[9] In different ways, both processes are focused around the deployment and dissemination of ecosystem services—its knowledges, its technical tools, and its modes of reasoning—as a means of "informing" (i.e. changing) environmental decision-making around the world. Whereas NatCap's approach has involved sending out teams of experts to dozens of far-flung locales (or "decision contexts") in order to pilot test ecosystem services approaches directly through project-level work, IPBES has gathered over a thousand international experts in biodiversity and ecosystem services into its constitutive assessment processes where they produce knowledge syntheses for use by governments and other decision-makers. In my conclusion (Chapter 7), I complement my engagements among these two processes with briefer reflections on a third: the apparent rise, and proportionate fall, of ecosystem services as a salient part of environmental politics in my home province of British Columbia. Each of these processes offers unique glimpses into the political and epistemic struggles currently being waged over ecosystem services, the lively social worlds co-constituted with those struggles, and the diverse actors now vying to direct how the idea comes to be expressed.

At the center of this narrative are ecosystem services' self-styled "evangelists" (Marris 2009) operating through these (among many other) contexts in a multi-pronged effort to save nature by transmuting it into natural capital—symbolically through language, operationally through valuations, administratively through institutional designs, economically through articulations with market-oriented governance, and, more commonly, through selective combinations of these and other strategies. As I will show, these advocates have led an intensifying campaign in biodiversity conservation, a sort of movement within a movement, endeavouring to re-assert conservation's viability by aligning it to 'fit' more neatly within prevailing discursive, institutional, and political-economic orders. Over the course of this dissertation, I identify the

[8] "Mainstreaming" is a commonly used term by ecosystem services practitioners. The notion of "mainstreaming" is context-dependent and rarely specified but generally refers to efforts to incorporate and institutionalize an approach to a given issue into existing thinking and organizational practice. In other words, these are activities which bring an approach, in this case ecosystem services, out from the margins and 'into the mainstream'.

[9] The phrase "IPCC for biodiversity" refers to the intention that IPBES would serve a similar function as the Intergovernmental Panel on Climate Change (IPCC, est. 1988), which synthesizes knowledge regarding the science and impacts of climate change for its member governments. In this vision, IPBES would analogously synthesize knowledge regarding biodiversity and ecosystem services for its members.

interrelated set of organizational dynamics, representational practices, and political subjectivities co-produced with these efforts to more safely re-align a dangerously incongruent conservation. Through close analysis of NatCap and IPBES, I argue that the rise of ecosystem services is in large part constituted through such efforts. This process has important cross-scalar and trans-local dimensions. As I will discuss, the situational micro-politics of ecosystem services are implicated in much broader macro-institutional shifts in biodiversity conservation. However, I also stress that the "modernist crazy-quilt of logics" (Robertson 2006) being patched together through this process is hardly sewn up: its constitutive bricolage remains contested and, to a politically consequential degree, still subject to re-arrangement.

Of course, as scholars have shown, these kinds of hegemonic accommodations in conservation (i.e. its conjunctural 'fitting' to dominant logics) long precede the specific politics of ecosystem services. Indeed, contemporary re-alignments in conservation emerge from deep histories configured through shifting power relations, continuously re-shaping its forms and functions as an "organized political project" (MacDonald 2010b, 513). At different times and in varying combinations, conservation has adapted to and been implicated in broader political formations of colonialism, nationalism, science, environmentalism, "big D" development (Hart 2001, 2004), and, most recently, the forms of market rule characteristic of neoliberal capitalism (Fletcher, Dressler, and Buscher 2014; Igoe, Neves, and Brockington 2010; MacDonald 2010a, 2010b). In this "neoliberal" iteration of conservation (Buscher, Dressler, and Fletcher 2014), the rise of ecosystem services seems to read on multiple fronts as a characteristic if not archetypal deepening of neoliberalized environmental governance (Heynen et al. 2007). Its specific techniques of valuation as measured in monetary metrics, its nascent programs and interventions, its very vocabulary, all appear like unambiguous preludes to a radical advance in the "deeply problematic commodification of everything" (McCarthy and Prudham 2004, 276; Watts 1994) promising new privatizations, new exclusions, new inequities, new dispossessions, and an unprecedented expansion of market logics to every use-value nature has on offer (Corson, MacDonald, and Neimark 2013; Fairhead, Leach, and Scoones 2012; Heynen et al. 2007; Kelly 2011; Robertson 2012; Smith 2007; Sullivan 2013).

Yet, I contend that the concept of ecosystem services should not be understood only as a reflection of these hegemonic tendencies nor as a necessary appendage to capital and reinforcement of neoliberal market rule. By viewing the politics of ecosystem services from the intimate vantage of those tasked with actually carrying out the choral admonishment to "make nature's values visible" (TEEB 2017), the ostensibly clear-eyed and cyclopean economizing "vision" produced through ecosystem services quickly fragments. Indeed, situated among its practitioners, the kind of "visibility" I saw getting produced through ecosystem services seemed more akin to the swirling, multi-coloured transformations of a kaleidoscope, reflecting a variegated and ever-changing combination of purposes, cross-purposes, ambivalences, frictions and subversions, always in motion, revealing new complexities, sharper tensions, and perhaps more contingent political possibilities.[10]

Situated from this vantage, I develop three specific lines of argument, responding to each of the questions posed earlier: namely, (1) how ecosystem services gains traction, (2) what is at

[10] As I discuss later, the international expert group tasked with establishing IPBES's valuation approach not only acknowledged but seems to have formally institutionalized what they call a "kaleidoscopic view on values—intrinsic, instrumental, and relational— [that] permeates the ways we understand our relationship with nature" (Pascual et al. 2017).

stake in it, and (3) what it can reveal more broadly about contemporary conservation politics. I will briefly introduce these arguments here and elaborate on each of them later in this chapter.

In response to the first question, I provide a phenomenological account of the embodied knowledges[11] and lifeworlds of ecosystem services experts (Berk and Galvan 2009; Desjarlais and Jason Throop 2011) to apprehend everyday practices that comprise current "mainstreaming" efforts. Here, I analyze the distinctive ways that practitioners of ecosystem services operate across the fragmented organizational fields and inter-institutional contexts constitutive of biodiversity conservation while they enact (or at least attempt to enact) their understandings of 'social change'. I trace an important dialectical relation between the situated micro-social practices associated with ecosystem services mainstreaming work and the actuation of broader macro-structural shifts now widely visible in mainstream conservation—shifts which have increasingly entangled conservation with neoliberal rationalities, market logics, and hegemonic politics.

Second, I will compare varied claims for, against, or simply about ecosystem services in published commentary against the messy, practical realities I noted in my fieldwork. Viewed from this angle, I argue that different sets of concerns begin to take the foreground. These contrasts imply that what may be most immediately worrying about ecosystem services might not necessarily relate to commonly debated issues of commodification, marketization, and financialization per se (Robertson 2012; Smith 2007; Sullivan 2013), although these prospects do remain troubling.[12] Rather, I draw attention to the subject-producing (or intersubjective)[13] effects of ecosystem services for those who practice it: an internalized, disciplinary governmentality consolidating certain political norms, common-sense understandings of what is possible, and the boundaries of what is prudent, appropriate, and imaginable. By analyzing the prevailing theory of change expressed through ecosystem services, I highlight the institutionalization of a deeply "anti-political" orientation (Ferguson 1997) and an effectively acquiescent expert subjectivity among conservationists in relation to fundamental questions about the nature of power, political economy, and social struggle.

Third, I will stress that the kinds of politics that come to be expressed through ecosystem services remain, for now, politically contingent. In other words, and in contrast to more unequivocal characterizations of the concept, I argue that its entanglements with neoliberal rationalities and hegemonic politics are not (yet) irretrievable, nor are they automatic or pre-ordained. I show how ecosystem services has erupted into a site of epistemic and political struggle, revealing what I take to be a discernible degree of political malleability and points of contact for constructive engagement with critical scholarship. As Dempsey and Robertson (2012, 759) contend, ecosystem services represents an "internally conflicted and polyvalent project." Along these lines, I highlight repeated instances from my fieldwork where I observed prevailing, hegemonic expressions of ecosystem services being contested and re-negotiated by critically-

[11] In other words, "the ways in which political, social, economic, and discursive formations intersect with the operations and felt immediacies of bodies in […] sociocultural settings" (Desjarlais and Jason Throop 2011, 90).

[12] As Jessica Dempsey (2016, 10) likewise argues, what is at stake in ecosystem services is "not all about the 'tions' – privatization, commodification, financialization, and accumulation – at least not directly."

[13] I use the term "intersubjective" to denote the collective, mutually constitutive, and deeply relational quality of the processes of subject formation by which ecosystem services comes to internalize a particular form of disciplinary governmentality. As I elaborate later, these intersubjective dynamics internalize a broad acceptance in the expert subjects practicing ecosystem services of certain assumptions about the nature of power, social struggle, and political economy. Broadly, Desjarlais and Throop (2011, 88) define intersubjectivity as "the existential organization, recognition, and constitution of relations between subjects."

aligned practitioners, subaltern voices, and heterodox experts. As I will discuss, their experiences signal the prospect of appropriating certain elements of its framework—its tools, practices, and knowledges—into potentially non-neoliberal applications, counter-hegemonic politics, and yet-to-be-forged political-ecological projects.

In the following three sections, I will begin to conceptualize ecosystem services as an inherently slippery and contested construct, establish the theoretical framework guiding my analysis, and provide brief background to contextualize the rise of ecosystem services. Next, I will elaborate on each of the three lines of analysis identified above. Finally, I will discuss the methodological approach that guided this dissertation and address questions of researcher positionality, before concluding this chapter, where I will provide brief descriptions of each of the chapters of this dissertation.

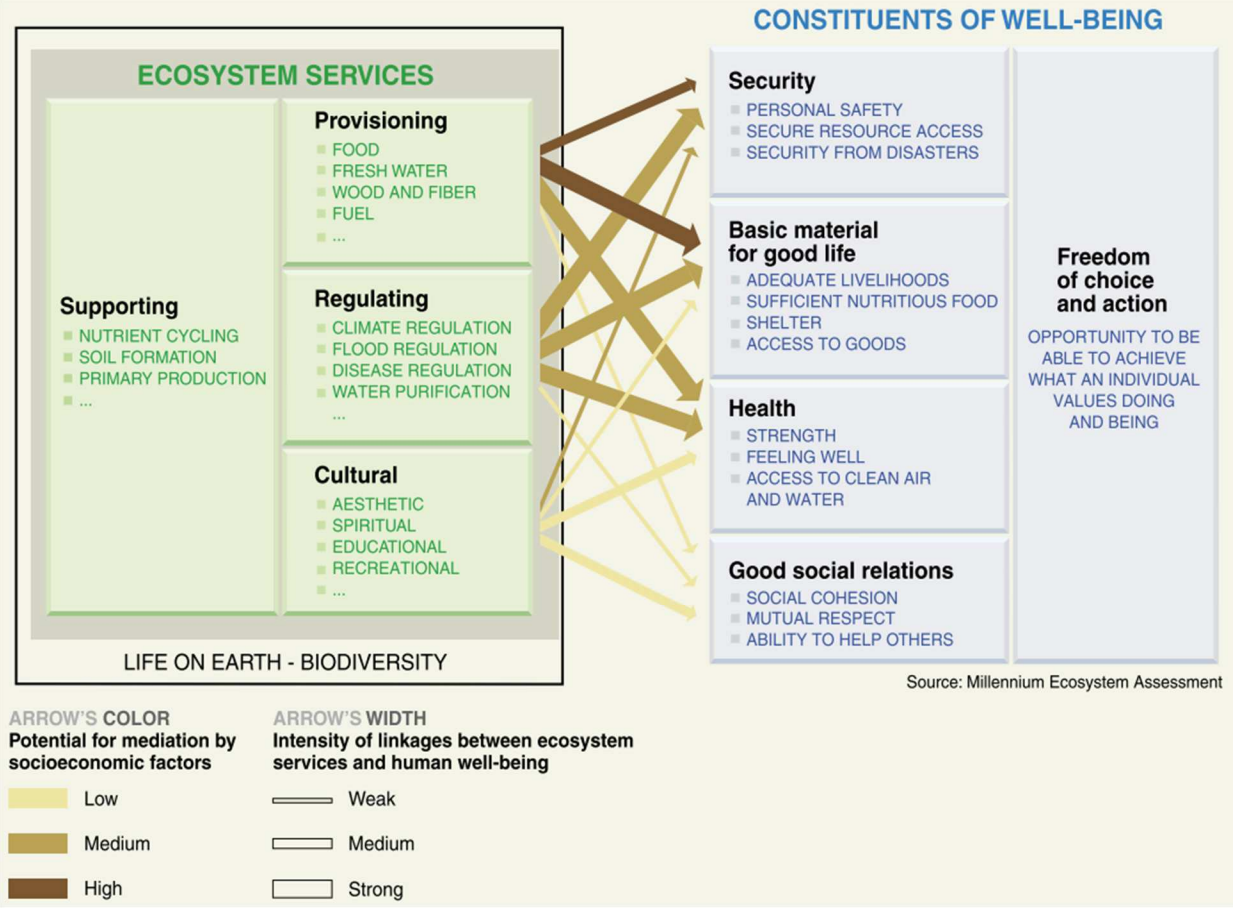

Figure 1 - The widely reproduced diagram introducing the conceptual framework and four-category classification for ecosystem services formulated during the Millennium Ecosystem Assessment process (MA 2005). The diagram connects different types of ecosystem services with different constituents of well-being. As discussed in Chapter 6, this diagram has been heavily critiqued for its simplicity, omissions, and conceptualization of its categories.[14]

[14] Remarking on this now "famous/infamous" diagram, one prominent scholar of ecosystem services who was subsequently involved in the formulation of the IPBES conceptual framework (Díaz, Demissew, Carabias, et al. 2015; discussed further in Chapter 6) quipped that it "has been viewed millions of times; it is shown at least once in almost every meeting or session on ecosystem services, and by now these are occurring several times a day

WHAT *ARE* ECOSYSTEM SERVICES?

In some ways, explaining what ecosystem services are can be a fairly straightforward task. The Millennium Ecosystem Assessment (MA 2005, v), for instance—a foundational set of reports authored by over 1,300 experts from around the world—defined ecosystem services simply as "the benefits people obtain from ecosystems," sorting them into what became a classic four-category classification: (i) *provisioning services* such as food, freshwater, and timber, (ii) *regulating services* such as climate, flood, and disease attenuation, (iii) *supporting services* such as nutrient cycling, primary productivity, and soil formation, and (iv) *cultural services* such as educational, aesthetic or spiritual fulfilment (see Figure 1; discussed further in Chapter 5). While typologies for ecosystem services vary,[15] they each express a particular way of making sense of human/non-human relationships: a means of systematizing and measuring the many benefits that people derive from nature. They express a strategy for making nature into something valuable, widely recognizable to society, and worthy of investment by the state and finance.[16]

As I will explain, despite these readily available definitions, really pinning down what ecosystem services means, what it does, and what it is ultimately 'about' remains elusive both to analysts and practitioners. Indeed, that is partly the point. This polyvocality of the notion, together with the representations constituted through it (see Chapter 2), is what underpins its political deployments. I consider this slipperiness to be a core feature of what ecosystem services is, how it is practiced, and the manner in which it has come to be embraced in environmental politics. The idea of ecosystem services has long since overflowed its use as a metaphor for emphasizing nature's importance to people (Norgaard 2010b) and has burgeoned into "a major site of interdisciplinary knowledge production and a contested vehicle for policy application" (Tadaki et al. 2015). The neologism now refers simultaneously to a concept, a corresponding set of analytical tools, a range of specific knowledge practices for deploying those tools, a community of practice with expertise in those deployments, an assortment of concrete applications enrolling that expertise, a kind of logic that prescribes those applications, a political movement that actively attaches those applications to specific causes, and, of course, any number of specific 'beneficial' ecosystem functions themselves (i.e., drinking water, pollination, storm protection, and so on). Each step along this convoluted chain of ideas, practices, practitioners, applications, logics, political causes, and "socio-natures" (Peluso 2012) is itself heterogeneous, variably understood, and contested (Dempsey and Robertson 2012; Kull, Arnauld de Sartre, and Castro-Larrañaga 2015). Any attempt to explain what ecosystem services 'means' must therefore begin with the premise that it is not only situationally but simultaneously many different things—and, of course, it depends on whom you ask.

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somewhere in the world. If I had a dime for every time it was shown, I'd be rich. And I'd gladly spend a chunk of those riches to get these people to stop showing this figure and to show a different one instead" (Chan 2013).

[15] While typologies vary in their level of elaboration, they typically build on (or respond to) the influential definitions offered by Daily (1997), the MA (2005), and TEEB (2010). The Economics of Ecosystems and Biodiversity (TEEB) project—one of the more prominent of a host of successor initiatives created to continue advancing the MA's work, including NatCap and IPBES—defines ecosystem services as "the direct and indirect contributions of ecosystems to human wellbeing" (TEEB 2010, 33). Gretchen Daily's (1997, 3) seminal volume, *Nature's Services: Societal Dependence on Natural Ecosystems*, widely credited alongside Costanza's (1997) infamous $33 trillion as establishing the field of ecosystem services, defines them as "the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life."

[16] Sentences 2-3 are excerpted from Suarez and Dempsey (forthcoming).

Accordingly, as Sian Sullivan (2017b, 404) writes, the constructs of natural capital and ecosystem services do not "exist in any simple, objective form" but are "conjured into being through diverse practices of conceiving, measuring and valuing the so-called natural world," producing "increasingly fetishized 'objects' in the world, charged technically (through calculation) and socially (through institutionalized expert agreement) with authoritative, objective power." Other authors propose alternative conceptualizations, and each is similarly expansive to accommodate the many permutations this chimeric construct can assume in its various purposes, forms, and effects. For instance, drawing on Foucault (1980), Dempsey characterizes sprawling, socio-technical networks that have enmeshed ecosystem services in an "apparatus" encompassing "people, institutions, capital flows, ideas, regulations, science, valuation methodologies, computer models, and databases" (Dempsey 2016, 17). This analytical expansiveness[17] appropriately captures the expansiveness of ecosystem services itself and its kaleidoscopic material and symbolic entanglements. That this analytic portrays only provisionally stable coherences, depicting such formations as heterogeneous, riven with tensions, and susceptible to contestation seems also to appreciate the refracting multiplication of visions ecosystem services has come to represent (Braun 2014; Legg 2011). And, as Foucault (1980, 195) argued, apparatuses *do* have coherences, structured around "an urgent need" at "a given historical moment." Notwithstanding its heterogeneity, the particular "urgency" that has provided such a potent impetus to biodiversity conservation—its central organizing logic (or "dominant strategic function") around which the relationships in its apparatus take shape—is fairly recognizable (Ibid).

Along similar lines, MacDonald and Corson (2012, 164) draw on Michel Callon's (2005, 2007) conceptualization of an *agencement* to describe the "virtualism" by which complex assemblages of sites, actors and agencies come to socio-technically actualize the notion of natural capital. Here, they characterize a "heterogeneous ensemble of actors 'made up of human bodies but also of prostheses, tools, equipment, technical devices, algorithms, etc.'" (MacDonald and Corson 2012, 165, quoting Callon 2005). They especially foreground how these elements combine through situated performances across "multiple moments in the dynamic construction of *agencement*," which underscores how its capacity for coherence "is the outcome of a long process of accumulation, weaving of alliances and relations, from micro-positions constructed first as little gaps or differences lodged in the interstices of existing configurations'" (MacDonald and Corson 2012, 166, quoting Callon 2005). Of particular relevance here is their focus on understanding how these dynamics shape "the terrain upon which resistance happens," where "alliances and relations must be produced from within the messiness and contradictions of everyday life" (Ibid, 165), thereby constituting an "ongoing process of reproduction grounded in conditions of contestation, where directionality emerges from the configuration of power relations and agency continually in the making" (Ibid 164). These analytical frameworks, while varying in their emphases, converge around a portrayal of a slippery, symbolically expansive, and shape-shifting construct defined by its contested composition and polyvocal articulations.

Advocates of ecosystem services likewise envision, and interpolate, a variety of different purposes in the notion. For its supporters, the idea of ecosystem services promises new arguments (e.g. the 'business case for nature', in contrast to ethical appeals), new allies (e.g. powerful constituencies amenable to market discourse), new resources (e.g. public and private conservation

[17] Giorgio Agamben (2009, 13–14), for instance, characterizes the apparatus as "literally anything that has in some way the capacity to capture, orient, determine, intercept, model, control, or secure the gestures, behaviours, opinions, or discourses of living beings."

finance streams enabled by ecosystem services arrangements), and a powerful overarching framework for aligning conservation with the multiple, competing priorities of sustainable development. By translating what nature does into economic language, proponents of ecosystem services endeavor to make previously 'invisible', taken-for-granted environmental costs and benefits related to major societal decisions finally 'visible' (TEEB 2010). In the absence of such values, they suggest, nature is implicitly assigned one by default: zero. Thus, properly accounting for nature—in other words, bringing biodiversity into the fold of decision-making realms typically dominated by narrow economic considerations—requires that nature, too, be made economically legible and considered worthwhile in commensurable terms. According to this reasoning, such commensurability allows decision-makers to more accurately parse 'trade-offs' between different land-use choices: a standing mangrove forest, for example, provides greater quantified ecosystem service benefits as a fish nursery and through flood protection when compared with the short-term revenues and environmental costs associated with building a shrimp farm over it.[18]

While proponents of ecosystem services express a variety of aspirations for the concept, they typically highlight some combination of three main functions performed by ecosystem services valuation (Braat and de Groot 2012; Suarez and Corson 2013; TEEB 2010):

(a) *Recognizing* value, thereby legitimating and strengthening rationales for protecting nature;

(b) *Demonstrating* value, to provide specific estimates for supporting rational decision-making frameworks such as cost-benefit analysis; and

(c) *Capturing* value, by operationalizing new policy instruments, institutional arrangements, and mechanisms for managing ecosystem services such as PES programs.[19]

These categories each contain other important distinctions. For instance, 'recognizing' value may variously correspond with intrinsic, instrumental, or relational ethical underpinnings (Chan et al. 2016). Similarly, 'demonstrating' value might entail monetary or non-monetary calculations in analyses (Hejnowicz and Rudd 2017). And, in the context of 'capturing' value, there is now a broad assortment of policy proposals that incorporate ecosystem services valuations (Guerry et al. 2015), wherein heated debates continue over distinctions between market, non-market, and an array of hybrid logics, particularly in the context of payment for ecosystem services (PES) programs (Gómez-Baggethun and Muradian 2015; Pirard 2012; discussed later in this chapter).[20]

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[18] This paragraph is excerpted from Suarez and Dempsey (forthcoming)

[19] Ecosystem services may also be amenable to a similar schematization to that developed by (Holt Giménez and Shattuck 2011) in analyzing the politics of the global food system, distinguishing between *food enterprise, food security, food justice,* and *food sovereignty* discourses, each with characteristic actors, key documents, and sets of political claims. In turn, their analysis identifies discernible political orientations in each of these discourses, and in the corresponding coalitions of interests, actors, institutions and ideas constituting them, toward the dominant discursive, institutional, and political-economic order (i.e. more or less supportive / hostile).[19] While schematic typologies of this nature are limited, its specific parsing of *neoliberal*, *reformist, progressive,* and *radical* politics, escalating from less to more opposed to the preserving or replacing a hegemonic status quo (or inversely, escalating from less to more of a focus on pursuing more transformative, structural change to that hegemonic status quo). In similar terms, ecosystem services seems to display marked divergences along these lines, which I parse throughout the following chapters.

[20] Sentence 1 is excerpted from Suarez and Dempsey (forthcoming).

These distinctions between 'recognizing', 'demonstrating', and 'capturing' values are important to consider when trying to parse how different constituencies—variously supportive, critical, or equivocal—differentially position themselves in relation to what ecosystem services is purported to 'do'. For example, many environmental activists I spoke with were amenable to 'recognizing' ecosystem services in rhetorical and metaphorical terms (i.e. recognizing value) but ambivalent and sometimes hostile to economically quantifying these values (i.e. demonstrating values). In turn, virtually all of the ecosystem services scientists I met were comfortable both with recognizing and demonstrating ecosystem service values in quantitative terms (with some tensions surrounding monetary versus non-monetary metrics), but they were hesitant about varying proposals for actually managing those values and especially regarding the appropriateness of market-based instruments (i.e. capturing values). And then, of course, many proponents of ecosystem services seek to promote and selectively enact various combinations of these functions in their work. Attending to these distinctions accentuates a policy discourse riven with ideological tensions as its various interlocutors contest what the concept means and what it is supposed to do (and not do). Accordingly, I observed ecosystem services taking on many different forms (in practices, institutional arrangements, and political registers) depending on the specific 'wielder', the context, and mode of deployment (i.e. recognizing, demonstrating, capturing).

I will discuss a correspondingly varied range of critiques of ecosystem services throughout later chapters and more directly in the conclusion. To abbreviate, the economistic nature of ecosystem services—along with its conspicuously market-oriented applications—has provoked tremendous debate among conservationists and academics. Critics have introduced a diverse broadside of methodological, ethical, strategic, and political concerns regarding the concept. They perceive ecosystem services as a dangerously narrow re-conceptualization of the aims of biodiversity conservation (O'Neill 2007; Sullivan 2017a, 2017b; Turnhout et al. 2013). The theoretical underpinnings of ecosystem services, they argue, fail to adequately address difficult-to-quantify complexities and non-market values in biodiversity (Norgaard 2010b), which, as one (in)famous critique argued, "is to imply—intentionally or otherwise—that nature is only worth conserving when it can be made profitable" (McCauley 2006, 27). The idea, these critics contend, brushes aside intrinsic values, ethical duties, and the sense of aesthetic or spiritual connection to living things historically ingrained in conservation's ideals (Goble 2007).[21]

In broader political terms, as I will discuss throughout this dissertation, critics point to the colonizing conceit of the notion, adding it to a longer list of concepts that Westerners and elites have tried to apply to cultures and communities who have their own ways of understanding human-nonhuman relations and practicing land and water management (e.g. Sullivan 2009). The political-economic implications of ecosystem services have been subject to especially intense criticism from analysts and activists who disparage the concept as complicit with the commodification of nature and ongoing neoliberalization of environmental governance (e.g. Heynen et al. 2007). From such a perspective, ecosystem services seem not only somewhat but quintessentially neoliberal: preoccupied with extending economistic, market-mediated relations to any and all aspects of nature. In this way, critics emphasize how ecosystem services both reflects and serves to reinforce the continuing subordination of conservation to a hegemonic discursive and political economic order. Thus, conservationists are now compelled to speak in economic language, think in market categories, and create arrangements that either do not challenge or outright perform capitalist imperatives—arguably, the very processes implicated in driving environmental degradation and

[21] This paragraph is adapted from Suarez & Dempsey (forthcoming).

biodiversity loss. It represents, these critics, suggest, a "prelude to the greatest privatization since enclosure" (Monbiot 2012): a gesture that amounts to "ceding the natural world to the forces wrecking it" and a "neoliberal road to ruin" that will exacerbate social inequalities, result in further dispossession and marginalization, and accelerate environmental degradation (Monbiot 2014).[22]

Thus, the rise of ecosystem services has come to represent many different things, variously auspicious and ominous. In this respect, ecosystem services represents a kind of chimera: a shifting, hybrid reflection of the specific activity of the various actors envisioning it, interpreting it, developing it, using it, instituting it, responding to it, and contesting it. As I will argue, its meaning remains subject to continuing re-negotiation, its forms and functions contingent "on the hands through which the concept and policies pass" (Dempsey and Robertson 2012, 760).[23]

THE RISE OF ECOSYSTEM SERVICES

As introduced earlier, the notion of ecosystem services has increasingly come to structure the ways that academics but also activists, policy-makers, administrators, and a widening range of other actors think about and pursue biodiversity conservation. Traces of this shift are now ubiquitous and take a range of forms. One of the more striking facets of its rise to prominence has been the prolific scientific research output generated around it, which has grown exponentially (see Figure 2). In turn, the political implications of the idea itself—what it represents, what it 'does', and where it leads—have provoked a proportionately wide-ranging set of literatures (critical and otherwise).

[22] Sentences 1-5 are excerpted, with minor modifications, from Suarez & Dempsey (forthcoming).
[23] This paragraph is excerpted from Suarez & Dempsey (forthcoming)

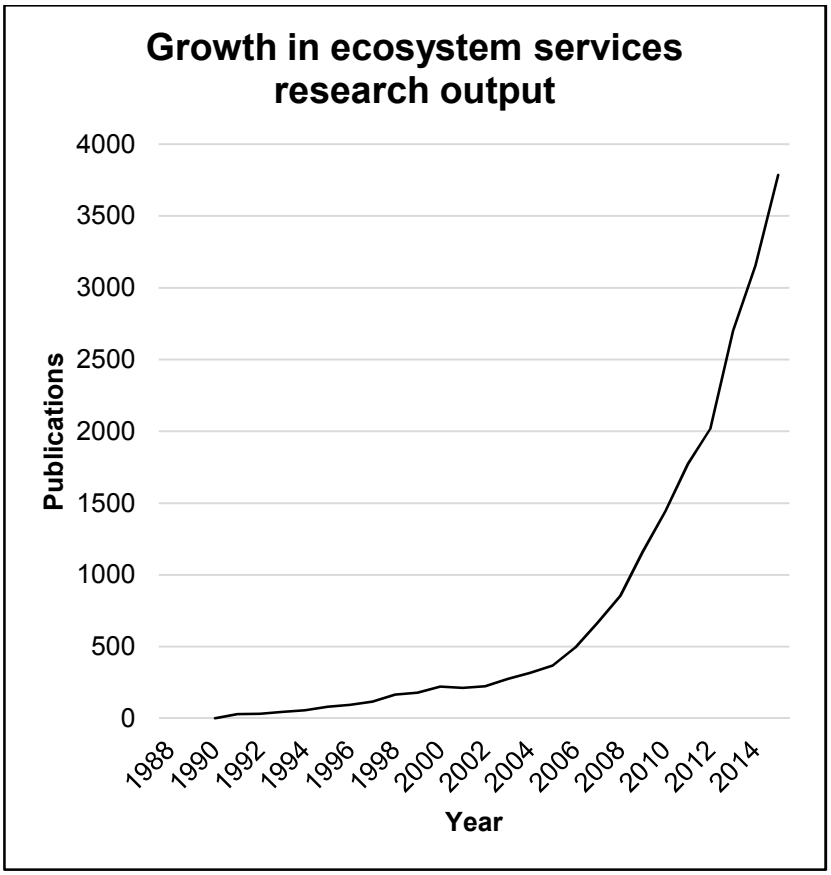

Figure 2 - Graph showing yearly record counts of publications catalogued in Web of Science using the topics 'ecosystem services' or 'ecological services'. Research output dates back to 1977, increases in the 1990s, and accelerates after 2005, the year the Millennium Ecosystem Assessment (MA 2005) was completed (Suarez & Dempsey forthcoming)

How did this way of thinking about and pursuing conservation achieve such widespread currency amongst disparate communities of environmental practitioners? And how, as Morgan Robertson (2012, 2) prompts us to ask, "did we come to live in a world that is now widely seen, by policymakers at least, to be composed of ecosystem services?" Understanding the curve of the graph shown in Figure 2, which charts the rise of ecosystem services, must begin by situating the concept in its wider historical, cultural, and political-economic context. By now, the intellectual origins and political genealogies of ecosystem services are well-rehearsed (Braat and Groot 2012; Dempsey 2016; Dempsey and Robertson 2012; Gomez-Baggethun et al. 2010; Kull, Arnauld de Sartre, and Castro-Larrañaga 2015; Meral 2015).[24] Drawing on earlier work published with

[24] In the simplest terms, throughout the 1980s and 1990s, governments, particularly in the United States and United Kingdom, began a dramatic and well-documented shift toward markets as preferred mechanisms for addressing a wide range of governance questions including in the domains of environmental policy and management. During this period, the United States innovated market-based pollution trading to address acid rain, developed wetland banking to offset environmental impacts from development, and, most famously, advocated for the inclusion of carbon markets in the 1997 Kyoto Protocol as a means of pursuing emissions reductions. The turn to ecosystem services emerges from and contributes to this broader and increasingly market-oriented trajectory. Simultaneously, academics working in the fields of environmental and later ecological economics came into contact and began to collaborate with ecologists, conservation biologists, and other life scientists. Among other locales where these

Catherine Corson and conducted through the methodological framework of collaborative event ethnography[25] (Campbell et al. 2014; Corson, Campbell, and MacDonald 2014), in this section I will provide some brief background to contextualize the chapters that follow (Suarez and Corson 2013).[26]

Most narratives of ecosystem services (including this one) begin with an acknowledgment of deepening ecological crises (GBO-4 2014; WWF 2016) and a growing sense among practitioners that traditional conservation approaches have failed to stop them (Kareiva, Lalasz, and Marvier 2012). The escalation of these urgencies, the political ascendance of neoliberalism, and longer intellectual genealogies connecting scholarship in environmental and ecological economics, ecology, conservation biology, and other life sciences (see footnote), all served as important antecedents in the decades leading up to the contemporary turn toward ecosystem services as the lynchpin of a new "scientific-political strategy" for re-asserting the viability of biodiversity conservation (Dempsey 2016, 10; Gomez-Baggethun et al. 2010).

I address the findings presented in following chapters to ongoing debates in human geography, political ecology, and cognate fields of critical scholarship theorizing the proliferating manifestations of contemporary environmental change produced under neoliberal rule (Heynen et al. 2007). Scholars working in these traditions have analyzed the emergence of numerous forms, and variegated effects, of neoliberal environmental governance, typically encompassing (among other elements) the privatization of natural resources, the weakening of state environmental regulations, and the extension of market logics across varied spheres of environmental management. In various ways, in various places, and notwithstanding invariably complex, situated politics, environmental policies have during this period been not only systematically neutralized as hindrances to the imperatives of capital but increasingly re-purposed to facilitate its accumulation. Along these lines, and arguably at the front of the pack, has been the consolidation of a pronounced market orientation in mainstream biodiversity conservation (Büscher et al. 2012; Fletcher, Dressler, and Buscher 2014; Holmes 2011; Igoe, Neves, and Brockington 2010; MacDonald 2010b). Within this tradition, my research joins a growing scholarship focusing on ecosystem services specifically (for a few illustrative examples see Robertson 2006; Sullivan 2017; Sullivan 2013; Sullivan 2009; Dempsey & Robertson 2012; Dempsey 2016; MacDonald & Corson 2012; Shapiro-Garza 2013; McAfee 2012).

Broadly, this dissertation interprets the increasing influence of ecosystem services amongst conservationists as an outcome of deliberate efforts to maintain conservation as a priority amidst wider discursive, institutional, and political-economic shifts in its surrounding political landscape. These shifts have involved the formation of a global governance regime increasingly structured by

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relationships were forged, scholars have identified Stanford University (where NatCap is situated), the Beijer Institute and Resilience Alliance in Stockholm, and the University of Florida (a center in systems ecology) as crucial nodes during this period (Dempsey 2016; Gomez-Baggethun et al. 2010; Kull, Arnauld de Sartre, and Castro-Larrañaga 2015).

[25] Collaborative event ethnography (CEE) relies on collaboration in coordinating field‐work, collecting and analysing data, and thinking through meaning. This paper reflects the efforts of the larger team working on site in Nagoya, Japan, at CBD/CoP10. The CBD/CoP10 CEE team included: project leaders J. Peter Brosius, Lisa M. Campbell, Noella J. Gray, and Kenneth I. MacDonald, and researchers Maggie Bourque, Catherine Corson, Juan Luis Dammert, Eial Dujovny, Shannon Hagerman, Sarah Hitchner, Shannon Greenberg, Rebecca Gruby, Edward M. Maclin, Kimberly R. Marion Suiseeya, Deborah Scott, Daniel Suarez, and Rebecca Witter. The research was supported by the US National Science Foundation (Award Nos. 1027194 and 1027201).

[26] Sentences 1-2 are excerpted from Suarez and Corson (2013, 66)

neoliberal rationalities and organized around market logics which "predicate environmental protection on the promotion and maintenance of a liberal economic and political order" (Bernstein 2000, 465; as quoted in Suarez and Corson 2013, 67). Summarizing this dynamic, Ken MacDonald (2010b, 521) argues, "[u]nder the structuring influence of an 'external' environment increasingly governed by the global institutionalization of neoliberalism, organizations that had sought to extend their spatial reach readily adjusted their operating practice and organizational structure to better align with this shifting institutional context." Within this dynamic, "ecosystem services can be understood as a political project that defuses antagonisms between competing logics, agendas, and constituencies engaged in biodiversity conservation politics" (Suarez and Corson 2013, 67). It provides an operational means by which conservationists can respond to these broader discursive, institutional, and political-economic re-alignments: a versatile set of practices through which these shifts are 'taken aboard' and come to be reflected in the forms and functions of conservation.[27]

While an emergent literature has begun to analyze specific organizational configurations wherein ecosystem services concepts have started to manifest, particularly with respect to PES programs, I opt for a more expansive approach to accommodate its shape-shifting, chimeric permutations, where "the mutability and hybridity of neoliberalism is on full display" (Dempsey and Robertson 2012, 13). The first step in expanding on the Millennium Ecosystem Assessment's four-category classification (see Figure 1) is to recognize ecosystem services as a "discourse" insofar as it is expresses not just a descriptive language for beneficial ecological functions but a shared way of apprehending the world: a lens through which to make sense of what nature is and what it is 'for', enabling certain kinds of accounts, relationships, agreements and disagreements, while setting the bounds of what is prudent, appropriate, and imaginable (Dryzek 2005; Epstein 2008; Hajer 1995; Hilgartner 2009). As a *policy* discourse, ecosystem services represents an "organized assemblage of concepts, categories, narratives, metaphors, and frames" which specifically "gives structure to an arena of policymaking" (Hilgartner 2009, 201). Comprising more than simply ideas, policy discourses "define problems, frame tensions and choices, and create orientations toward the world that, as the discourse grows successful, become embodied in institutional structures, legal doctrine, analytical techniques, informal norms, and standard operating procedures" (Ibid).[28]

Hajer (1995) stresses the importance of what he calls "discourse coalitions" in constructing, sustaining, and mobilizing discourses. These discourse coalitions, he argues, unite around and derive their political power from 'story-lines' that constituent actors can draw on and deploy as they engage in environmental politics, even as they maintain different interpretations of the meaning of these story-lines. As explained over subsequent chapters, when effectively wielded, ecosystem services can come to represent 'all things to all people'. As such, the framework has served as a strong basis for a growing discourse coalition, legitimating the involvement of a diversifying constituency in conservation and enabling practitioners to weave together a widening variety of institutional logics, practices, and structures. In this context, later chapters will illustrate how the representations constituted through ecosystem services are situationally deployed by "institutional bricoleurs" to effect this purpose (Christiansen and Lounsbury 2013). Here, ecosystem services provides a means of creatively syncretizing different institutional elements in

[27] Sentence 1 is adapted from Suarez and Corson (2013, 67)
[28] Sentences 2-4 are adapted from Suarez and Corson (2013, 68)

order to cobble together new solutions, coalitions, and modifications to existing arrangements (Berk and Galvan 2009).[29]

Dryzek (2005, 5) notes how discourses are suffused with political power and "can themselves embody power in the way they condition the perceptions and values of those subject to them." I draw on Gramsci's (1971) formulation of hegemony as constituted by the consent of subordinate groups alongside coercion by dominant groups to interpret how ecosystem services comes to be implicated in the reproduction of asymmetric power relations and in the stabilization of what Sklair (2001) has referred to as a "sustainable development historic bloc." In this context, the functioning of ecosystem services can be interpreted through Igoe et al.'s (2010) application of Gramsci's analytics to conservation, which traces how particular ideologies and agendas can become predominate over messy political realities characterized by diverse interests and competing values. This analytical tack specifically draws into focus how hegemony is sustained less through coercive force and more through the manufacture of consent. The belief that conservation must re-articulate its interests, recompose its institutions, and subsume its project into those of other more powerful and specifically neoliberal, capitalist agendas becomes hegemonic when it becomes so ubiquitous that it assumes "the appearance of being the only feasible view of how best to pursue and implement conservation goals" (Igoe 2010, 19). However, as reiterated in subsequent chapters, this requires work. As Stuart Hall (1986, 15) has stressed, "there is nothing automatic" about hegemony: it must be "actively constructed and positively maintained."[30]

As practitioners of ecosystem services readily acknowledge, the concept functions as a kind of brokering language for reconciling different actors, interests, and understandings in biodiversity conservation. As discussed in Chapter 2, ecosystem services functions as a "boundary object" (Star and Griesemer 1989) whose power derives from its capacity to translate between and thereby bring together divergent political projects. By rendering, say, a tropical forest economically legible in terms of the ecosystem services it delivers, practitioners begin to "commensurate" (Espeland and Stevens 1998) what that forest is, what it means, and what it does according to one principal and mutually intelligible logic. Indeed, at the second plenary meeting of IPBES in Antalya, Turkey, I noted that the banner metaphor used to frame ecosystem services was the Rosetta Stone (Díaz, Demissew, Joly, et al. 2015), connoting the promise of translation and coherence: the transcendence of cacophony. This purpose somewhat contrasts with (and continues in parallel to) the more longstanding trope of money growing on trees attendant to other metaphorical invocations of natural capital and ecosystem services.

In this way, ecosystem services offers its proponents a framework for bringing biodiversity conservation into alignment with powerful constituencies associated with international development, neoliberalism, economic growth, scientific rationality, law and public policy formation, social justice, and a potentially indefinite series of further political interests, epistemic domains, and institutional logics. This is one of the chief powers of ecosystem services highlighted throughout this dissertation. The concept shapes nature—and conservation—to 'fit' a wide array of previously incongruent sensibilities, appearing differently to the biologist seeking greater scientific reason in conservation policy; to the entrepreneur seeking to profit from new ecosystem carbon markets; to the ministry bureaucrat seeking to conform her national park system to core economic priorities; to the environmental activist seeking recognition from each of these other

[29] Sentences 1-2 are excerpted and sentences 3-4 are adapted from Suarez and Corson (2013, 68)
[30] Sentences 1 and 3-5 are excerpted from Suarez and Corson (2013, 68)

conservation actors; and to an increasing diversity of other political actors gazing into it and requiring of it different things. Through skillful deployments of ecosystem services, nature can, in turn, be transmuted into the image of each and every one of these things—tailor-made to take on multiple guises, situationally and simultaneously.[31]

Ecosystem services offers its practitioners an ostensible means of weaving these disparate 'threads'—these distinct political projects, logics, and institutional and ideological formations—together into a shared framework for making sense of nature: the appearance of a world "composed of ecosystem services" (Robertson 2012, 2). This fundamental looseness of the concept—its amorphously broad-based appeal and its capacity both to accommodate and translate among the different logics and interests underlying various constituencies in biodiversity conservation—is essential to its rise as a discourse. To its proponents, ecosystem services offers a strategy of political envelopment, ostensibly neutralizing contradictions between conservation and its surrounding logics by absorbing all of them into conservation.[32]

Thus, through ecosystem services, its practitioners transmute nature into natural capital through a range of translational practices (analyzed in later chapters) that produce mutually intelligible boundary objects that are sensible between historically incongruent logics, thereby aligning different social worlds while simultaneously maintaining divergent meanings within each (Star and Griesemer 1989). Robertson (2006, 369) has described the discursive work required to sustain ecosystem services as "a contingent process of constructing a modernist crazy quilt of logics that, when sutured together, ostensibly provides panoptic knowledge." However, as Robertson emphasizes, this crazy quilt of logics can come apart at the seams. Its reproduction depends on the concerted efforts of ecosystem services proponents to maneuver and marshal transnational policy networks to quilt diverse actors, logics, interests, and resources into the discourse coalition's expanding patchwork (Ibid). Sewing furiously at Robertson's "crazy quilt of logics" are the practitioners of ecosystem services whose work I illustrate in the following chapters. This dissertation shows the very specific and often painstaking kinds of work that this quilting requires to bring together these divergent understandings of and interests in biodiversity conservation.[33]

THE CRAZY QUILT

Stitching together this quilt entails the circulation of particular forms of knowledge, the institutionalization of associated programs and funding, and the aligning of key actors at pivotal historical moments—moments often constituted by international meetings, the formation of key partnerships or alliances, or by the release of major reports. The rise of ecosystem services is marked by a number of such events. While the term ecosystem services predates its current popularity by some decades at least (Ehrlich and Mooney 1983; Fisher and Krutilla 1975; Westman 1977), its modern incarnation began to gain momentum toward the late 1990s. Ruhl and Salzman (2007) point specifically to the publication of three influential and extremely widely cited texts: Costanza's infamous monetary appraisal of planetary ecosystems; a seminal twenty-one chapter volume on ecosystem services edited by NatCap co-founder Gretchen Daily (which I discuss in Chapter 4); and the PES "creation myth"[34] of New York City's Catskills watershed

[31] Sentences 1-2 are adapted from Suarez and Corson (2013, 74)
[32] This paragraph is adapted from Suarez and Corson (2013, 74)
[33] Sentences 1-5 include excerpts from Suarez and Corson (2013, 67)
[34] Ruhl and Salzman (2007, 160) note that "[t]his example has since become somewhat of a creation myth, certainly the best-known and oft-repeated case for the merits and commercial promise of paying ecosystem services"

(Chichilnisky and Heal 1998; Costanza et al. 1997; Daily 1997). These texts were published concurrently with the launch of Costa Rica's famed and much-lauded national PES program (Fletcher and Breitling 2012).[35]

Another key publication was the Millennium Ecosystem Assessment (MA), conducted from 2001-2005, which mobilized over 1,300 expert contributors from 95 countries and adopted as its main focus "the linkages between ecosystems and human well-being and, in particular, ecosystem services" (Millennium Ecosystem Assessment 2005, v). Coordinated by the United Nations Environment Programme (UNEP) and modeled after the Intergovernmental Panel on Climate Change (IPCC), the MA is now widely acknowledged as having been the critical, defining moment in the establishment of ecosystem services as a full-fledged field of research and practice (see Chapter 5). It was funded by the UN Foundation, Packard Foundation, and the World Bank and tasked with assessing global trends, past changes, and projected futures changes (under different scenarios) in biodiversity and ecosystem services, with an emphasis on their implications for human wellbeing. The reports found that 60% of ecosystem services were being used unsustainably, that the loss of ecosystems services disproportionately impacted the poor, that there was an increasing likelihood of nonlinear (i.e. accelerating, abrupt, and potentially irreversible) ecological change.[36]

As discussed in Chapter 5, over its four years the MA also served as a critical site where careers were built (on ecosystem services), important collaborations and personal relationships were formed (around ecosystem services), new professional identities were constituted (researching ecosystem services), and a nascent epistemic community was shaped (promoting ecosystem services) among the MA's globally dispersed team of international experts. Personnel from both NatCap and IPBES described their organizations as direct legacies of the MA, with several of their leadership and co-founders playing leading roles throughout that process. The MA served as a template on which later efforts like IPBES and The Economics of Biodiversity and Ecosystems (TEEB) could continue to build, both conceptually and organizationally.

As a counterpart to IPBES, and as another leading player in the field of ecosystem services, the formation of TEEB also merits some attention. TEEB had been pitched as a kind of "Stern Review" for biodiversity, doing for nature what Stern (2006) had ostensibly done for climate change: capture international attention about a looming and potentially existential socio-natural crisis by translating it into economic terms, ostensibly prompting decision-makers to finally act on the issue. The initiative was initiated in 2007 by the Ministers of Environment from the G8+5 countries to "analyze the economic benefits of biological diversity, the costs of the loss of biodiversity, and the failure to take protective measures versus the costs of effective conservation" (TEEB 2010, 3). Following the example of the Millennium Ecosystem Assessment and working in parallel (and in overlap) to the negotiations leading up to the establishment of IPBES, TEEB mobilized over 500 expert contributors to its cause before releasing its highly-anticipated final report in 2010 at a meeting of the Convention on Biological Diversity (see Suarez & Corson 2013; MacDonald & Corson 2012).[37]

Each of these crystallizing moments brought together transnational networks of practitioners— from green accountants and entrepreneurs, to environmental activists, politicians,

[35] Sentences 1-2 are excerpted from Suarez and Corson (2013, 67)
[36] Sentence 1 is excerpted from Suarez and Corson (2013, 67).
[37] Sentences 5-6 are adapted from Suarez and Corson (2013, 67)

conservation biologists, and bureaucratic elites—who discussed, refined, and institutionalized the idea of ecosystem services into forms and mechanisms encompassing international treaties, national policies, academic textbooks, commissioned reports, and commercial media. Over time, these networks have expanded their reach and influence in their efforts to embed biodiversity, through ecosystem services, in broader policy discourses and myriad governance processes.[38]

At this point, the concept has manifested around the world in a range of organizational forms including PES programs (Muradian et al. 2013; Pirard and Lapeyre 2014; Wunder 2005, 2015); natural capital accounting standards (e.g. the UN's recently-revised System for Environmental-Economic Accounting, SEEA); new private sector coalitions (e.g. the business-led Natural Capital Protocol and finance-led Natural Capital Declaration); new academic journals (e.g. "Ecosystem Services," inaugurated in 2012); and a proliferation of new research initiatives and communities of practice (e.g. the Natural Capital Project, Ecosystem Services Partnership, ecoSERVICES, ValuES, OpenNESS,[39] OPERAs,[40] Invaluable, Katoomba Group, DIVERSITAS, Ecosystem Marketplace, etc.). The concept is now firmly rooted in global biodiversity research agendas and networks; among national and sub-national state environmental bureaucracies in both developed and developing countries; in the communications, organizational development strategies, and project planning of the conservation establishment (e.g. IUCN, WWF, TNC, and Conservation International, among many others); in various large-scale international science-policy initiatives (e.g. the MA, TEEB, IPBES); and in the funding priorities of philanthropic foundations, the Global Environment Facility (GEF) and World Bank (e.g. in their Wealth Accounting and Valuation of Ecosystem Services global partnership, WAVES).

[38] This paragraph is excerpted from Suarez and Corson (2013, 68).
[39] OpenNESS is abbreviated from "Operationalisation of Natural Capital and Ecosystem Services"
[40] OPERAs is abbreviated from "Operational Potential of Ecosystem Research Applications." The initiative also refers to itself as "Ecosystem Services for Policy and Practice."

Figure 3 – A suggestive (i.e. non-exhaustive) logo cloud identifying the establishment of various public, private, and not-for-profit initiatives focusing on different aspects of natural capital and ecosystem services

The ubiquity of its language, combined with this remarkable proliferation of activities, all structured around different facets of ecosystem services, seem to strongly imply a sense of dynamism, change, and transformation. Yet beneath the logo clouds (Figure 3), glaring questions remain about what it is that these initiatives have truly yielded. For instance, a recent publication by the World Resources Institute (WRI), *Revaluing Ecosystems: Pathways for Scaling Up the Inclusion of Ecosystem Value in Decision Making*, reports on a sort of stock-taking and lessons-learned meeting convened in Bellagio, Italy, organized by the Rockefeller Foundation around the theme, "The Future of Revaluing Ecosystems" (Burke, Ranganathan, and Winterbottom 2015, 4). The document reiterates the familiar ecosystem services premise: "to ensure a more sustainable and equitable future, businesses, governments, and communities need more accurate tools to comprehensively measure the contributions of ecosystems to human well-being." Before enumerating several strategies by which these tools could be mobilized to "scale up the inclusion of ecosystem values in public and private decision making," the document states its purpose: "igniting a movement to promote mainstreaming ecosystem services" (Ibid). The parallel between this aspiration and the nearly identically-stated purpose for Costanza et al.'s opening $33 trillion discursive broadside twenty years earlier is striking (Costanza et al. 1997, 2017).[41]

Ecosystem services is simultaneously everywhere yet perennially awaiting ignition. For over two decades, in countless meetings like this one, groups of experts have been wracking their brains struggling to figure out how to enact a future enabled by and structured around the notion of properly valuing nature and the services it provides to people. In this respect, the report is only one in a wide chorus of similarly-aligned texts, produced by ever-growing networks of other

[41] It seems he was a participant at this meeting, which may help to explain the recycled language. However, the point stands that 'igniting' an ecosystem services remains as much of an aim as it did in 1997.

practitioners, who are also dedicated to wracking their brains on this very same problem. In a revealing comment in the conclusion, the report notes, "while efforts in the past to value ecosystem services have failed to gain broad traction, *this* time promises to be different" (Burke et al. 2015, p.43; emphasis added).

Despite this flurry of activity to and from all directions—prodigious scientific output, analyses, reports, declarations, partnerships, new organizations, new decrees—marked contrasts persist between the ubiquity of its discourse, its actual manifestations in practice, and the array of different visions articulated by its proponents and dreaded by its many opponents. As Dempsey (2016, xii) observes, the frenetic extensions of these visions, when scrutinized, can appear simultaneously "halting and even marginal (while remaining strangely hegemonic)." As I show in the following chapters, these contrasts have produced a shifting, kaleidoscopically fragmented politics. This dissertation will explore these gaps between vision and execution from the perspectives of those whose job it is to somehow close them. Having now introduced the polyvocal concept of ecosystem services, the theoretical framework guiding this dissertation, and the context for the rise of ecosystem services, the following three sections will elaborate on each of the three main lines of argumentation developed by this dissertation. I will then discuss my methodological approach. Finally, I will provide a chapter outline of this dissertation.

THE WORK OF MAINSTREAMING: INSTITUTIONAL BRICOLAGE

How does ecosystem services gain traction among practitioners? To answer this question, I characterize the kinds of everyday politics shaping the deployment and dissemination of ecosystem services. In this first line of argument, I illustrate how "mainstreaming" efforts require not only hard work but specific kinds of work performed by specific types of actors with specific sets of capabilities working through characteristic sorts of organizational contexts. Drawing on my encounters with NatCap, I show how ecosystem services functions as a kind of endless repertoire of boundary objects (Star and Griesemer 1989) for those habitually positioned at the interstices of incongruent social worlds (i.e. virtually any conservation context) and constantly having to code-switch between them. Maneuvering the "cracks and fissures" (Roy 2012) of conservation, practitioners of ecosystem services translate between the disjunctive logics of multiple institutional orders, serving as brokers and intermediaries, facilitating communication, coordination, and coalition-building across fractious constituencies.

In turn, this incessant (and demanding) translational condition attendant to this positioning has come to define and deeply infiltrate the subjectivities, embodied knowledge, and moment-to-moment tactical conduct of ecosystem services practitioners. Drawing on research from critical institutionalism (Hall et al. 2014) and organization studies (Clegg et al. 2006), I theorize these subjects as involving themselves in a kind of "institutional bricolage" (Christiansen and Lounsbury 2013, 203; Cleaver and Koning 2015; Van Hecken, Bastiaensen, and Windey 2015), creatively syncretizing available logics, various "elements of alternative orders," and bits and pieces of different "institutional projects" into conservationist praxis with aim of effecting organizational change. I show how these representational practices enabled by ecosystem services allow its practitioners to at least nominally bring together, around conservation, situationally improvised coalitions constructed around win-win-win (and more) solutions.

These literatures depict such "bricoleur" figures as "institutional entrepreneurs" who destabilize a status quo and its dominant incumbents (Hardy & Maguire 2008). While these subjects have been likened to Gramsci's (1971) notion of "organic intellectuals" engaged in a

subversive "war of position" (Levy and Scully 2007), I instead re-interpret them in this context as "ideological functionaries" who are implicated in the reproduction of hegemonic power relations (Igoe, Neves, and Brockington 2010). The translational deployments of ecosystem services by these actors are, I argue, central to understanding the implications of its policy discourse in perpetuating certain power relations.

In sum, while proponents of ecosystem services are indeed destabilizing a 'status quo' in conservation, the institutional re-alignments produced through their translations express, in effect, a hegemonic rather than counter-hegemonic politics. Through the situational deployment of ecosystem services, its practitioners perform the constitutive operations that re-articulate conservation, context by context, into a variety of locally necessary forms that bring it into alignment—crucially, across a political terrain of "radically asymmetrical power relations" (MacDonald 2010b, 257)—with the manifold and often abrading epistemologies, constituencies, and institutional logics that characterize its field. These boundary-spanning, translational practices, I argue, serve as important micro-social foundations to broader re-alignments now clearly visible in conservation. In this way, I illustrate how these practices are co-constitutive with wider macro-structural shifts—namely, the alignment of conservation to the maintenance of a liberal economic and political order (Bernstein 2000)—that are ostensibly re-making conservation into something that can 'fit' with prevailing discursive, institutional, and political-economic logics. In short, by narrating the view from the discursive frontier of natural capital, I highlight the specific forms of work involved in deploying and disseminating its tools, knowledges, and reasoning, the kinds of capabilities needed to operate its representations, who is enacting it, and how this work is implicated in broader shifts in the contemporary politics of biodiversity conservation.

FROM 'ON-PAPER' TO 'OFF-SCRIPT': ANTI-POLITICAL SUBJECTIVITIES

With respect to what is at stake in ecosystem services, I consider notable contrasts between different visions regarding what ecosystem services means, what it implies, and whether and how to use it. While many of these divergences are discernible in published commentary, I especially compare these visions with my own observations among those attempting to carry out these visions. In this respect, I emphasize what one environmental activist in British Columbia called the "vast chasm" between the kinds of plans that get envisioned for ecosystem services 'on paper' and what I ended up mostly observing, which was practitioners of ecosystem services consistently being forced 'off-script' seemingly at every turn. Indeed, as I discuss, this "chasm" tended to open up in precisely those moments where the many implicit assumptions embedded in ecosystem services as a theory of change came into any kind of direct contact with the messy, often challenging, and fundamentally political realities inherent to actually participating in, let alone 'changing', environmental governance.

The view I apprehended from the "cutting edge" of ecosystem services—NatCap and IPBES being two of the leading organizations working in this field—served to deflate both the lofty ambitions touted by many of its advocates and at least a few of the more ominous implications drawn by critics. Despite the "explosion in interest" (Ruhl and Salzman 2007, 157) that marked the emergence of ecosystem services twenty years ago, and although its proponents maintain their soaring ambitions to embed ecosystem services values across virtually all realms of social life from "major decisions" (NatCap 2017b) to "everyday" choices (Daily et al. 2009, 21), the material ramifications of ecosystem services remain difficult to parse in their extent and scope. The rhetoric of ecosystem services has indeed become ubiquitous, its vocabulary now frames an array of environmental policies, and myriad efforts have been initiated around the world trying to

operationalize governance devices bearing its name. Yet, even as it is regularly ascribed transformative implications for environmental governance, both by its critics and its advocates, the actual manifestations of ecosystem services are not only hard to parse but much more tenuous when viewed from the vantage of those most focused on its widespread enactment. As one NatCap co-founder told me: "It's on everybody's lips, for sure. It's the bandwagon frame. But I also don't think it's meaningfully worked its way into the daily decisions of people who have the future of the planet in their hands. […] You need these ideas to be an automatic part of the calculus […]. It needs to be a default way of thinking. And it's not *nearly* that."

Analysts have increasingly acknowledged that several of the major justifications for turning to ecosystem services have yet to materialize after two decades of trying. For instance, a large-scale turn to ecosystem services has been rationalized as a critical means of securing more finance to address the so-called "funding shortfall" in conservation, namely, by operationalizing an array of market-based instruments and actualizing new profit-making investment opportunities through conservation activities (UNEP 2011; Huwyler et al. 2016; Credit Suisse et al. 2014; WWF 2009; CFA 2014; Hamrick 2016). Yet philanthropic and especially state-driven funding continues to be overwhelmingly dominant in terms of actually paying for the work of conservation when compared to the miniscule contributions trickling in from what continue to be mostly indifferent profit-seeking capitalists—capitalists who remain primarily focused on much more ordinary modes of accumulation rather than the ostensibly impending "green capitalism" which ecosystem services was supposed to have heralded (Dempsey & Suarez 2016).[42] While conservation may have been "reinventing itself in its entirety" and seeking to harness market forces "to a degree unimaginable only a decade ago" (Fletcher, Dressler, and Buscher 2014, 3–4), those market forces have largely continued to shrug at conservation's overtures (Dempsey and Suarez 2016). As a recent report by the Conservation Finance Alliance put it, "[t]he overwhelming majority of the financial sector has yet to show interest in biodiversity conservation" (CFA 2014, 4).

Relatedly, scholars have also called into question the extent to which ostensible market-based instruments in environmental governance can even be properly understood as 'market-based', that is, whether they actually function in ways that resemble the operations of real markets (Fletcher and Büscher 2017; Gómez-Baggethun and Muradian 2015; Van Hecken et al. 2017). With respect to the proliferation of payment for ecosystem services (PES) programs—the flagship mechanism by which the notion of ecosystem services has come to manifest in policy and practice—researchers have started to show that most existing PES schemes do not in fact work like actual markets nor do they typically involve commodification (Pirard 2012). Instead, they usually function more like subsidies or incentive schemes, delivered using public funds, which can be structured in a variety of ways that hybridize diverse, contextually-shaped logics including but not limited to those of the market (Fletcher and Breitling 2012; Lapeyre and Pirard 2013; McAfee and Shapiro 2010; Milne and Adams 2012; Shapiro-Garza 2013). In short, scholars, as well as ecosystem services practitioners themselves, have increasingly come to accept a "PES reality that has little to do with the market mechanism" (Gómez-Baggethun and Muradian 2015, 220). Indeed, one leading critical scholar of ecosystem services whom I met in IPBES—and, curiously, who was also contributing *to* IPBES as I discuss in Chapters 5 and 6—stressed that this point about the

[42] Thus, "when looking more broadly at the economy as a whole, these flows of funds become slivers of slivers of slivers" (Dempsey and Suarez 2016, 654; 663).

inherent limitations of market mechanisms in PES was, from a political perspective, crucial to acknowledge:

> It's not there and it will never get there. […] It will be very difficult to implement the market-environmentalist agenda in practice. Not only because of the ethical and political contestation, but operationally, it is very problematic. […] In the end, I think this is going to play a stronger role than the sort of ideological or ethical contestation. […] PES in the end is a kind of traditional green rural subsidy that has been repackaged in a sort of market-like jargon which sounds good to funders and so on. But it's not by chance that it's the state that runs this. It's a matter of feasibility.

More pointedly, and moving closer to the heart of the issue for its practitioners, the capacity of ecosystem services to influence real-world environmental decision-making has also been thrown into question. Much of the now-expansive "political-scientific strategy" described by Jessica Dempsey (2016, 10) which has been assembled around ecosystem services was founded on this central premise: that the knowledge it provides, once appropriately translated into economic values and made readily available to decision-makers, will result in changed decisions. As Dempsey (2016, 101) argues:

> Propelling the rise of ecosystem services […] is the desire to make a nature that capital or the state can see (Robertson 2006), but also a nature that anyone and everyone can see. The economic valuation of nature as part of ES [ecosystem services] is about creating a kind of commensurability that all people—from bureaucrats to finance ministers to farmers to you and me—can recognize.

At least, that was the idea: render nature's values more legible and better decisions will be made. However, much to their consternation (and often puzzlement), proponents of ecosystem services have come to recognize that the substantive realization of this central objective remains, at least when defined in these terms, still a pipe dream. One study, for instance, reviewed available documentary evidence that might indicate traces of changed decisions resulting from the uptake of ecosystem services valuations, finding that such evidence was "rare," raising the possibility that the "use of valuations may be limited in reality" (Laurans et al. 2013, 215). A more recent technical paper produced in conjunction with NatCap states more bluntly, "many of these new tools and scientific knowledge on ecosystem services are in reality not used for decision and action, and do not generate better outcomes" (Feger et al. 2017, 5). As I discuss in Chapter 4, NatCap's own scientists seem to have confirmed for themselves what many other studies appear to be showing: ecosystem services is not being used "instrumentally" to change decision-making (Mckenzie et al. 2014).

Yet despite these "vast chasms" between ecosystem services 'on paper' and 'off script', I emphasize how the concept still has important intersubjective consequences (Dempsey and Suarez 2016)—a particular variety of what Fletcher (2010, 2017) has described as a "disciplinary" form of environmental governmentality—specifically in terms of how it fosters the internalization of certain political norms, shared identities, and common-sense understandings of what counts as legitimate among those who practice it. Rather than simply producing a disappointing 'non-outcome', I describe the crystallization of a remarkably anti-political frame used to envision and

put ecosystem services into practice (Büscher 2013; Ferguson 1997; Li 2007; Mosse 2004).[43] Its implicit theory of change not only presumes but depends on the benevolence of existing power structures and elite-dominated decision-making processes, while simultaneously bracketing out the broader structural conditions that set the terms on which those decisions can be made. At least in its prevailing forms, ecosystem services "renders technical" (Li 2007, 126, 2011) urgent problems that are fundamentally and inescapably political in nature, and thereby expresses precisely the "post-political" condition described by Swyngedouw (2010, 225), where "ideological and dissensual contestation and struggles are replaced by techno-managerial planning, expert management and administration."

Whether or not they like it, and whether or not they choose to acknowledge it, scientists, advocates, and practitioners of ecosystem services are necessarily implicated, one way or another, in the operations of broader power asymmetries, in the wages of wider, interconnected social struggles, and in the reproduction of a hegemonic political-economic order. The conspicuous silences of ecosystem services on these questions (Berbés-Blázquez, González, and Pascual 2016), its pretentions to a detached-but-not scientific neutrality (Dempsey 2016, 82), and the avowedly agnostic political orientation I noted among many (but not all) of its practitioners, reflect a compulsive shying away from specifying a relationship to these broader implications. As I argue, this refusal to choose—essentially, an insistence on not 'picking a side'—is itself a political choice that implies a certain alignment with a dangerously deranged socio-ecological status quo. As envisioned, the work of ecosystem services has been insulated from the task of considering, let alone contesting, the broader structures that profoundly shape that work, effectively precluding its knowledge interventions from questioning the root causes of the "political-economic system that generates the very problems it purports to solve" (Braun 2014, 63). As one ecosystem services scientist working with IPBES explained it to me:

> As environmental scientists and sustainability scientists are asked more and more to just work on pre-framed problems, we don't have a say so much on how the problem is framed anymore. We are just asked to provide technical solutions to the pre-framed problems. For instance, the idea that economic growth and market liberalization is the only reasonable framework within which we can think. That is something that is increasingly imposed on environmental and sustainability scientists who are asked to find solutions within that particular framework, without questioning the framework itself.

Thus, burgeoning environmental markets for managing biodiversity through the buying and selling of ecosystem services have yet to materialize at a broad scale; promised torrents of new conservation finance paying for biodiversity protection remain largely undelivered; and transformative (or even readily discernible) changes in global environmental decision-making based on ecosystem services valuations remain undemonstrated. In light of these under-performances, I argue that one of the principal outcomes of "mainstreaming" ecosystem services may end up relating less to decisions that *are* made through its calculations, and more with the political choices that are *not* made, rarely imagined, and never pursued because of the narrowed, anti-political imagination this framework (in its dominant forms) threatens to consolidate.

[43] As Tania Li (2005, 391) advises, understanding such schemes requires moving beyond nominal questions of 'success' or 'failure' to consider what they *do* and to try to apprehend "their contradictory, messy and refractory effects."

THE BATTLEGROUND OF VALUATION: EPISTEMIC STRUGGLES

Yet, somewhat countervailing the arguments noted above, my third line of interpretation shows how the construct of ecosystem services has produced an emergent terrain of epistemic struggle wherein a widening diversity of actors have sought to contest not only the meaning of ecosystem services but the broader politics in which it is enrolled. The emergence of the field has given rise to a sprawling, discursive arena unfolding across scholarly journals and academic conferences, the headquarters of conservation organizations both big and small, university biology departments, intergovernmental negotiations, turf battles among state agencies, and a proliferation of public, private, and not-for-profit initiatives all bearing the concept's name yet deploying it to remarkably different purposes.

Once again, through the intimate vantage of those positioned at the forefront of ecosystem services, I illustrate how the neologism has fragmented in its practical meaning, its applications, and its very purpose. It has become a locus of contestation among different interests vying to shape its operational meanings, its political character, and its ultimate expressions in policy and practice. I show that the field of ecosystem services has come to encompass a cacophony of voices, each with varying intents and ambitions for what the framework is supposed to do (and *not* do). Throughout this dissertation, I show how diverse actors are beginning to inhabit the knowledges, practices, and rationalities encompassed in ecosystem services and giving them expression in new, unexpected, and sometimes actively subversive ways.[44]

As I elaborate in my analysis of IPBES in Chapters 5 and 6, this continuing ideological tug-of-war over what ecosystem services means, what it does, and what it will become among the growing diversity of interests congregating around it reveals the discourse as potentially unstable—its configuration contingent on ongoing political struggles diffused through a constellation of networked institutions. As one official in the IPBES process stressed to me multiple times, "valuation is a battlefield"—an observation to which he quickly added, "in a *good* sense." In this way, I highlight opportunities for critical scholars to 'enter the fray' and actively contribute to the continuing re-shaping of the epistemic and political field of struggle that ecosystem services has come to constitute. Here, I consider Noel Castree's (2017b) recent suppositions about—and hopes for—cultivating the nascent radicalism which he perceives to be emerging among global environmental change scientists as potential "fifth columnists" in broader anti-capitalist struggles. More specifically, I explore his suggestion about the vital role that engaged critical scholars might play in helping these epistemic communities find a substantively radical politics proportionate to the radically dire predictions increasingly apparent in their findings. As Castree (2017b, 67) argues, "such efforts would be extremely timely, given (1) the appetite for change evident in the top levels of international geoscience and (2) the current unwillingness of political economic elites to seriously entertain the idea of a 'green new deal', never mind anything more far-reaching." I present empirical findings illustrating instances where critical scholars actually tried to do something like this in the context of ecosystem services, and specifically IPBES, and show how they approached the task and with what sorts of effects.

As I conclude later, if ecosystem services does not (yet) represent the latest stage in the commodification of everything—but rather a more complex story involving a cacophony of colliding logics including but not limited to that of capital—then the *telos* of ecosystem services remains a culturally, politically, and discursively moving target: its "mangle" of practices,

[44] Sentences 1-3 include excerpts from Suarez and Corson (2013, 75)

accommodations, and resistances (Pickering 1995) still connotes possibilities. From this view, ecosystem services comprises a problematic yet still potentially worthwhile terrain of "micro-politics" and "hand to hand combat" through which to grapple with the braid of logics that have been uneasily entwined in producing it (Braun 2014, 62). In this way, ecosystem services may yet offer unique possibilities within the tangled, muddling assemblages of contemporary environmental governance for "immanent social transformation, seizing the potential for alternatives within existing practices" (Ibid).[45]

These continuing discursive struggles over ecosystem services do not simply provide a revealing window into ongoing shifts in biodiversity conservation—I suggest that these ideas have important political and socio-ecological repercussions. As conservationists conform their work to economic precepts and align their cause with market discourse, they participate in the perennial tradition of re-working dominant understandings of what 'nature' means (Takacs 1996; Williams 1980), and, more particularly, what it is 'worth' and how it is to be governed. In so doing, these visions for conservation—diverse as they may be—all necessarily imply shifts of one kind or another to existing distributions of access to and control over vital resources: who gets to benefit from what, how and under what conditions (Ribot and Peluso 2003). According to many of these environmental narratives, the task is clear. In order to forestall the progressive rendering of the Earth as an unliveable place—witnessed in extinctions, disintegrating ecosystems, toxic landscapes, exhausted soils, scoured oceans, and a warming climate—nature must be properly integrated (or "internalized") into the fold of existing capitalist relations: relations that will otherwise destroy it.

The constitution of these visions speaks directly not only to the heart of the politics of ecosystem services, as I will discuss, but to the character, and tenability, of the fractious array of societal efforts now struggling—in various ways, in various places, and toward various ends—to re-direct the many compounding socio-environmental transformations that define the present moment. The implications of subjecting ever-expanding vestiges of nature to the logic of the market are profound. Who stands to profit, literally and figuratively, from the production of natures transmuted into natural capital? What are the political assumptions being ingrained in these transmutations? What ways of thinking and being in relation to nature are lost (or made to lose) in translation? And around which specific visions are notions of nature as natural capital stabilized in practice? As rhetoric and metaphor? As rational decision-making calculus for optimizing trade-offs? As vehicle for equitable redistribution inspired by principles of environmental justice? As private enclosure of ecological commons according to principles of market efficiency? Will ecosystem services only serve to hinder radical change? Or can its tools, knowledges, and teeming scientific communities who have pinned their hopes and hitched their labours to it be rendered into something more benign? And, could the science of ecosystem services even be re-appropriated—mobilized in solidarity with the cause of radical political-economic transformation to confront the far more radical socio-ecological futures apparent in its own findings?

These are only some of the questions that condense in the politics of ecosystem services. For the moment, I suggest that these questions remain unsettled and a site of ongoing contestation among those practicing what we now call "ecosystem services." As I conclude later, what ecosystem services means and what it does are not yet pre-ordained outcomes. Our understanding of its trajectories will depend on how much political wiggle room we (and especially its

[45] Sentence 1 excerpts Suarez and Corson (2013, 75–76)

practitioners) can find within these epistemic and discursive struggles as they unfold. Throughout this dissertation, I try to contribute a theoretically-informed, empirically grounded, and engaged, critical eye focused on the politically freighted and power-laden processes through which these re-articulations of nature are now taking shape—and on *who* is doing the shaping—at this formative moment as these political-ecological imaginaries spread, institutionalize in policy and practice, and prescribe winners and losers.

METHODS: MID-LEVEL TECHNOCRATS & MUTANT POLICIES

Near the start of my research, one of NatCap's lead scientists told me the story of how she came to join the organization. She explained how intimidated she felt at her very first "Natural Capital Olympics," the regularly-held gathering that brings together the disparate arms of NatCap's internal network. She knew that some of her field's heavy hitters and several of her own academic idols, those distinguished National Academy-level scientists who had chosen to throw their weight behind ecosystem services, were going to be there. As the meeting began, her nervousness dissipated. She learned that everyone's progress updates were to be performed either through interpretive dance or poetic verse. The appeal was immediate. As she observed her new colleagues silly-dancing around the room, she became "a convert right from the beginning—these are really smart people doing amazing work."

This kind of exuberance was repeated across many of the responses I elicited from NatCap's personnel and many of my own observations over the course of my research. Another NatCapper evoked similar themes of affect, charisma, and network-building in her description of a recent high-level senior supporters' dinner that brought together NatCap's major funders and other key backers:

> [The host] did this thing last year, which was very nice, where she went around and said, 'Why are you here?' For almost two thirds of the people it came back to some really powerful interaction with Gretchen Daily.[46] Including mine. It was extraordinary. […] That ability of somebody who is respected and truly charismatic and passionate about what they're bringing is a very powerful force for change. Gretchen Daily is very different from Pavan Sukhdev,[47] who is very different from Achim Steiner.[48] But in their own ways, in their own spheres, they have touched people with different stories and arguments all around the same concept.

That concept is, of course, ecosystem services. While these stories helpfully begin to portray how NatCappers talk about themselves—often, with a palpable affection for one another, with a high degree of personal investment in their mission, and with a self-aware focus on relationship-building as the fulcrum of their craft—such moments also underscore the lively,

[46] One of NatCap's co-founders and an ecology professor at Stanford. She is the author of one of the key texts that launched the field of ecosystem services (Daily 1997) and is one of the most well-known advocates for ecosystem services. She is discussed in Chapters 2, 3 and 4.

[47] Study Leader of The Economics of Ecosystems and Biodiversity (TEEB), former head of the United Nation Environment Programme's (UNEP) Green Economy Initiative, and another leading figure in the ecosystem services movement. He is discussed in more detail in Chapters 4 and 5.

[48] Former Executive Director of UNEP (2006-2015), current Administrator of the United Nations Development Programme (UNDP), and another leading figure in the ecosystem services movement. His migration from UNEP to UNDP serves as a prominent and characteristic example of the kinds of shifts with which ecosystem services has been associated—highlighting, in this case, the increasingly imbricated institutional realms and transnational networks constitutive of 'environment' and 'development'.

affective and very personal dynamics necessary to understanding NatCap and IPBES, as well as the intersubjective processes that have shaped ecosystem services. Such intimate moments provide glimpses into what Corson et al. (2014, 21) describe as "the conduct of politics in everyday practice" which can begin to reveal "the individual motivations, relationships and agency that shape policies, institutions and regimes."

These dynamics are idiosyncratic, contingent and personal. They are shaped by the unique circumstances attendant to particular conjunctures and specific moments in time and space. And they are certainly not exceptional to either IPBES or NatCap. Yet in all instances, to capture and make sense of these dynamics one must be present to observe them in the rooms where they occur. As one policy specialist leading a major NatCap mainstreaming initiative tried to emphasize, "we're dealing with people here! Emotions. Feelings. Not equations or science. Not bears in the jungle. People. […] So many situations I've been in, it's kind of scary that it's not more controlled. But it's not. It's people sitting in a room making decisions."

Inside these sorts of rooms, and among such people, it becomes possible to see the broad spectrum of orientations practitioners bring to make sense of ecosystem services—exuberance and enthusiasm, resignation and ambivalence, skepticism and resistance—and how those sensibilities refract and translate in practice, how they are constituted and re-constituted, transformed, and made into something that, seen from a distance, may look like a coherent and hegemonic policy discourse and yet, up close and in motion, can appear somewhat more provisional and fragmented. "One of the things I find so interesting about the PES area," another colleague and twenty-year contributor to NatCap's mainstreaming campaign remarked, "is how completely ad-hoc and almost haphazard the programs are. When you see these successful initiatives in the ecosystem services area, there's always […] talented and visionary individuals who can take advantage of that."

The narrative undertones in these and other stories I elicited interpreting the emergence of ecosystem services, in this case highlighting the unique agencies of savvy, influential actors, should of course be interpreted critically and with a healthy skepticism. There are many potential pitfalls attendant to research on (and especially with) such charismatic, itinerant institutional entrepreneurs—subjects who are "successful in part *because* they are engaging and eloquent cosmopolitans" and "accomplished persuaders" (Peck and Theodore 2015, xxii). Peck and Theodore caution against the kind of 'agent inflation' that can arise from interactions with these frequently "urbane and articulate policy elites" which may lead to "exaggerated accounts of foresight, rationality, or creative entrepreneurism" (Peck and Theodore 2012, 26).

Rather, I seek to explain how the peculiar micro-social practices associated with ecosystem services come to be "influenced by and implicated in the ongoing stabilization and evolution of political-economic macrostructures" (Kaghan and Lounsbury 2011, 75). As I discuss later, the mainstreaming of ecosystem services emerges from a confluence of micro- and macro-institutional processes where the agencies of such expert subjects play an important, albeit particular and circumscribed role amongst other more structural inertias and higher-order dynamics: the processes at work in the rise of ecosystem services are "not simply a domain for the reproduction of dominant practices, but neither is it an arena in which anything goes" (Peck and Theodore 2015, xxi). Throughout this dissertation, I try to narrate the intimate social worlds and subjectivities implicated in and co-constituted with rise of ecosystem services with an eye toward this tension.

My engagements with IPBES and NatCap were guided by a multi-sited institutional-ethnographic approach (Corson, Campbell, and MacDonald 2014; Z. Gille 2001; Zsuzsa Gille and Riain 2002; Marcus 1995; Peck and Theodore 2012, 2015; Roy 2012). Such approaches re-conceptualize the traditional understanding of the ethnographic field to account for the ways in which given localities are increasingly bound up in wider, world-spanning complexes of social relations. The uneven development wrought by an intensifying global capitalist political ecology, the growing scope of non-state, transnationally networked actors across various spheres of governance, and myriad other 'globalizing' processes now link traditional field sites, necessitating an expanded, multi-sited notion of 'the field'.

IPBES and NatCap are both very much creatures of these conditions. While the IPBES Secretariat is based in Bonn, Germany, its formal activities—comprising not only plenary negotiations among its 127 member states but an assortment of expert group workshops and meetings of its various subsidiary bodies—are widely distributed and hosted in venues around the world (its Plenaries, for instance, have been hosted in Germany, Turkey, and Malaysia, and the next meeting is set for Colombia). IPBES is tightly integrated into the broader UN system, especially through partnerships with UNEP (which provided its interim Secretariat), the United Nations Development Programme (UNDP), United Nations Educational, Scientific, and Cultural Organization (UNESCO), and the Food and Agriculture Organization (FAO). In turn, the composition of the various bodies constituting IPBES were carefully negotiated during its establishment to ensure balanced[49] geographical representation across the recognized UN regions of Africa, Asia-Pacific, Eastern Europe, Latin America and the Caribbean, and Western Europe and Other (or 'WEOG', which includes North America). Thus, IPBES reflects not just 'a' node but a transnationally dispersed sprawl of nodes each connecting different and wide-ranging networks of knowledge-production and environmental governance. Similarly, while NatCap is headquartered largely in the United States, its projects are distributed across "50 places in 24 countries," and its work engages multiple sectors encompassing public, non-governmental, and private sector actors (Natural Capital Project 2016). Over the years, its practitioners have grown adept at maneuvering the transnational policy networks that increasingly link these spatially and institutionally disparate settings. Understanding NatCap and IPBES requires properly situating them within this expanded sense of the field.

With respect to the field constituted by biodiversity conservation, MacDonald (2010a, 260) envisions a "rhizomic structure of transnational space" where moments like the ones highlighted above represent nodes in wider, often invisible, yet regularly interacting networks of practitioners, organizations, and shared institutions. Groups like NatCap and IPBES are deeply enmeshed and variously positioned within these transnational networks. In this context, moments such as those described earlier—instantiated by conferences, workshops, trainings, symposia, negotiations, receptions, retreats, consultations, and endless meetings, repeating over and over again—together constitute a dispersed yet coherent and durable "trans-local" network of relations, a community of sorts, "linked together across space and time by associations, common interests, long-term objectives, long-term agendas, and statutes" (Ibid). Critically, this field is discursively constituted and structured, MacDonald emphasizes, "within radically asymmetrical power relations" (Ibid, 257) which have shaped conservation through a process of "coordinated agreement and action among a variety of actors" (Ibid). While later chapters focus on the more conspicuous social

[49] The rules and procedures negotiated in IPBES also stipulate balanced representation in gender and disciplinary expertise.

dynamics visible at large international meetings as important and distinctive nodes in these networks—specifically, those related to IPBES—this dissertation mainly focuses on the more quotidian interactions and relationships that occur outside of that field of vision. These everyday moments of connection and circulation are typically mundane but can serve as revealing windows, Ananya Roy (2012, 33) suggests, into the social life of mobile policies and "the circulatory capacity of centres of calculation, how worlds are put into motion at and through such nodes." As such, these multi-sited networks are ripe for ethnographic study.

As discussed in Chapters 5 and 6, IPBES 'happens' in a wide-ranging array of processes, networks, and locales purposefully dispersed across the different UN regions. Its first work programme (2014-2018) involves 18 different objectives organized around four main functions, namely: (a) producing assessment reports, (b) capacity-building (c) identifying "policy-relevant" tools, and (d) catalyzing further knowledge generation. Performing these functions involves careful coordination among IPBES's subsidiary bodies: its Plenary (IPBES's decision-making body comprised of representatives from each member state); its Bureau (tasked with administering IPBES on behalf of Plenary); its Multidisciplinary Expert Panel (tasked with overseeing IPBES's scientific functions); its Secretariat (tasked with running the operational, day-to-day functioning of IPBES); Task Forces on specific issues (such as capacity-building, accessing data, inclusion of indigenous and local knowledge, and others); and hundreds of experts from varied regions and disciplinary backgrounds, organized into subject-specific groups and tasked with working together to produce IPBES assessments.

While IPBES 'gathers' experts into its constitutive processes, NatCap's mainstreaming work (discussed in Chapters 2, 3, and 4) involves 'casting' such experts out into the field. This work is carefully targeted but broadly international in scope. Its projects have brought small teams of scientists, technicians, and policy specialists (often the same people) to a range of locales and to dozens of collaborations working with diverse partners on diverse projects at diverse scales. They host trainings, convene conferences, organize workshops, and engage in myriad outreach and capacity-building initiatives. Around the world, they have supported terrestrial and marine spatial planning processes, the design and implementation of payment for ecosystem services (PES) programs, planning for restoration and climate adaptation, corporate risk management, and impact assessments (Figure 4).

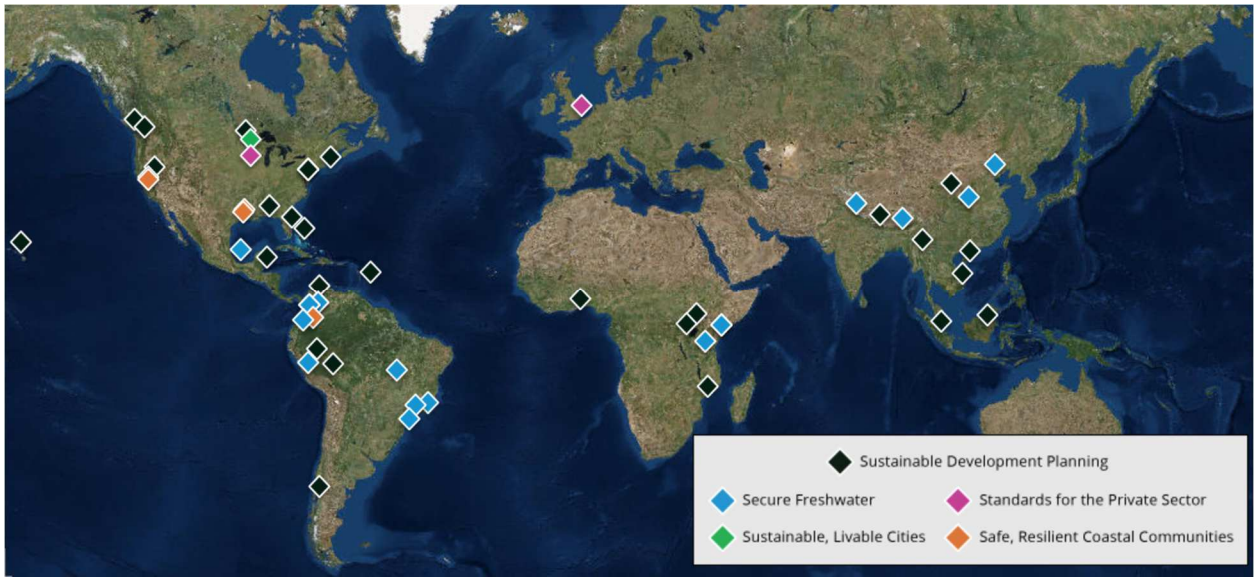

Figure 4 - Map noting locales where the Natural Capital Project has worked (Natural Capital Project 2017b)

The scope of these two processes, undertaken across many different locations, policy networks, domains of expertise, and types of governance processes, effectively precludes the possibility of really 'being there' across the full range either NatCap's or IPBES's activities in the more exhaustive, deeply immersive manner typically assumed in ethnographic practice. With respect to NatCap, I did consider simply selecting a specific 'place' where they work to anchor analysis in a more grounded, historically particular manner better attuned to appreciate the situational complexities that inevitably shape the site. Indeed, this kind of methodology has yielded many useful studies exploring various facets of 'governing with ecosystem services'. However, I opted instead to focus on the dynamics of NatCap itself as an intentionally trans-local, site-spanning organization trying purposefully and methodically to get its tools and approaches into circulation, replicated, and scaled up.[50] In particular, I examine the embodied experiences of its personnel as they travel among these sites and improvise attempts at shepherding ecosystem services into them. Similarly, with respect to IPBES, the earlier identification of its constitutive functions, subsidiary bodies, and expert groups (elaborated in Chapter 5) begins to convey some sense of the "field" in my actual "fieldwork": a teeming assemblage of documents, transnationally networked bureaucratic processes, and momentarily constituted social spaces strung across the planet.

Thus, while researchers have already begun to analyze some of the particular *sites* and *policies* where ecosystem services has started to manifest, the focus here is on comprehending its *agents*: the mobile experts that connect and recur across these sites and agitate for those policies. Marcus (1995, 90) proposes several ways of maintaining an ethnographic sense of physical presence (i.e. 'being there') in the design of multi-sited work pivoting toward such "chains, paths, threads, conjunctions, or juxtapositions of locations." He points out that the scope of what is to be

[50] As Ruckelshaus et al. (2013, 12) explain, "[w]e select places and decision contexts to test our approach where the chances of early success and replication are high (because of strong leadership and partners; clearly defined authorities or decision-making pathways; and demonstrated interest in using ecosystem service information in decisions)."

researched[51] is inevitably determined, and bounded, by the researcher's chosen object of research and the corresponding logic relating the different locations where that object's dynamics can be accessed, observed, and studied. He proposes an array of possible frameworks by which to "construct" these logics which range from following people and physical objects to following conflicts, metaphors, and stories. Traces of each of these dynamics are readily apparent in ecosystem services.

I adopt a more encompassing "follow the policy" approach that pursues the traveling and ever-adapting forms of embodied knowledges now associated with ecosystem services—its arranged sets of ideas but also its practices, tools, techniques, and other discursive elements—and the people and processes by which they come to circulate. Such approaches pose methodological tradeoffs between 'depth' and 'breadth' that are worth recognizing. Peck and Theodore's (2012, 25) "distended case" approach to the study of policy mobilities, for example, proposes a balanced consideration of both:

> movement (for instance, transnationalizing policy models, peripatetic modes of expertise) and those variable experiences of embedding and transformation underway in 'downstream' sites of adoption/emulation. […] [It] calls attention to the inescapable trade-off between the situational depth (and connectivity with subjects and settings) achievable in long-duration, single-site ethnographies […] and those 'low-flying' (but flying nevertheless), network-centric perspectives that privilege cross-conjunctural reach over sustained, in situ engagement.

As a matter of empirics, this study is admittedly lopsided toward breadth. I examine in this dissertation a sort of cross-section through IPBES's and NatCap's sprawling trans-local activities through a mixture of document analysis, targeted participant observation, and in-depth interviewing. This choice of approach was determined in large part by the fact that both IPBES and NatCap are themselves very 'wide' and insistently transnational organizations. In the case of NatCap, as discussed in Chapters 2, 3 and 4, while its in-house roster of personnel is not extensive they are spread across a large number and diverse assortment of complex contexts where their engagements can be variously fleeting or more sustained. Because of the relatively small size of NatCap's core team, a concerted focus on these personnel seemed somewhat more tractable. Thus, I opted to structure my research around this group of circulating practitioners as they operate *across* settings (rather than focusing on the settings per se) in order to explore how they approached and thought about what they were doing.

Similarly, as elaborated in Chapters 5 and 6, I focused my engagements with IPBES in at least three ways: (i) thematically, with a particular emphasis on the work of its 'values and valuation' expert group, (ii) positionally, from the vantage of the IPBES secretariat where I conducted embedded participant observation for three months (in addition to an array of other events outside of those three months), and (iii) expediently, as IPBES's work is organized around discrete meetings, which (assuming access to the requisite permissions and resources needed to attend them) can offer more methodologically tractable condensations of IPBES's work. Conveniently, meetings concentrate these experts around time-limited, focused interactions, allowing direct observation of dynamic personal ties, shifting associations, the coordination and

[51] Which is conceivably endless given that "methodological saturation is practically unattainable" in such a research context (Peck and Theodore 2012, 25)

alignment of positions, the representational practices of discourses in the making, and the management of tensions and disagreements (Corson, Campbell, and MacDonald 2014).

In short, this analysis concentrates very pointedly on the perspectives and experiences of these practitioners as they make their way through their own personal (and often overflowing) "witches brew of processes, practices, and struggles" (Li 2007, 28). As such, this dissertation is necessarily exploratory and correspondingly modest in scope, and its goals are more intimate than synoptic. With respect to NatCap, this approach is not positioned to draw, and it does not intend to make, strong claims about the local complexities of their individual, situated entanglements across the range of settings where its personnel work (let alone in their totality). While I would contend that I obtained an especially advantageous perch from which to understand the workings of IPBES, its internal processes, and its key personnel, my analysis cannot fully capture the complexities of those many appendages of the process which I did not see or engage.

Despite these limitations, this more intimate vantage can provide unique insights, particularly if we wish to apprehend the sorts of ambivalent motivations, challenged intuitions, re-constituted subjectivities, and minor misadventures that riddle practitioners' engagements with ecosystem services and how they learn to maneuver its contradictions. And despite the impossibility of establishing a sustained physical presence across the entirety of NatCap's or IPBES's activities, there is ample opportunity for triangulation through mixed methods and the availability of substantial primary and secondary materials. These contributions also, of course, draw upon and complement findings from other more deeply situated analyses of emerging manifestations of ecosystem services policy.

Across both processes, I conducted over 80 formal interviews ($n > 40$ in IPBES and $n > 40$ in NatCap; I also conducted $n > 30$ in British Columbia).[52] With respect to interview technique, I relied on a (loosely applied) hybrid funnel and pyramid structure as described by Dunn (2005, 86–87) wherein I would progress through a sequence of themes beginning with simple, non-threatening, and easy-to-answer biographical questions relating to the interviewee's background, before transitioning to more conceptual, analytical questions about their work, and then finally reaching more contentious, politically-charged, and potentially sensitive subjects.[53]

For my research on IPBES (also referred to as "the Platform"), I conducted a mixture of episodic and sustained multi-sited institutional ethnography spread across three years, four expert groups, two assessment scoping processes, three plenary negotiations, and three months of participant observation (Sep. to Dec. 2015) embedded inside the Secretariat's offices in Bonn, Germany (see Table 1), where I was provided a spare bedroom by one of the Secretariat's senior personnel and performed the dual role of 'programme intern' and 'office ethnographer'. My intention to conduct research inside the Platform was known well in advance of my arrival: it

[52] I discuss my interviews in British Columbia, their rationale, and also the reasons why they did not appear as dedicated chapters in the dissertation in Chapter 7. To summarize, ecosystem services was garnering much interest at the time that I was beginning my PhD and had, by the time I conducted the majority of the interviews during my fieldwork, ceased to be a salient part of environmental politics in the province. I share reflections on ecosystem services' apparent fall from grace in the conclusion to this dissertation.

[53] Interviews were typically around 1 hour in duration but occasionally exceeded 3 hours. I produced audio-recordings and field-notes for each interview. I selected interviewees opportunistically using snowball sampling. In essence, I arranged formal interviews with people whom I encountered, or was referred to, over the course of my participant observation who were both (a) willing to talk to me on record, and (b) in a position to speak to relevant themes I wished to explore. One interviewee was adamant about instead discussing issues he was interested in exploring.

informed the decision to bring me on board and was openly discussed throughout my time with them. My interviews (n > 40) included members of each of the Platform's subsidiary bodies with a particular emphasis on experts involved in its 'values and valuation' expert group, as discussed in Chapter 6. From my position in the Secretariat, I was able to attend staff meetings and to observe a series of formal IPBES processes which convened its various experts and subsidiary bodies (see Table 1). I was also invited to perform a variety of tasks including literature reviews, assisting in the preparation of working documents, and supporting official deliberations for the Secretariat. I was also reading voluminous, seemingly endless documents generated by the Platform during most of this period. Finally, I spent abundant informal time simply hanging out with various IPBES personnel and experts—by water coolers, in cafes, at bars, over meals, and on walks among the dispersed locales where IPBES gathers to do its work (when I was not reading its voluminous, seemingly endless documents).

Table 1 – In my doctoral research, I conducted interviews, embedded organizational-ethnographic research, and participant observation at international events ("event ethnographies) across these sites

LOCATION	ACTIVITY	YEAR
Minnesota	Natural Capital "Olympics"	2016
California	9th Natural Capital Symposium	2016
British Columbia	Summer fieldwork: interviews w/ environmental practitioners	2016
Hawaii	IUCN World Conservation Congress (embedded w/ NatCap)	2016
Myanmar	Embedded research at WWF-Myanmar office	2016
Malaysia	IPBES-4, Fourth Plenary of IPBES	2016
California	8th Natural Capital Symposium	2015
Germany	Embedded research in IPBES Secretariat	2015
Hungary	IPBES Values & Valuation Expert Group	2015
Germany	IPBES Land Degradation & Restoration Expert Group Meeting	2015
Germany	IPBES Scoping Meeting for Global Assessment	2015
Germany	IPBES 6th MEP & Bureau Meeting	2015
Germany	IPBES-3, Third Plenary of IPBES	2015
California	7th Natural Capital Symposium	2014
Turkey	IPBES-2, Second Plenary of IPBES	2013
British Columbia	Summer fieldwork: interviews w/ environmental practitioners	2012
Brazil	"Rio+20" UN Conference on Sustainable Development	2012

In the case of NatCap, I interviewed current and former personnel, collaborators, and participants in NatCap activities. Interviewees were diverse and included NatCap's leadership, technical experts, administrative staff, field-level practitioners, liaisons to and collaborators from its partner organizations, and participants at various activities convened by NatCap. I also conducted participant observation episodically between Mar. 2014 and Oct. 2016 among a selection of NatCap's signature activities. Along these lines, my engagements with NatCap included: participation in three Natural Capital Symposiums each consisting of several days of technical trainings, networking events, and an assortment of themed discussions (March 2014, March 2015, and March 2016, all in Palo Alto); two workshops examining and elaborating on NatCap's theory of change (remotely, Oct 2015; Palo Alto, March 2016); a two-week visit to Myanmar to more closely examine NatCap's mainstreaming work in conjunction with WWF personnel (May 2016); shadowing their delegation to the 2016 World Conservation Congress (Honolulu, Sep. 2016); participating in the 2016 Natural Capital Olympics (near Minneapolis, Oct. 2016); and intermittently taking part in regular bi-weekly conference calls hosted by NatCap's

"applications team" which, among other functions, deliberated about future projects and potential partners (mid to late 2016). Throughout these activities, I interacted informally with NatCap personnel and other participants extensively. I should reiterate, however, that those segments of their work that I engaged represent only a small slice (or cross section) of a very thick pie. Finally, I draw on various primary and secondary texts including official NatCap reports, academic outputs published by its personnel, technical guides, documentation for its software tools, training materials from in-person and online capacity-building activities, a wide array of presentation slides, and press coverage (either about NatCap or produced by NatCap themselves).

Aside from providing useful background to NatCap's work, the availability and considerable volume of such documents, especially those produced by NatCap, begins to illustrate the kind of self-examining impulse I encountered among both organizations. Broadly speaking, I found the willingness of both NatCap and IPBES to facilitate the degree of access I was afforded somewhat striking and a signal of the self-examining reflexivity highlighted in following chapters. Despite a relative handful of awkward situations, for the most part, my research participants were happy to have me see what they were doing.

These engagements can facilitate the investigation of a number of dynamics. First, thickly-described and intimately-scaled accounts of expert circulations can draw into focus the *mutability* of mobile policies. Peck and Theodore (2010, 170) observe that they never travel as intact or complete packages but instead "move in bits and pieces—as selective discourses, inchoate ideas, and synthesized models—and they therefore 'arrive' not as replicas but as policies already-in-transformation." By pursuing transnationally mobile experts out into the trans-local networks where they circulate, together with the loosely coupled 'policy packages' they seek to spread, the co-constituted and relational construction of those policies—the "continuous processes of translation, intermediation, and contextualization / decontextualization / recontextualization" by which ecosystem services approaches mutate—becomes much more readily apparent (Peck and Theodore 2012, 24). Indeed, analysts have observed a striking variety of local articulations of 'ecosystem services approaches', including here, inviting closer consideration to exactly these kinds of trans-local processes of mutation and mobility. As I elaborate in Chapter 3, these kinds of organizational dynamics are operationally produced through the work of "institutional bricoleurs": subjects who deploy ecosystem services as a means of creatively syncretizing those "bits and pieces," "selective discourses, inchoate ideas, and synthesized models" out of situationally available logics to craft new assemblages and tinker with existing arrangements (Peck and Theodore 2010, 170).

Beyond drawing out various mutations of the policies themselves as they 'move', my concerted focus on the experiences and perspectives of ecosystem services practitioners—those not only trying to disseminate the tenets of ecosystem services but also tasked with the operational work of seeing them practically instituted—shares much in common with Ananya Roy's interest in mid-level technocrats (Roy 2012). While several of the expert subjects highlighted in this dissertation would likely qualify as "elites,"[54] the large majority of the practitioners that appear in this analysis occupied more mid-level roles in their organizations. Roy (2012, 33) zeroes in on "the intimacy of this professional subject" as a crucial means of understanding not only the *things* that circulate (i.e. "itinerant policies" like those operationalized by ecosystem services concepts)

[54] Elites are understood here "not as a fixed upper tier in society but as groups of individuals distinguished by their disproportionate influence in particular areas," and whose "influence is transient and context-specific and works through relationships" (Holmes 2011, 3).

but of apprehending their encompassing socio-technical circuitry: the broader "apparatus"[55] associated with contemporary social projects like development and conservation, both constitutive of and constituted by the subjectivities of these practitioners, which she names as the proper object of "an ethnography of circulations." Similarly, Larner & Laurie (2010) invite closer attention to the embodied experiences of non-elite "middling" experts, the practitioners who enact ostensibly hegemonic social projects, and accessing the situated, haphazard practices attendant to their work. In this vein, they specifically advise "profiling the expert subjectivities constructed around the dissemination and normalization of particular economic practices and techniques" (Larner and Laurie 2010, 219). By investigating the circulation of embodied knowledges like those in ecosystem services, they argue, we may gain insight into "the contingent processes through which new political-economic configurations emerge" and how "the movements and translations of diverse forms of expertise […] are involved in constituting neoliberal objects and subjects" (Ibid).

As I elaborate in the following chapters, the "neoliberal" status of ecosystem services remains in some senses strikingly overt yet deeply ambiguous. I draw on these methodological emphases on contingency, slippage, and polyvocality: themes that resonate with the manifold contradictions that practitioners of ecosystem services have to navigate and the kinds of improvised practices, situational creativity and syncretized 'hacks' it forces them to come up with. Roy (2012) observes how "fragile and fragmented" the shape, and shaping, of these subjectivities can appear when viewed through this more intimate focus. Such professionals, she suggests, are simultaneously "positioned within the apparatus and yet able to forge moments of subversion and critique" and can therefore represent what she characterizes as a kind of "double agent" (Roy 2012, 37):

> Their rebellions within and against the apparatus are often fleeting, sometimes persistent. The task of the ethnographer is to capture this complex terrain of complicity and resistance […] to trace the ambivalences through which those charged with programming negotiate the apparatus.[56]

Michael Goldman (2006, 23) argues, similarly, that "[i]t is only within the specific interstices of hegemony's production that we can observe concrete organic struggles over power." He envisions the power relations constitutive of hegemonic social projects like those currently implicated in conservation and effected through ideas like ecosystem services—sometimes regarded as relentless, unstoppable steamrollers of domination and exploitation—not as monoliths but instead as a "variegated landscape with diverse sites of production, resistance, instability, and political opportunity" (Ibid).[57]

These characterizations of such "cracks and fissures, this precarious making of expert subject" (Roy 2012, 37), as I discuss, provide useful entry points for describing the "complex

[55] Taking a Foucauldian approach, Roy identifies the "apparatus" associated with social projects like development (and conservation) as elaborated by Giorgio Agamben (2009) as a key object of ethnographic study: encompassing, historically emergent systems of discourses and institutions, policies and ideas, and a sprawl of other elements, which, while heterogeneous in the extreme, are also stabilized and directive as a "response to an urgency" (Foucault 1980).

[56] 'Programming' in this instance refers to Tanya Li's (2007) distinction between 'programmers' (who wish to make policies and projects better) and 'critics' (who question the underlying premises and logics of those initiatives)

[57] Applying a Gramscian analytical framework to contemporary shifts in biodiversity conservation, Igoe et al. (2010, 505) identify a "sustainable development historic bloc" within which they situate the current dominance of "mainstream conservation." In this context, they similarly argue that "good ethnographic research is essential for understanding both the ways in which historic blocs are reproduced and the ways in which they are transformed."

terrain of complicity and resistance" that the experts swept up in IPBES and NatCap have had to negotiate. In contrast to more abstracted and structurally determinative perspectives which may obscure these cracks and fissures attendant to ecosystem services, a more intimate (yet still critical) ethnographic approach to its practitioners might be better positioned to develop "a sense of why people offer their consent without force and why they do not," and to find opportunities to "discern where the political openings are, the sites and spaces where dominant structures get constituted, how people try to subvert them, and from where alternatives arise" (Goldman 2005, 25). That the ambivalent technician-missionaries of ecosystem services themselves might constitute such an opportunity is, I contend, well worth exploring.

These various conceptualizations of multi-sited research through the idioms of policy mobilities, ethnographic circulations, and expert subjectivities have guided my approach to apprehending, methodologically, the lively and very personal, intersubjective dynamics attendant to IPBES and NatCap's experiences navigating (and indeed, improvising) the politics of ecosystem services. Such approaches propose methodological means of thinking through these most emblematic of ecosystem services practitioners and finding a mode of explanation attuned to appreciate both "the analytical status of macroregulatory contexts for human agency" and "the everyday lives of the people producing on-the-ground cultural systems through which macro processes are always interpreted and shaped" (Rankin 2003, 710).

Thus, I try to depart from abstracted "grand accounts" of organizational change to ponder the lives of its self-styled practitioners and their "myriad, day-to-day equivocal instances of agency that, although aimed at affecting the institutional order, represent a complex mélange of forms of agency—successful and not, simultaneously radical and conservative, strategic and emotional, full of compromises, and rife with unintended consequences" (Lawrence, Suddaby, and Leca 2011, 52). I especially try to highlight the sustained, effortful forms of work that are often necessary to effect such changes (Lawrence and Suddaby 2006). In this way, my approach aims to contribute to what Berk and Galvan (2009, 543–44) propose as a "more phenomenological approach" to the study of institutional life which can provide an "experiential approach to institutions and how they change." In questioning this "tendency to treat change as an epiphenomenon of structure," they emphasize the "creative syncretism" that characterizes how "actors draw on a wide variety of cultural and institutional resources to create novel combinations" (ibid, 543).

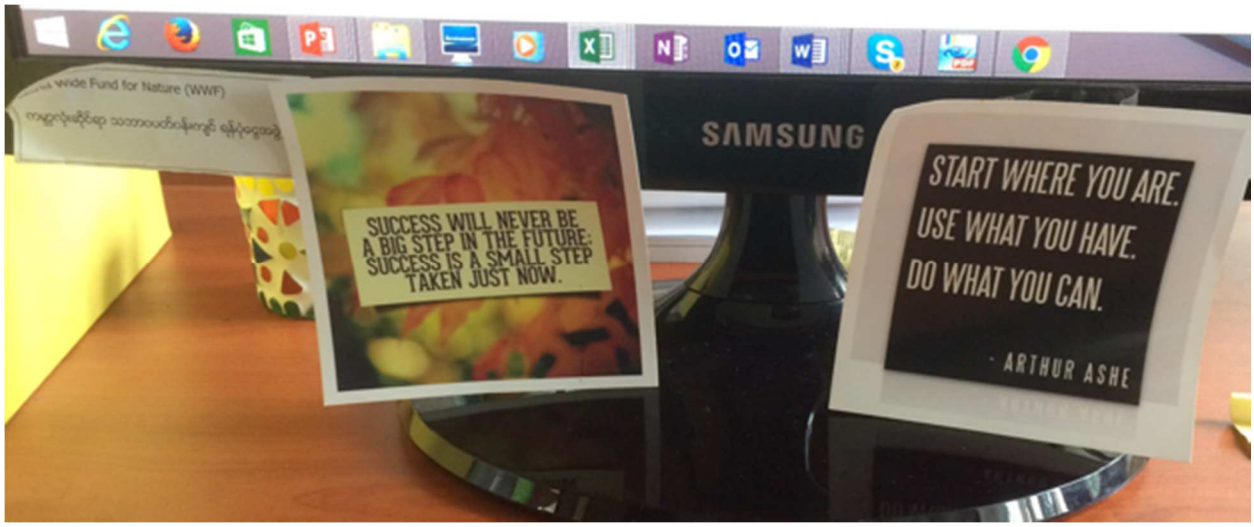

Figure 5 – Expressions of pragmatism attached to the monitor of one of WWF-Myanmar's personnel who was leading a major natural capital mainstreaming effort in the country.

One final methodological point to address in considering the vignettes highlighted earlier is a recognition of the sort of earnest charisma they (accurately) begin to portray. An immediate impression I gained when beginning this research was how many of the personnel with whom I interacted—the experts currently trying to figure out how to do ecosystem services work—were often fairly likeable and easy to get along with. Particularly with respect to NatCap, their ability to effectively do their job seems closely related to a disarming personal charm peculiar to their organizational culture and many of its core personnel. It seems difficult to imagine that their friendliness, exuberance, earnestness, sense of humour, and other expressions of niceness have not left traces on how I narrate my experiences with them.[58]

These questions of reflexivity and positionality, while inherent to any research conducted in this mode, are important to recognize. What is particularly striking is how discordant these impressions seem in relation to the other critical sensibilities I bring to bear as a researcher and my own continuing ambivalence about how to interpret the political significance of their work. Debates about ecosystem services ultimately revolve around how to appropriately confront very real and intensifying socio-ecological transformations, dispossessions, and devastations, which in turn, necessarily invoke wider questions of power, political economy, and social struggle. It is with these increasingly dire and deeply power-laden stakes in mind that many critical interpreters remain not just skeptical but in many instances deeply hostile to the approach, perceiving initiatives like IPBES and NatCap as not only reflective of but directly contributing to the root causes and ultimate drivers of current crises.

A prominent Venezuelan activist with the Transnational Institute, for instance, provides a characteristic critique of such frameworks by arguing that "[o]ver and above the potentially very good intentions of the contributors, what is taking place is a new and sophisticated offensive geared towards limiting the debate over this terminal crisis of the hegemonic pattern of civilisation in terms that don't call into question the global operation of the political and economic relationships

[58] Multiple NatCap personnel stressed how they are, as one veteran NatCapper remarked, a "shockingly female-dominated group," which has been influential to defining NatCap's culture. She described being "inspired to be among female leaders," noting that five of the six posts in their leadership committee were held by women.

that today dominate the planet" (Lander 2011, 2).[59] From this vantage, questions surrounding the idea of ecosystem services far exceed a mere intellectual curiosity—they are about the underlying political and economic orders which NatCap's work upholds, irrespective of whether its practitioners are nice people, and the increasingly dire socio-ecological futures (and presents) those orders are organized to produce. Here, the turn to ecosystem services is understood, at best, as "the naïve expression of very good intentions, without any possibility of altering the current course of the planet" (Lander 2011, 10).

This research emerges from and speaks to this tradition of critical scholarship and praxis. One of the chief goals of this dissertation is to qualify these critical and theoretically informed interpretations—taking seriously the critiques they posit foregrounding issues of power, political economy, and social struggle—by parsing how they might map onto these most prominent examples of ecosystem services mainstreaming work and the experiences of those enacting it. In this way, I have shaped this narrative to speak to key questions raised by the extensive critical literatures debating what ecosystem services does, what it represents, and what it may become in these terms.

But I have also tried to write this story in such a way that the people who gave me their time and attention may be able to meaningfully recognize themselves in it. Thus, this dissertation is necessarily caught between somewhat divergent sensibilities: the distinction and tension, discussed by Tanya Li (2007), between programmer and critic. While analytically critical, the perspective offered here is also sympathetic and tries to engage with NatCap and IPBES on their own terms—with a recognition of the difficult, even tragic predicament practitioners confront in ecosystem services and the inadequacies of casual dismissals and abstracted, disconnected critiques. However, in doing so, I also situate the efforts and experiences of NatCap's and IPBES's personnel within the wider urgencies, unfolding social struggles and explicitly political and critical questions at stake in ecosystem services which inspired this dissertation.

As I discuss later, ecosystem services diverges from the table-flipping implications ascribed to it by many of its critics and proponents. Indeed, my experiences with IPBES and NatCap leave me with an impression that its politics are more benign than I anticipated and, under certain conditions, potentially even useful to (or at least not necessarily incompatible with) more transformative, counter-hegemonic politics and forms of resistance typically assumed to be at cross-purposes with it. Its politics remain politically contingent. However, I recognize the potential here for a sort of 'researcher Stockholm syndrome'—for my interpretations to be clouded by wishful thinking, a desire not to betray the trust extended to me by often very kind informants, or by accepting too uncritically the beguiling stories and abstractions one encounters when "penetrating the assumptive worlds" of cosmopolitan experts (Peck and Theodore 2015, 37).

This tension between acknowledged sympathy for these subjects and a commitment to clearly parsing the political significance of their work, including and especially its problematic aspects, cannot be easily resolved. But I can try to be transparent about how I have tried to sort out this incongruence. Echoing a comment made to me by several other interviewees, one of my key informants asked me explicitly "not to hold back"—to not pull my punches and to be as critical as

[59] His essay was published prior to negotiations at the United Nations Conference on Sustainable Development (UNCSD, better known as "Rio+20"), critiqued the related and more encompassing notion of the "green economy" (akin to 'sustainable development') in which natural capital and ecosystem services are critical elements.

my analytical intuitions demanded. I remain unsure whether on this score I have delivered more than she bargained for or not enough.

Figure 6 - IPBES group portrait: photograph taken at a recent meeting of the IPBES Bureau and Multidisciplinary Expert Panel (MEP), together with personnel from the Secretariat (IPBES Twitter feed, 20 June, 2017)

Figure 7 - A recent group photo with most of NatCap's core personnel represented (Natural Capital Project 2017b)

THE WAY FORWARD FOR THIS DISSERTATION: CHAPTER OUTLINE

In Chapter 2, I provide a textured portrait of "mainstreaming" work in action to set the stage for later theorization of how it works and what it means. NatCap serves to illustrate many of the operative social dynamics that have underpinned the spread and uptake of ecosystem services, including the forms of translational, boundary-traversing work it is used to perform (Star & Griesemer 1989) and the types of subjects who perform it (Berk & Galvan 2009). Indeed, NatCap is not only illustrative of these dynamics but has itself played a leading role in shaping wider ecosystem services policy discourse. While occupying its own niche alongside other organizations in the ecosystem services movement, NatCap is widely considered to be one of its more prominent figureheads whose contributions to the cause require some foregrounding. As such, I dedicate significant attention to describing NatCap's network, the specific practices that constitute its strategy, and the different facets of its project-level work attempting to use, and insert, ecosystem services in various decision-making contexts.

In Chapter 3, I develop a theorization of NatCap's mainstreaming work by adapting concepts drawn from constructivist variants of sociological institutionalism (Battilana et al. 2009; Garud et al. 2007). Synthesizing frameworks from this tradition and putting them into dialogue with those in political ecology and science studies as they relate to ecosystem services, I highlight a condition of multiple, heterogeneous and overlapping institutional orders (Clemens & Cook 1999)—which are pronounced in the context of conservation as an exceptionally, kaleidoscopically fragmented field. Here, I identify the specific operations of social change, and corresponding *agencies* of social change, that flourish at the interstices of such conjunctures.

In Chapter 4, I return to the question posed by Daily regarding how NatCap's theory of change has actually performed given multiple attempts to enact it over the past ten years. To this end, I examine the substance of NatCap's mainstreaming work but also how they think through who they are, what exactly they are doing, and why they are doing it. Apprehending these intersubjective dynamics entails (among other things) capturing in real-time, as it unfolds, the situated processes of symbolic interaction by which practitioners negotiate the political meaning of their work and come to conceive of themselves as self-described agents of social change. The kind of introspective sense-making I encountered among NatCap's personnel has been accompanied by several notable refinements, and arguably substantive shifts, in how NatCap uses ecosystem services in their work. As I will discuss, these shifts include an embrace of more deliberative, participatory modes of stakeholder engagement, a conscious de-emphasis on monetary valuation, and reconstituted understandings of how scientific and ecosystem service knowledge does (and does not) influence environmental governance.

In Chapters 5 and 6, I turn attention to the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES). Established in 2012, the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) aspires to be a kind of "IPCC for biodiversity," tasked with transforming knowledge about global ecosystems into global action to better conserve ecosystems. IPBES represents a crystallization of over two decades of transnational consensus-building around ecosystem services policy discourse and has so far enrolled over one hundred member states and one thousand experts to its cause. However, the Platform's institutionalization has also served as a site of epistemic struggle where broader tensions among conservationists over the political meaning and political implications of ecosystem services are literally being negotiated. These conflicts surrounding ecosystem services—particularly over how to accommodate different knowledge systems and approaches to valuation—quickly manifested within the process and

played an important role in shaping the Platform's mandate, conceptualization, and overall character. Drawing on embedded organizational ethnography conducted inside IPBES, this paper analyzes efforts by a variety of actors operating within the process to steer its institutionalization away from dominant epistemic and political frames. In these chapters, I discuss the strategies, ambivalences, and counter-hegemonic potential of these actors as they try to contest the character of this emerging institution and wrest the political meaning of ecosystem services discourse from its neoliberal integuments and articulations. I explore the prospect (and acknowledged limitations) of coalition-building among critical scholars and conservation scientists, and the extent to which the much-maligned but apparently ascendant vision for ecosystem services as a vehicle for neoliberal conservation can be dislodged by something more progressive and transformative.

CHAPTER 2 – TRANSMUTATIONS AT THE FRONTIER OF NATURAL CAPITAL

Figure 8 - The opening plenary to the Natural Capital Project's annual symposium, held each year in Palo Alto, CA at Stanford

THE ECOSYSTEM SERVICES GAMBIT

On a sunny Spring morning in early 2015, I attended the opening session to the eighth annual Natural Capital Symposium held on the campus of Stanford University (Figure 8). The meeting convened over two hundred practitioners from over thirty countries and its attendance spanned a characteristic range of institutions—universities and international NGOs, various state agencies, development banks, a handful of large corporations, and more—some dabbling in ecosystem services ideas and others charging forward with its tools and approaches.

The meeting was hosted by the Natural Capital Project ("NatCap" for those acquainted) which was about to mark its ten-year anniversary since its founding. The significance of this milestone loomed large and was regularly addressed as a theme by NatCap personnel throughout the event. As one of the most widely-recognized organizations endeavouring to "mainstream" the notion of ecosystem services, what did they now have to share with their broader community of practice—how would they narrate the story of their first decade? What had they learned? What had all their efforts accomplished? Gretchen Daily, one of NatCap's co-founders and a leading figure in the ecosystem services movement, opened the meeting by tackling these questions directly:

> I think back to when the Natural Capital Project was founded by many of the people working together in this room. We developed, nearly ten years ago, a theory of change. And I wonder if this theory still makes sense now—whether the way we were thinking ten years ago is a good way of guiding our work today. Let's think about this together. Our theory was that we could achieve better outcomes for people and for nature by shining a

> light on all the intimate but hidden connections between people and nature, our dependence on nature, and the ways we impact nature. At a high level, that was our goal—to shine a light on these connections in a way where decision-makers could easily use that understanding and change their decisions. And how far have we come?

I highlight these remarks because they are in several respects quintessentially NatCap. They neatly articulate the central premise, and promise, of ecosystem services: that the translation of ecological knowledge into more relevant, legible terms is key to safeguarding both nature conservation and human wellbeing. They narrate a theory of change long embedded at the heart of the movement while also gesturing at the vital role played by specific professional and personal networks, notably those connected to NatCap, in shaping that movement. Moreover, and in notable contrast to frequent emphases on "making nature's values visible" (TEEB 2017) through the specific lens of economics, Daily downplays these monetary associations and leaves the precise methodological hue of the "light" they are shining unspecified.[60]

Perhaps most interestingly, her remarks also begin to illustrate an ongoing dialogue I observed playing out among NatCap's personnel: a conversation trying to make sense of ten years of cumulative, often challenging experiences putting to the test some of the starting assumptions and underlying conceptions ingrained in ecosystem services as an organized political project. Her comments preface a kind of reflexivity I observed among NatCap's personnel—a developing interest in more systematic self-evaluation but also a receptivity to questioning how they conceive of social change, the character of the problems they face, and the meaning of their work in relation to those problems. Daily acknowledges the gambit that ecosystem services represents and wonders aloud about the extent to which that bet has paid off.

Over the next three chapters, I take up Daily's invitation to consider how far ecosystem services has come by exploring NatCap's struggles to actually institute it. I examine NatCap's ten-year body of (and embodied) experiences positioned at the collision between ecosystem services as initially envisioned and the messy realities and tangled, situated politics that define the fields of contemporary conservation and development. I draw on interviews, analysis of key texts, and participant observation with NatCap's personnel conducted over a two-year period (2014-2016) to develop a thickly-described account of ecosystem services "mainstreaming" in action through the perspectives, experiences and struggles of some of its principal proponents.

NatCap's story contains useful lessons for those seeking to clarify the political orientations of ecosystem services, to understand the dynamics underlying its emergence, and to reflect on its implications. As Daily's remarks attest, such lessons have become an explicit and increasingly active focus of discussion within NatCap itself. I suggest that the ways in which NatCap is grappling with its own theory of change—how they come to interpret the present moment, its bounds of political possibility, and fundamental questions about the nature of power, political economy, and social struggle—provide important clues about what ecosystem services means, and can mean, in the context of ongoing debates over how to appropriately confront present and impending socio-ecological crises. Building on the broader conceptualization of ecosystem services introduced in the previous chapter, I narrow in to examine in more intimate, nuanced terms how NatCap and its team have attempted to enact the idea of ecosystem services and learned to deal with its myriad surprises and frustrations.

[60] I explore this conspicuously subdued approach to economic valuations discernible in Daily's comments in more detail in Chapter 4.

In this chapter, I introduce the work of NatCap. For illustration, I draw on my experiences with one of its major ecosystem services mainstreaming initiatives in Myanmar to provide a somewhat more textured portrayal of its project-level activities and how its practitioners operate in the field. In Chapter 3, I then conceptualize the political 'work' its personnel perform as a kind of "institutional bricolage" (Cleaver 2012) and analyze the embedded agencies that give rise to its deployments. In Chapter 4, I discuss how NatCap seems to have interpreted its myriad engagements working with diverse projects, partners, and geographies over the past ten years. Here, I highlight several specific 'course-corrections' to its work and consider the social process by which these changes came about. In my conclusion (Chapter 7), I return to Daily's question about NatCap's theory of change to reflect on the political significance of their work in the context of broader debates about ecosystem services and the future of conservation.

Across these chapters, I emphasize the slippery versatility of ecosystem services and its often faint yet still discernible political mutability. I observed NatCappers putting ecosystem services into practice in creative ways and toward various political purposes. These deployments occasionally met the expectations of its promoters, and its critics, but much more regularly fell far short of its more ambitious aspirations and menacing implications. As I will show over the following chapters, NatCap's evolving engagements with the myriad surprises ecosystem services had in store for them—its mutating discourse, its cacophonous politics, and its polyvalent representations—displayed a political malleability on the part of both NatCap and the construct of ecosystem services itself. After numerous attempts to realize in practice, and with variable results, the initial promise of ecosystem services, NatCap has opened itself to a degree of self-questioning and re-invention. This reflexivity, in turn, raises questions for critically-oriented analysts and activists assessing (and often contesting) contemporary efforts to mainstream the concept.

What is the significance of NatCap's evolution? Does their experience, upon closer inspection, signal worthwhile and insufficiently appreciated political possibilities latent in ecosystem services approaches? Or, to the extent that NatCap's strategy has changed in some fashion, does this evolution only serve to reaffirm critiques emphasizing the concept's chimeric adaptability and its overall role in disarming alternative forms of resistance, reinforcing existing power asymmetries, and further entrenching patterns of uneven capitalist development and crisis? The political polyvalence of ecosystem services re-emerges as a central theme in the following two chapters. To illustrate this theme, much of this chapter's task is descriptive: to characterize the people and activities positioned at the vanguard of the ecosystem services movement. In Chapter 3, building on this account, I theorize the ways in which these characteristics of ecosystem services serve to implicate its practitioners in the perpetuation of hegemonic power relations. In Chapter 4, I show that while its communities of practice have been organized around a deeply problematic theory of change, there are kernels of a growing recognition that ecosystem services can, and perhaps should, be separated from these political assumptions: that it can be made, or be remade, into something more benign or perhaps even helpful to counter-hegemonic struggles and more structurally transformative and emancipatory political-economic change.

TAKING THIS IDEA AND MAKING IT HAPPEN

James Salzman, now a law professor at UC Santa Barbara and UCLA, recalls his first encounter with Gretchen Daily in 1996 at a conference in Japan, where she gave him a draft of her soon-to-be landmark book, *Nature's Services* (Daily 1997). Salzman (2011, 598) describes his reaction:

> 'This is terrific. You're really onto something, but there is a problem. There is nothing here about institutions. And if you want to take this idea and make it happen, then you have to figure out how the legal aspects work, what the institutions are going to look like'. And Gretchen, being Gretchen, said 'You are so right. Why don't you do that?' In short order, she and Paul Ehrlich helped me get an EPA STAR grant and I spent a year at Stanford. Working with a bunch of law professors around the country we came out with a special issue of the *Stanford Law Journal*. We looked at every major environmental law, asked whether ecosystem services were currently protected and, if not, whether these laws could be used to protect ecosystem services. This was the first comprehensive legal analysis of ecosystem services.

Daily, her fellow ecosystem services "crusaders" (Marris 2009, 270), and the nascent epistemic community they fomented ultimately did proceed to "take this idea and make it happen." They spread their message through "international treaties, national legislation, government reports, academic textbooks, popular environmental books," and "scientific organizations, grass-roots conservation groups, state-funded and commercial media, and so on" (Ridder 2008, 781). Salzman begins to illustrate the early days of ecosystem services just prior to its blast-off year in 1997 and the sorts of network-building and improvised, tactical adjustments that attended it.[61]

Reflecting on the years that had passed since his initial encounter with Daily, Salzman (2011, 600) pondered what ecosystem services had yielded. "While there are lots of reasons to be excited about the potential of an ecosystem services approach," he notes, "some caution is in order. It's fair to ask, just what is the emperor wearing? Is the emperor standing out there in splendid garb or is there some Velcro and rayon we cannot see? I think it is a bit of both—promise and hype." He displays a kind of reflexivity about what he and his colleagues were doing and more generally about the uncertain providence of the "emperor" of ecosystem services. I encountered a similar ambivalence—a guarded optimism about what the concept really represents, what it can and cannot do, and the nature of the consensus that now sustains it—frequently throughout my fieldwork and will begin to highlight its expressions in this chapter. First, I will introduce the organization itself, or, let them introduce themselves—a task with which they have grown increasingly adept.

As they explain in recent informational materials, The Natural Capital Project was established with the broad aim of "aligning economic forces with conservation" (Natural Capital Project 2016, 3). NatCap describe themselves as "a team of optimistic and committed academics, software engineers, and practitioners" that have been "working together for over a decade to integrate the value nature provides to society into all major decisions" (Natural Capital Project 2017a, 1). To further this aim, they "harness world-class research capacity and pair it with the latest technology and practical, local know-how" in order to "empower governments, communities, corporations, and multilateral investment institutions to map and measure the goods and services they depend on" (Ibid). Organizationally, NatCap represents a four-member partnership comprised of "two world-class research universities […] advancing new science together with, inspired by, and implemented through two of the world's largest NGOs" (Natural Capital Project 2017b). Ultimately, their mission is "to improve the well-being of people and

[61] 1997 was the publication date of Daily's seminal book, *Nature's Services*, among several other key texts, as discussed in Chapter 4.

nature by motivating investments in the natural capital assets that sustain us" (Natural Capital Project 2017a, 1).

In a sense, NatCap's work is fairly easy to narrate because they are constantly auto-narrating. NatCap is, by now, replete with official documentation describing themselves, what they do, and what they are trying to accomplish. Over the years, they have been the subject of considerable press coverage. They champion what has become an intuitively familiar discourse whose vocabulary, precepts, and frames increasingly saturate mainstream conservation dialogues and deliberations. Their signature analytical platform for modeling ecosystem services—the Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST) suite of open-source software—now comes with a host of case studies, detailed how-to guides, online discussion forums, and a dedicated community of practice. Their project-level work is often scrupulously documented and attractively packaged for circulation. Their capacity-building efforts are increasingly elaborate and now include webinars, symposia, in-person training workshops, tailored project-level consulting materials, and their own Massive Online Open Course (MOOC). Their academic outputs have been prolific, reporting the scientific findings arising from their research projects and partnerships but also, more recently, analyses of *themselves*, their approach, and their impacts.

My aim, however, is not simply to re-capitulate these outward-facing stories but rather to peer "below the official line to the hidden transcripts" (Peck & Theodore 2015, 34) in order see what may become apparent when lingering awhile after the speeches have ended, the reports are submitted, and the workshops are concluded—reading between the lines, in part, by dwelling between the meetings (also, at them). In this chapter, I begin by depicting how NatCap's personnel depict themselves, conveying their chosen emphases, before contextualizing and unpacking key dimensions of their work through an analysis of a specific mainstreaming operation. In Chapter 3, I then conceptualizes the specific practices of "institutional bricolage" (Cleaver 2012) and the dynamics of "institutional entrepreneurship" which I suggest define mainstreaming work (Battilana et al. 2009). As I will discuss, this conceptualization helps to characterize the unique set of practices, subjectivities, positionalities, and organizational dynamics by which ecosystem services experts "mainstream" its policy discourse in biodiversity conservation. Theoretically, this conceptualization helps to untangle what organizational theorists refer to as the "paradox of embedded agency" (Garud et al. 2007)—the ways in which institutional subjects are simultaneously shaped by and yet have some reflexive capacity to shape, and re-shape, their surrounding institutional orders—as it manifests through ecosystem services mainstreaming. After highlighting in this manner what kinds of 'social change' this campaign to mainstream ecosystem services has actually produced, I then switch gears in Chapter 4 to discuss the messy, obstinate realities that confronted NatCap's campaign to save nature by turning it into natural capital—and, more importantly for this analysis, how NatCap's personnel made sense of and adjusted to these confrontations.

The Natural Capital Project was formally created in 2006 and draws on a long lineage[62] and many years of discussions among groups of scientists, conservationists, and related experts—at conferences and seminars, after international working groups and assessment processes, in

[62] As discussed in Chapters 1 and 4, over several decades, specific epistemic networks in the life sciences combined with others among the communities of resource and later ecological economics were coming together and eventually helped to shepherd the science of "ecosystem services" into prominence (see also Dempsey 2016; Dempsey and Robertson 2012; Gomez-Baggethun et al. 2010; Kull, Arnauld de Sartre, and Castro-Larrañaga 2015).

cabins and around bonfires—coming to agreement about the necessity of forming some kind of organizational vehicle capable of taking the *idea* of ecosystem services and making it readily operational for actual 'decision-makers' (Castro and Sartre 2014; Dempsey 2016; Gomez-Baggethun et al. 2010; Kull, Arnauld de Sartre, and Castro-Larrañaga 2015; Meral 2015; Salzman 2011). At various points these conversations involved senior US bureaucrats and policy-makers, conservation leaders and funders, key brokers of international environmental assessment processes, intergovernmental technocrats, economists, and especially life scientists—often eminent ones connected to Stanford University's biological research community. Following the publication of several high-profile, influential texts in the late 1990s (Chichilnisky and Heal 1998; Costanza et al. 1997; Daily 1997), and coinciding with the completion of the Millennium Ecosystem Assessment in 2005 (MA 2005),[63] it was clear that the idea of ecosystem services was in the ascendant. Sensing a window of opportunity, these networks coalesced began to turn those conversations into concerted plans and actions which led to NatCap's establishment.

NatCap was created as a partnership between Stanford University, The Nature Conservancy (TNC), and the World Wildlife Fund (WWF), followed soon after by the University of Minnesota. Spearheading its formation was a small group of well-connected colleagues, all of them friends[64] and each representing one of the four partner organizations: Gretchen Daily, an ecology professor at Stanford (and protégé of Paul Ehrlich and Hal Mooney); Peter Kareiva, who was then Chief Scientist at TNC; Taylor Ricketts, who was then Director of WWF's Conservation Science Program (and a former doctoral student of Daily's); and later Steven Polasky, an economics professor at the University of Minnesota. Kareiva and Daily have been especially prominent voices championing ecosystem services in widely publicized debates in the academy and beyond concerning "the way forward for conservation."[65] As NatCap got off the ground, its four founders (the so-called "amigos") helped guide its growth from two postdocs to the much larger operation it is today. They continue to serve as figureheads for the group's ongoing work.

As of late 2017, NatCap currently lists over sixty active personnel divided across its governing committee (functionally akin to its board, with two representatives from each of the four institutional partners); its leadership committee (more operationally-oriented and led by its Managing Director, Mary Ruckelshaus[66]); its advisory committee (comprised of "exceptional individuals" providing counsel on strategy, fundraising, communications and other high-level issues); the team itself, comprised of postdoctoral researchers and a wide assortment of practitioners (including ecologists, hydrologists, economists, communications specialists, software engineers, GIS analysts, and others); and a host of doctoral students and interns, in addition to dozens of student and staff "alumni."

Its personnel are based primarily in the United States with important nodes at Stanford, the University of Minnesota, the University of Washington (where NatCap's managing director and "marine team" reside), and in Washington DC (the base of its NGO partners), with further

[63] A major international undertaking which enrolled over a thousand scientists and was framed explicitly around an ecosystem services framework, as discussed in Chapters 1 and 5.

[64] As one co-founder put it, "[co-founder] and [co-founder] and I were friends. We're still friends. I think that has seen us through some things that would have spelled the demise of the project otherwise. There has been uncomfortable times when things weren't working, or when one or more of partners wasn't behaving very well. The ability of the three of us to just rest on this friendship has allowed it to last for the ten years."

[65] Kareiva is one of the most prominent proponents of the notion of "New Conservation."

[66] A marine biologist, formerly a professor at Florida State University and conservation biologist with the National Oceanic and Atmosphere Administration (NOAA)

academic nodes emerging at the University of Vermont and UCLA, where Ricketts and Kareiva recently accepted appointments directing those universities' environmental research centers (Ricketts at UVM's Gund Institute and Karieva at UCLA's Institute for Environment and Sustainability). NatCap is funded by its four organizational partners, each of which provides financial and other material support, augmented by a combination of large and small grants from government, multilateral, and foundation donors (such as Moore, Packard, Rockefeller, MacArthur and others).

Table 2 - Contexts where NatCap attempted to use InVEST model outputs with various partners, as of 2013. The table is not exhaustive and many additional project and partnerships have been initiated by NatCap since this analyses was undertaken. (Adapted from Ruckelshaus et al. 2013)

CONTEXT	LOCATION	DECISION-MAKER
Spatial Planning	Sumatra, Indonesia	Government
	Belize	Government
	Oahu, Hawaii	Government
	Vancouver Island, Canada	Government, Private
	Baoxing Country, China	Government
	Upper Yangtze Basin, China	Government
	Hainan Island, China	Government
	Kalimantan, Indonesia	Government
	US Department of Defense: WA, VA, GA	Government
	Puget Sound, WA	Government
PES Design	Cauca Valley, Colombia	Government, Private, NGO
	Medellin, Colombia	Government, Private, NGO
	Amazon, Brazil	Government, Private, NGO
	Eastern Arc Mountains, Tanzania	Government
	Beijing, China	Government
	Putumayo region, Colombia	Government
Climate Adaptation & Hazard Mitigation	Monterey & Santa Cruz County, CA	Government
	Galveston Bay, TX	Government
Development Impacts & Permitting	Cesar Department, Colombia	Government
	Virungas: DRC, Uganda, and Rwanda	Government
Restoration Planning	Mobile Bay, AL	NGO
Corporate Risk Management	Freeport, TX	Private

While many of NatCap's personnel wear multiple hats (e.g. software development, ecological modeling and analysis, biological fieldwork, academic output, community engagement, etc.), its two NGO partners will typically lead efforts to connect NatCap with local organizations and field-level practitioners, while its two university partners handle many of the technical and conventionally 'scientific' aspects of its mainstreaming work. The volume of requests that NatCap receives seeking their expertise (essentially as consultants) now far outstrips their capacity to respond, which has prompted them to carefully select partnerships based on their potential for "replicability" and "scalability," areas of thematic or geographical interest, and the perceived influence of possible partner organizations in their respective sectors.

NatCap's list of collaborators is extensive: in addition to various sub-units within its four partner organizations (e.g. departments and research centers at its academic partners, regional bases and thematically-focused units in its WWF and TNC partners), NatCap lists over a hundred collaborations with other organizations from around the world, including governments, other

universities and scientific organizations, land management authorities, local and international NGOs, development banks, and prominent corporations. These collaborations are spread across different thematic foci and a range of locales, encompassing scientific research output, supporting spatial planning processes, helping to design PES-type arrangements, and convening meetings and other activities (see Table 2; also, Figure 4). To summarize their approach to new audiences, NatCappers will typically display this simple diagram representing their "theory of change" (Figure 9):

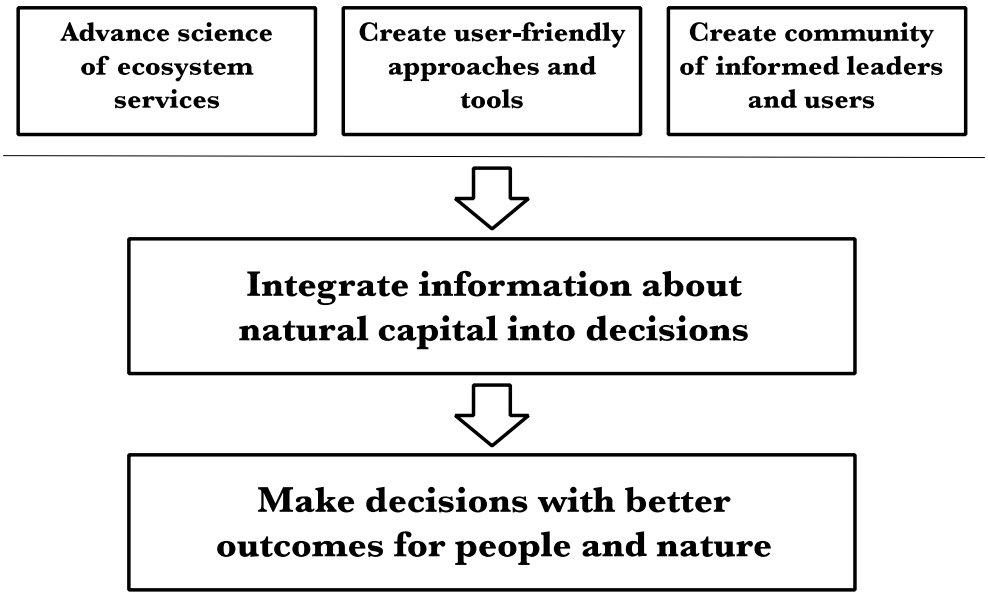

Figure 9 – The simplified "theory of change" diagram that NatCap displays when introducing its work and approach. The use of the term natural capital refers simply to natures that provide ecosystem services.

To abbreviate, my point for now is simply to emphasize that NatCap's "mainstreaming" work encompasses a wide variety of activities: scientific output, software development, network-building, convening conferences, developing case studies, training and capacity-building, media and communications, establishing partnerships, enrolling key "leaders" in key sectors, and so on.[67]

However, at the heart of NatCap's work is its flagship modeling toolkit, the Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST). Its technical elaboration and various 'in-situ' applications over the past ten years closely tracks the growth of the organization. NatCap created InVEST with the aim of providing practical tools for quantifying, mapping and valuing ecosystem services in ways they anticipated would be relevant, readily operational, and above all, deemed likely to influence 'real-world' decision-making. Whether it's the design of municipal-level public payment programs for upstream watershed stewardship, national-level spatial planning to manage impacts from infrastructural development, mitigating operational risks in corporate supply chains, or any other domain where choices with implications for ecological change have to be made, InVEST was designed to equip practitioners with the tools they needed

[67] They describe in their words a "platform of achievements to date: novel science; cutting-edge practical tools and data on an open-source technical platform; a wealth of experience, expertise, and materials in training and capacity building; a growing portfolio of demonstration sites where lessons from ecosystem service approaches are emerging; and an experienced, well-respected network at the forefront of integrating ecosystem service science into practice" (NatCap 2016, 7)

to incorporate ecosystem services systematically into their decision-making calculus to improve their desired outcomes.

Developed from "production-function" models linking available information about ecosystem properties to the delivery and value of different ecosystem services, InVEST spatially portrays where and how various combinations of ecosystem services occur, in relation to where people occur, across a landscape. The tool thus facilitates comparison of different management options, now with their ecosystem service impacts depicted in addition to and alongside existing measures. Beyond specific output metrics, what comes out are *maps*—different kinds of maps, maps depicting present conditions, maps depicting likely future conditions, and maps depicting possible future conditions under alternative management scenarios. By drawing ecosystem services explicitly into these maps, often in terms commensurate with other more conventional economic values (such as agricultural production, timber harvest, and so forth), InVEST is intended to expand the governing vision of decision-makers. It prompts them to see important new dimensions of the landscapes they manage and to perceive previously unrecognized trade-offs, win-win opportunities, and greener pathways to achieving their given policy goals. It provides the basis for re-fashioning their approaches to spatial planning, the design of new policies, and the optimization of investments with a more complete accounting of their 'true' costs and benefits.

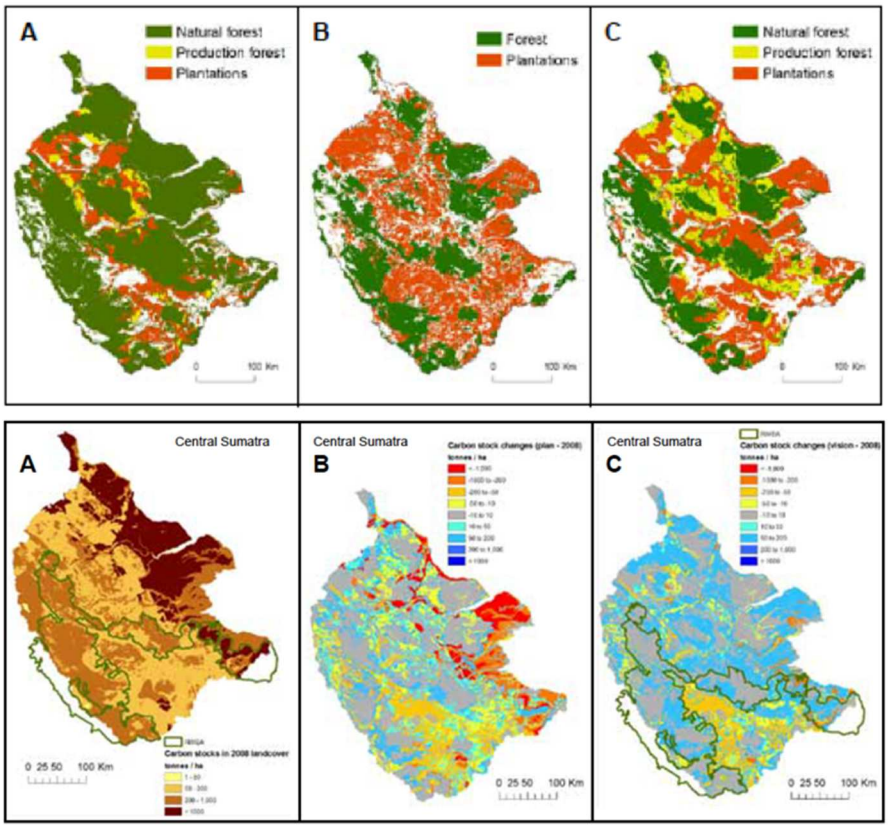

Figure 10 - Maps generated through InVEST comparing baseline conditions as of 2008 (Map A) and two future scenarios projected for 2058 (Maps B and C) in the study area. Map B is based on the existing, more development-oriented "Government Plan" and Map C represents a more conservation-oriented proposal called the "Sumatra Vision." The top row highlights distribution of areas classified as natural forests, production forests, and plantations. The bottom row represents results from their analysis of carbon storage. They generated further model outputs for other ecosystem services (McKenzie et al. 2012).

For illustration, consider these maps (Figure 10) generated through InVEST for an ecosystem service assessment conducted in central Sumatra, Indonesia, in partnership with WWF (Mckenzie et al. 2012).[68] Beginning with 2008 baseline conditions (Map A), NatCap's analysts modeled two different fifty-year scenarios projected for 2058 based on (1) existing development plans (the "Government Plan" depicted in Map B) oriented towards the expansion of non-forest land uses, and (2) an alternative and more conservation-oriented proposal developed by several government agencies and NGOs (the "Sumatra Vision," depicted in Map C). The top row compares the spatial extent of areas classified as "natural forest," "production forest," and "plantations" currently (Map A) and in either scenario (Maps B and C). In the same arrangement, the bottom row compares results from one of their ecosystem service analyses, in this case with respect to carbon storage, although they also produced similar maps for wildlife habitat, annual water yield, erosion control, and water purification.

Overlaying these different services, NatCap reported significant complementarities between conservation and development goals, highlighting what appeared to be considerable long-term benefits realized in the "Sumatra Vision" scenario. Essentially, NatCap used the outputs from their ecosystem service analysis (i.e. metrics and maps) to try to re-frame the question at hand around "which land management policies are likely to provide *ecological* and economic benefits" (Ibid, 3; italics added). They thus provide the basis on which to make "decisions with better outcomes for people and nature" (Ibid) which, in light of the contrasts now foregrounded (and conveniently colour-coded) in the InVEST maps, would presumably mean choosing the more "sustainable" course of action. While the decision contexts where NatCap works vary, they generally share some version of this basic structure: assemble baseline conditions, develop divergent scenarios, compare those scenarios and their respective ecosystem service implications, and use these contrasting model outputs to (hopefully) influence the choices of relevant stakeholders and decision-making authorities—nudging them toward the more reasonable, sustainable option.[69] As I elaborate in Chapter 4, this is a very schematic explanation of how they work which does not capture the messiness of what actually unfolds (see Appendix I for an extended anecdote shared by one of NatCap's analysts working on this project which provides a more textured illustration of NatCap's approach to its projects).

Soon after its establishment, NatCap recruited a team of software engineers who, together with its scientists and other collaborators, continued to expand InVEST's capabilities, step by step, from a small handful to eighteen different ecosystem service models (and counting). InVEST can now be used to model changes in habitat, terrestrial and marine carbon storage, scenic views, crop pollination, coastal protection, nature-based recreation and eco-tourism, fisheries and aquaculture, a range of hydrological processes, and more. And, in the years since it created InVEST, NatCap has fostered an active and growing community of practice around the toolkit.[70] Because of how

[68] One analyst involved in the Sumatran model case explained that "this is where the power of a tool like InVEST really shows up," noting that this assessment could be rated as "one of our more successful projects."

[69] NatCappers would sometimes joke that their scenario formulation seemed to follow a "Goldilocks" strategy where they would typically wind up with three options: one too far toward development, one too far toward conservation, and a balanced 'just right' middle option (i.e. "Informed Management Scenario") which was typically the option around which consensus was most easily built

[70] According to its logs, its software has been "downloaded and used tens of thousands of times in over 100 countries" (Guerry, Ruckelshaus, and Daily 2015). InVEST is free and open-source, with relatively forgiving computing and data requirements. It was designed to propagate and shaped to cater to 'resource-poor' governance contexts. Moreover, it was designed to be a living work in progress: NatCappers often emphasized the continuing

strongly they have been associated with InVEST, multiple NatCappers I interviewed sought to downplay the perception that they were simply "the InVEST people," emphasizing that it represented only a part of a wider strategy in pursuit of loftier goals.[71] Nevertheless, the tool continues to be emblematic of and very central to their work: NatCap cannot be understood without attending to the development, dissemination, and deployment of their software platform.

The story I have presented up to this point—depicting, for instance, NatCap's declared mission, general approach, organizational structure, staffing, major areas of work, and flagship technological tool—is traceable in abundant primary and secondary documentation. This storyline does provide a useful starting point for setting the stage and conceptually arranging the sprawl of NatCap's activities. However, one of my chief aims here is to explore what happened when NatCappers took their starting conceptions of how things worked—notions captured in glossy reports, mission statements, theory of change diagrams, abstracted computer models, and so on—and actually brought their show on the road, where things emphatically did *not* work like they anticipated. More particularly, I explore what happened *to* NatCap over its ten years as its personnel attempted to deliver on the promise of ecosystem services—together with the kinds of assumptions built into it—and as its personnel tried to apply its approach, with variable success. In short, a main task of these chapters is to highlight the contrasts between ecosystem services mainstreaming as depicted 'on paper' and how its practitioners were quickly forced 'off-script' the moment they tried to bring its approach into the field.

Characterizing the technical dimensions of tools like InVEST represents only the start, not the endpoint, to the task of meaningfully apprehending what NatCap 'does'. Indeed, the perception—variously expressed both by supporters and critics of ecosystem services—that NatCap is tantamount to the calculations and metrical outputs churned out through InVEST, stops well short of apprehending what makes NatCap's work most consequential and important to consider. My analysis is premised on this basic recognition. Each of these calculations, valuations, maps, metrics, diagrams, and so forth is deeply and viscerally embedded: ecosystem services is made less of numbers and more of messy, embodied practical engagements with the things, people, and relations they purport to describe and for which they prescribe solutions. It is the tools-in-use—in what ways, toward what ends, and with what effects calculative devices like InVEST are practically deployed—that are of greatest interest. And it is how these tools are wielded, by whom,

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challenge of developing 'just-good-enough' tools that could elegantly balance the tension between usability and sophistication. NatCappers often emphasized the difficulty of balancing methodological rigour, on the one hand, given profound complexities and potentially daunting data requirements (especially challenging in developing countries) associated with the processes represented in each model, and the opposing need to simplify and streamline their models to make them more user-friendly. As one NatCapper explained, "there is a big gap between what we as scientists consider simple and easy to use and what practitioners themselves would consider simple and easy to use. I think we've narrowed the gap a lot, but we get attacked from both sides." Recently, NatCap folded InVEST into the Natural Capital Science and Technology Platform, a broader, re-branded program of work which includes other modeling tools—such as NatCap's Resource Investment Optimization System (RIOS) for calculating return-on-investment metrics for so-called green infrastructure, and the Offset Portfolio Analyzer and Locator (OPAL) for analyzing impact mitigation and offsetting options in permitting processes—along with an assortment of data sets, programming resources and other supporting tools and software: all of which are freely available for download and use.

[71] As one senior NatCapper explained: "We're most strongly associated with this tool which is basically a package of production-function-based models to show how changes in how you manage the environment change the way you deliver ecosystem services in a spatially explicit way. We're very strongly associated with that tool. Part of our constant message has been it's not just about a tool, it's about an *approach*."

where, and with what aims that give shape to their effects. Thus, to understand the rise of ecosystem services, it is vitally important to develop a specific understanding of the expert subjects now deploying ecosystem services and the contexts where they work.

Figure 11 – The front page for the website, "Myanmar's Natural Capital," created by a collaboration between NatCap, Stanford, WWF, Columbia University (which provided expertise for WWF's climate change and renewable energy work in the country), and Myanmar's Ministry of Natural Resources and Environmental Conservation (MONREC)[72]

THE ABODE OF KINGS: MAINSTREAMING IN ACTION

To begin to illustrate how NatCap's personnel enact their peculiar forms of expertise and how they mobilize the framework of ecosystem services, I narrate in this section my experiences with one of their many mainstreaming operations. Specifically, I present my engagements with their work in Myanmar where I traveled to observe a burst of outreach activities they had planned for the country: the culmination, I was told, of recent mainstreaming breakthroughs and a strategic segue toward new rounds of work. Thus, in May 2016, I accompanied several NatCap and WWF personnel to the country—specifically, to the national capital, Nay Pyi Taw, and to sites in Yangon—where WWF had recently established, and was in the process of quickly expanding, a new field office during a time of momentous social and ecological change.

Over several years, WWF had been ramping up efforts in Myanmar to intervene in what they understood to be a critical moment of environmental governance (a "window of opportunity") accompanying ongoing political upheavals in the country. As I will discuss, the specific character of this understanding gave rise to a strong emphasis on ecosystem services as a lynchpin element of their strategy in the country. Relative to their counterparts—the other big international conservation organizations that had already been operating in Myanmar for some time such as the World Conservation Society (WCS), Fauna and Flora International (FFI), and others—WWF acknowledged that they were, as one staff member phrased it, "the new kid on the block." Implicit in such statements was the perception that they were late joiners to an already crowded policy landscape increasingly congested with many other 'kids', not to mention various 'adults', who might view WWF's presence with some suspicion or even antipathy.

Facilitated by this positioning as relative newcomer, WWF was making a conscious effort to distance itself from what many of its personnel saw as a fraught legacy of prior conservation

[72] Link: http://www.myanmarnaturalcapital.org/en/natural-capital.

interventions in the country which, they worried, had been tainted by perceived complicities with past human rights abuses, authoritarian rule, and heavy-handed, top-down deployments of exclusionary, fortress-style conservation practices.[73] This distancing is characteristic of a broader and well-documented strategic (or at least rhetorical) shift within WWF internationally (Larsen 2016), which has, along with its donors, increasingly re-directed its advocacy away from 'traditional' conservation approaches toward what they characterize as more 'systemic' economic, political, and institutional drivers of environmental change.

In this context, WWF had very deliberately chosen to stake their success in Myanmar on an explicitly ecosystem services-based approach which would form the backbone of their "green economy" proposals (WWF-Myanmar 2013, 2014). With the support of NatCap, and equipped with ecosystem services concepts and expertise, WWF sought not only to improve the prospects for wildlife protection but to try to intervene more broadly at this more "systemic" top-to-bottom level during what they believed was the country's trajectory-defining moment. In 2014, the year WWF formally established their country office, they articulated a campaign heavily framed around getting Myanmar's new government to "account for the economic value of natural capital in policymaking and development planning" (WWF-Myanmar 2014).[74]

To reiterate an important caveat, the situated complexities and swirling political ecologies of contemporary Myanmar are well beyond the scope of this analysis to address with any satisfying depth or intricacy. What this analysis does endeavour to understand are the strategic visions of the practitioners now actively 'reading' that context and increasingly engaging themselves in it. I analyze how *they* make sense of the political opportunities and constraints it represents, their assessments of where and how they ought to fit into it, the ways in which they choose to practically embroil themselves in its churning politics, and, most of all, why the framework of ecosystem services became the preferred way to do it.

The strategic analysis used to make sense of what was happening—a parsing of the situation which guided WWF toward this decidedly ecosystem services approach to the country—is therefore important to unpack.[75] First, what virtually all of my informants seemed to intuit was the unfolding of a critical juncture: "critical," Paul Piersen (2000, 135) argues, because such moments "place institutional arrangements on paths or trajectories, which are then very difficult to alter." Conceptually, such junctures are distinguished by the relaxing of ordinarily compelling structural constraints on political action for relatively short periods of time. Thus, during such situations, the set of realistically plausible options available to political actors "expands substantially and the consequences of their decisions […] are potentially much more momentous" (Capoccia and Kelemen 2007, 343). Along similar lines, explanations provided to me regarding why WWF had made such a gambit out of ecosystem services in Myanmar began with their perception of institutional flux and heightened contingency.

WWF, alongside a host of other international organizations rushing through the floodgates, sensed an emergent and dynamic political context where they believed multiple divergent development trajectories—path dependent trajectories that would soon become self-reinforcing

[73] Several WWF personnel, for example, repeatedly brought up a Mongabay article which was "giving them a hard time about this." The land tenure issues, one staff member pointed out, were "gnarly."
[74] 2014 was the year WWF formally established their country office.
[75] Note that their 'reading' of the situation, which I present in this discussion, arises from the accounts provided to me by WWF personnel and as articulated in their publications. Accurate or not, what matters here is the composition of the political imaginary guiding WWF's approach in the country, which centered around ecosystem services.

and increasingly difficult to dislodge—were still uniquely possible.[76] During one interview, a WWF green economy specialist reflected on the arc of her experiences which had culminated in her current assignment in the country. She characterized the lessons she had drawn trying to effect organizational change:

> It's not a rigorous, step-by-step thing. The analysis, the policy cycle used by academics, it doesn't work like that at all. It's much more complex, almost arbitrary, the way things happen. Certain individuals drive the process. […] [M]any people use that influence to drive things that aren't in the good of humanity. It's kind of like this double-edged thing, realizing that you actually have the power to drive what I saw as positive change and the policies that were needed, but also realizing the exact same thing is true on the other side. That's even *more* true in Myanmar. […] The world of policy should be much more like the policy cycle they present in your classes, but it's not. It comes down to people. That's what makes it so exciting and so scary at the same time.[77]

Myanmar, in this reading, was still *in play*, its fate contingent upon who ended up successfully jostling their way to the switches in the control room. "With Myanmar opening up," she continued, "with a lot of the policies and laws being rewritten, and a new approach for development for the country being developed, there was this opportunity to engage in that process—to contribute to it and become a part of it from the very beginning."

This term, "opening up," was an almost universal starting point for explaining to me what virtually anyone was doing in the country. It refers, most obviously, to the recent political reforms: the emergence of ostensibly more democratic forms of government, greater engagement with the international community, rapidly liberalizing markets, and enormous influxes of foreign investment following decades of economic sanctions, military rule, and continuing armed struggles. A 2014 article by WWF, for instance, frames Myanmar as a country "moving forward into exciting but uncertain terrain, rife with opportunities and challenges. Foreign investment is pouring in at a staggering pace. Laws are being rewritten across the board, covering everything from land ownership and press freedom to environmental rules" (Wallace 2014). One NatCapper underscored how "this was a rare opportunity to get in early," contrasting the situation with dozens of other locales where they had worked over the past decade—places where well-established development trajectories had already been 'locked in'.

The team's personnel and publications also consistently stressed the enormous stakes for conservation. They noted especially stark ecological contrasts between Myanmar and neighbouring countries and the opportunity to avert the "same mistakes" those countries had already made. For example, nearly half of Myanmar remained forested, a remarkably high proportion of its land area, providing habitat for over a thousand species of birds and hundreds of species of mammals, many of them endangered, including iconic wildlife such as tigers, elephants, and the Irrawaddy dolphin. Yet this biological diversity was, as the country opened up, also experiencing massive and accelerating rates of destruction—"the third worst deforestation trend in the world" one staff member gravely pointed out—driven by the expansion of commercial

[76] Specifically, as a conservation organization, WWF believed that development trajectories which incorporated more conservation were still possible.

[77] As one 'counterpoint' example, she described how Japanese officials were now deeply embedded in Myanmar's Environmental Impact Assessment (EIA) process, accompanying EIA teams, involving themselves in the review EIAs, and influencing EIA policy in the country more broadly. Japan, she noted, was invested in some "questionable projects" in the country, such as coal and chemical plants: facilities that would be subject to EIA rules.

agriculture, logging, infrastructure development (a particular focus for WWF), and other factors: drivers that have only intensified as Myanmar continues to open up. "After a half-century of isolation," reads one NatCap dispatch, "Myanmar still has what everyone around them used to have more of—abundant natural capital" (J. Hoekstra 2015).

Finally, personnel pointed to various alarming signs of acute poverty (barely 30% of the population had access to electricity) and of extreme vulnerabilities to natural disasters and climate change (Cyclone Nargis reportedly killed over 130,000 people in 2008 when it hit Myanmar) as defining features of what they were confronting in the country. The government and its under-resourced officials, it seemed, were faced with a daunting if not overwhelming task: simultaneously managing these multiple and massive upheavals and finding some way of accommodating, let alone 'optimizing', an array of urgently compelling and sometimes wildly divergent priorities. With these basic points established, explanations were primed to frame the necessity of WWF's turn to ecosystem services. For example, at the top of their website, *Taking Stock of Myanmar's Natural Capital*, after enumerating these narrative elements WWF spells out the basic logic pivoting their approach toward an ecosystem services framework:

> Myanmar is undergoing rapid change. After decades of isolation, the country is transitioning to democracy and foreign investment is pouring in. A key issue for the country now is balancing the unprecedented growth it is experiencing with conservation and climate resilience. Without balance, the businesses that depend on natural resources to thrive will suffer. So will people and wildlife—all who rely on natural resources to survive. The country's forests help purify drinking water, its mangroves help protect people from coastal storms, its rivers are habitat for endangered fish, and more. Creating balance now—before nature is overexploited and its resilience is weakened in exchange for short-term economic gains—is critical (WWF 2017).

These narrative elements repeated across the reports I examined and pervaded my conversations with WWF and NatCap personnel. The word "balance" appears several times and appropriately captures the desire for reconciliation embedded in natural capital's underlying strategy and intended endgame. As the preamble to a recent NatCap ecosystem services assessment for the country argues, "Myanmar has a unique chance to learn from the mistakes of other countries and manage its natural capital in a more sustainable way. By pursuing a green economy approach—meeting social and economic needs while sustainably managing its natural capital—the country can ensure that nature can continue to provide benefits for generations to come" (Mandle et al. 2016, 12).

What this neutral language tip-toes around is the implicit recognition of deeply asymmetric power relations that forms the core of its analysis. I sensed an underlying political sensibility in many of my interactions with NatCap and WWF personnel during my travels: a perception of their abject puniness (characteristic of conservation in general) in the face of the titanic political-economic forces that had been set in motion—formations of state and capital, development and modernity—whose momentum was almost certainly unstoppable (i.e. "unbalanced") and yet maybe, just *maybe*, still possible at this formative moment to nudge toward marginally less destructive outcomes. While not ideal, they reasoned that even marginal advances could still have significant impacts.[78] And while these processes might be impossible for them to outright stop in

[78] This point was argued at the 2014 NatCap symposium by one TNC staff member who had been working in collaboration with a team from Dow Chemical: "even if we hypothesize for a moment that Dow is an evil company

their tracks, nature conservation on the other hand was more malleable and could be made (or be re-made) to go with the flow of things. WWF's strategists judged that a carefully targeted lobbying campaign engaging key leaders in government, and effected through an ecosystem services framework, could potentially re-cast conservation as something worthwhile to and congruent with those unfolding processes—processes that would otherwise put nature to the torch[79]—and thereby drag some of the country's ecosystems out of the path of the capitalist development juggernaut careening towards it.

Figure 12 – "Green Economy: Myanmar." A screen capture from "Going Green: Recognizing the Value of Natural Capital," a short promotional video produced for Myanmar by WWF-Greater Mekong.[80]

In short, WWF would rely on ecosystem services to show that conservation was inextricably connected with and indispensable to these other overwhelmingly compelling imperatives of rapid development and economic growth. While the functioning of the framework in this mode bears clear resemblances to past iterations of 'sustainable development' discourse, the operational specificity of ecosystem services—its quantitative, technical expressions, its basis in calculation, the particular tools, concepts, metrical representations, and associated mechanisms packaged in it—serve to anchor ecosystem services more concretely in explicit practices while *also* retaining that same linguistic, discursive plasticity. Thus, the framework would equip WWF's practitioners not only with a compelling idea but a range of specific technical and discursive tools for operationally carrying out the considerable translational work that this re-casting of nature seemed to require. Whether conducting analyses, generating reports, writing policy briefs, hosting workshops, securing meetings, delivering speeches, developing partnerships, formulating policy

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[audience laughter], if you could shift this evil company by one or five percent, what they're doing, whether it's out of self-interest or they just want the PR, you multiply that little percent by the impact they have, that's dramatic. Something I've been working on is trying to get past some of this discomfort, certainly with corporations, and do my own internal math. What's the impact you can have? […] We have to work with the biggest corporations. The ones that have the dirtiest footprint right now are the ones with the most opportunity to shrink that."

[79] "The opportunity here," one WWF staff member explained, "is for Myanmar to develop in a way that does not torch everything in the process."

[80] Link: https://youtu.be/-gmoXd87SAI.

proposals, or staging art shows (I'll get to that), WWF hurled its efforts at quickly, frantically producing a nature re-expressed as natural capital—the source of a vital (and now clearly rendered) stream of ecosystem services whose conservation was essential to the country's prosperity, defined, in turn, by the imperatives of rapid development and economic growth.

The overall observation that ecosystem services facilitates new ways of reconciling 'conservation' with 'development' is certainly not a new one. What is striking is the underlying dynamic at work here. I refer not just to drawing conceptual 'win-win' connections between the two categories of 'conservation' and 'development' but rather to the effortful traversals of *all kinds* of political, institutional, epistemic, and other boundaries, often simultaneously. As I will illustrate in this chapter, and especially in Chapter 4, this incessant and rather demanding translational condition has come to shape the subjectivities of NatCappers right down to the intimate, micro-scale level of embodied practices and everyday tactical intuitions and conduct. This continual necessity and corresponding capability for boundary-maneuvering is, as I will show, essential to the experience of natural capital mainstreaming and the specific forms of expertise enrolled to perform it. In Chapter 3, I explain further that these dimensions of ecosystem services are also critical to understanding the power relations it expresses and explaining how it functions, politically, in organizational change projects.

The framework represents a language (or 'repertoire' as I elaborate later) for those habitually positioned at the interstices of diverse boundaries and constantly having to code-switch. I posit these kinds of embodied translational capacities and the continuous, effortful practices of boundary-spanning, brokering, and intermediation as the crucial micro-social foundations constitutive of ecosystem services as an organized political project: the re-casting of conservation into something that can 'fit' with the manifold, contextually recombinant, and often contradictory epistemologies, political constituencies, and institutional logics that characterize its field. In Myanmar, WWF and NatCap were very concertedly directing this expertise toward producing a conservation congruent with and indispensable to nationally-shaped development priorities and economic imperatives. Note that this 'fit' is never truly accomplished but must be continually sustained—often precariously, in my observations—by the deliberate efforts and improvisations of closely embedded practitioners whose performances depend on the specifics of the translations demanded: a never-ending magic show re-representing nature conservation, through ecosystem services, in whatever forms happened to be needed at a given moment.

Interpreted in this way, ecosystem services signified not only a new element WWF and NatCap wished to insert into the policy process but a more encompassing way of operating that enabled them to insert *themselves* into that process: it functioned both as a specific *goal* (e.g. alter policies to properly account for ecosystem services considerations) and a *means* of conducting themselves (e.g. as a strategic approach, underlying conceptual framework, a sort of expert creole, etc.). Across my observations and interviews, the framework of ecosystem services was being consciously deployed by practitioners first and foremost as a means of facilitating communication, coordination, and coalition-building, as well as their own navigation, across a kaleidoscopic array of boundaries—political, epistemic, institutional, and otherwise. Among all the other things that ecosystem services is purported to 'do', I interpret this *necessity* and *capability* for boundary-maneuvering, translation and intermediation as accounting for much of why the framework keeps getting chosen as a language, and guide, for organizational change initiatives like those WWF is currently undertaking in Myanmar.

As I stress throughout this dissertation, and echoing Stuart Hall's (1986) conception of hegemony as actively constructed and non-automatic, this discursive re-casting of nature, its intended organizational reconfigurations, and the power relations it perpetuates, all require hard political work and continuous, proactive effort to accomplish (or rather, maintain). No matter how convincing the claims inscribed in WWF's and NatCap's documents might be articulated, they remain largely inert without the institutional spaces, expert subjectivities, and embodied practices that can give those claims enduring expression and meaningfully embed them in lived experience. Along these lines, and echoing a growing emphasis in the critical scholarship, Kolinjivadi et al. (2017, 5) thus argue against focusing narrowly on the specific claims, definitions, and categories parcelled in ecosystem services as a concept. Rather, they stress the importance of analyzing "the set of relations and rationalities associated with these metaphors" as they are "continuously circulated and […] serve to liberate or constrain the agency of actors to articulate human-nature relations" (Ibid). As I elaborate later, and as recent institutional scholarship has emphasized, it requires identifiable forms of "institutional work" (Lawrence & Suddaby 2006). The rise of ecosystem services didn't just *happen* but had to be produced through the recombinant agencies of myriad social construction workers whose practices seem to reinforce a simple aphorism: that ideas and institutions do not simply change—rather, they are changed.

To reiterate, these 'readings' of Myanmar highlighted above and narrated by WWF and NatCap personnel and publications apprehend a critical juncture marked by heightened contingency, by dramatically high-stakes ecological repercussions dependent on the trajectory defined during that juncture, and, as I will continue to illustrate, by a situation of multiple (and wildly lopsided) priorities in need of "balancing." These impressions, in turn, pointed to the need at this formative moment for some means of aligning the fragmented array of different institutional orders and contradictory, abrading logics whose continuing cacophony was hampering the emergence of sustainable forms of environmental governance: a challenge, in WWF's estimation, that the framework of ecosystem services was best positioned to solve. With the stage set, I will now provide a more thickly-described account of my experiences on the road with NatCap and their WWF partners and highlight a few salient observations from my time with them.

Figure 13 - Image captured from the website "Tanintharyi: A Region Rich in Natural Capital" produced by WWF, NatCap, and other partners. It highlights various ecosystem services, describing them one by one, in a scrolling digital diorama of landscape features characteristic of the area. In this segment, the numbers correspond to (1) Coastal Protection, (2) Water Supply, (3) Carbon Sinks, (4) Climate Resiliency, and (5) Flood Prevention. Further

down the diorama, and not pictured in this segment, it depicts (6) Wildlife Habitat, (7) Clean Water, and (8) Landslide Prevention.

One story related to me multiple times as a way of introducing NatCap's work in the country highlights what they took to be their breakthrough moment—a concrete 'opening' of WWF's window of opportunity. In 2014, Carter Roberts, the President and CEO of WWF, and his senior staff managed to secure an audience with the then-President of Myanmar, U Thein Sein. In preparation for the meeting, Roberts asked his personnel to arrange a gift that he could personally deliver to the President. His team ended up pulling together a set of InVEST maps produced by NatCap. One was from a natural capital assessment NatCap had previously conducted for Belize to support the design of their Coastal Zone Management Plan: a favourite example for illustrating how ecosystem services could be used in spatial planning. To accompany the Belizean example, they prepared a second map derived from work WWF and NatCap had recently initiated in Tanintharyi, a region in southern Myanmar (depicted graphically in the digital diorama prepared by WWF in Figure 13), where they had been assessing ecosystem service impacts of planned road construction through the area (using a classic InVEST scenario triplet of 'no road', 'business-as-usual road', and 'green economy road'). Through some preliminary analyses of global datasets plugged into InVEST—and with some judicious applications of Adobe Illustrator and Photoshop to make them "all nice and glossy, kind of like something you'd see in National Geographic"—they produced a set of visually compelling maps for Tanintharyi on par with those of Belize.

As one of the maps' authors explained, they "made a small copy and put it in a frame to give to the President," who, upon receiving it during their audience, explained that he was a trained geographer and a self-described lover of maps. Apparently delighted with his gift, he implored Roberts, WWF, and NatCap to dramatically expand the scope of their work, reportedly stating "you shouldn't do this just in Tanintharyi, you need to be doing this *nationally*." The interaction led to a swift and substantial "ramping up" of WWF's natural capital mainstreaming work in Myanmar through the expansion of their staff and analytical work. Indeed, as several personnel recalled, this escalation was met by a corresponding and growing receptivity among various government units, as well as several key bureaucrats, with the motivation (and now a mandate from their superiors) to pursue further work in this area. Prior to my arrival, WWF and NatCap had not only expanded their staff and analytical work as part of this ramp-up, they had managed to nurture relationships and had begun to establish working partnerships with key allies in government, including several senior bureaucrats, especially in the Ministry of Natural Resources and Environmental Conservation (MONREC). As one WWF staff member remarked, comparing their work in Myanmar to experiences in other countries in the region, "the most amazing thing to me is how *much* of an audience we do have with government. It's pretty incredible."

By May 2016, I was able to see the fruition of some of these working relationships and WWF's ongoing efforts to build on them. A highlight of my visit began with the five-hour drive from Yangon to the capital, Nay Pyi Taw, where I was to attend a so-called Green Economy Workshop WWF had organized with MONREC. It was the latest in a series of such convenings, this one focusing on the ongoing development of a "Green Economy Policy Framework" which WWF and MONREC had been jointly formulating. The workshop also coincided with and was partly structured around the launch of two concurrent WWF reports: one focusing on renewable energy opportunities in the country (WWF 2016a) and the other presenting findings from the completed national-scale natural capital assessment (Mandle et al. 2016) which the President had requested and which NatCap was now finally delivering.

As several WWF personnel explained, hosting these workshops represented one of the best available means for international NGOs like WWF to regularly access and interact with government officials. In part, such workshops were intended to respond to frequently expressed requests for technical capacity-building among the government's bureaucrats. Indeed, as one NatCapper acknowledged, this "protected bureaucratic class," which they perceived as less subject to changes attendant to higher-level political shifts, represented a deliberate focus for their mainstreaming efforts. Beyond delivering explicit 'capacity-building' activities, however, these workshops also functioned as spaces around which informal interactions, side-meetings, corridor conversations, relationship-building, "intelligence gathering" and "pulse-taking" could occur.

The somewhat evocative imagery surrounding the scene itself is worth recalling and starts to capture the overall tone of my impressions. The capital city, Nay Pyi Taw ("abode of kings" in Burmese), was barely ten years old when I arrived. WWF personnel explained that in 2005, the military government basically built a brand new city over a vacant patch of land in the middle of the country and abruptly relocated the administrative capital, not to mention thousands of administrators (who were instructed not to bring their families), to the site from Yangon. As our van rolled into the city, that sense of WWF's abject puniness which I characterized earlier took vivid expression. We drove through a vast, overwhelmingly expansive and eerily empty paved landscape of barely-traversed many-lane superhighways, the occasional monumentally-scaled palatial building, and a scattering of more minor government offices and hotels (also mostly empty, they said). As the seat of the military government, which had been regarded as an international pariah, the city was designed to be unassailable and felt, at times, reminiscent of an ominous, quasi-dystopian fortress. People were scarcely visible, as the extreme heat had siphoned the city's inhabitants into the cold embrace of air-conditioned buildings.

This built environment accentuated a broader impression I had been forming. I realized that I was observing one of the most over-the-top expressions of WWF's and NatCap's broader efforts to maneuver their way—under the aegis of natural capital—into the "halls of power" (where the elites roam), a perhaps uninviting and alien, even inhospitable space for a conservationist but one which they believed they had to learn to operate, and indeed to master, if they were to have any hope of influencing the shape of things to come. This recurring halls of power motif—recall Inger Andersen's explicit admonishment to this effect in the epigraph to Chapter 1—embodied somewhat melodramatically during this visit, recurs frequently in wider commentary attempting to rationalize the necessity of the ecosystem services framework as a guiding paradigm for conservation. This, I thought to myself, was easily one of the starkest materializations of that form of conservation I had ever seen. In Myanmar, as WWF distanced themselves from a discredited "fortress conservation" (Brockington 2002; Neumann 1998) they found themselves entering another and much more literal kind of fortress. The boundaries of this fortress, however, encompassed the notional habitat of the Finance Minister, 'big business', multilateral development banks, and various other categories of powerful 'Decision Makers'. As Inger Andersen put it, these were conservation's new stomping grounds: "the halls of power," "in the boardrooms," and "in the heart of the market economy." And in these halls, the reputable languages of natural capital and ecosystem services were the shibboleth that would grant safe passage.

Figure 14 - The plenary room for the "Green Economy Workshop" I attended in 2016, which was organized by WWF and MONREC in Nay Pyi Taw.

The workshop itself was held in a fairly typical if regally adorned event space (Figure 14). As the workshop began, WWF's staff were pleased to note that the Minister of MONREC not only provided opening remarks but also chose to stay with his staff and listen to that morning's presentations. I was startled, at first, by how deeply the language of natural capital and ecosystem services seemed to infuse the speech he delivered. Multiple WWF personnel cautioned me not to read too much into it. They explained that such remarks, as well those of many other government officials around the country, and indeed much of the text currently working its way into the ongoing formulation of government documents, new laws, and policies across the board, were often being written with the help of outsiders (if not outright authored by them).

WWF and NatCap personnel were quick to point out the "double-edged" nature of this strategy of inserting language in official documents. They believed that the degree of government "buy-in" and the longer-term prospect of actual implementation—of having any enduring mainstreaming impact—would be significantly diminished if officials were simply handed scripts to trot out during speeches instead of having them undertake their own process of dialogue and debate. Ideally, government officials would take the lead and come to use ecosystem services concepts, tools, and approaches under their own steam. I return to this point in more detail in the following chapters.

On top of strategic considerations, many personnel also noted thorny political issues and obvious ethical concerns associated with this widespread practice. One WWF policy specialist characterized the dynamic for me this way:

> I think it's unfortunate that the international community tends to do so much of this work for developing countries in writing new policies and strategies and frameworks. And in Myanmar in particular. So many of the policies are just being written by a consultant sitting somewhere. Take the National Comprehensive Development Plan which is the main development document for the country. You start reading through it and in the foreword by the minister it suddenly starts talking about the MP3E plan. The MP3E plan is the same document that Indonesia has for their main guiding document. And you realize that probably what happened is the same consultant who wrote Indonesia's main development

> document was just brought in to do Myanmar's and they copy-pasted the whole thing and changed it a bit. And they forgot to change the MP3E—they forgot to hit "Replace All"! I think it's a huge issue that a lot of these policies and frameworks are being developed mainly by international experts without local ownership. This is not how I wanted it but the precedent has been set. That's what they're doing.

Along these lines, I did note signs that green economy mainstreaming efforts were yielding some visible results. Natural capital and ecosystem services language appeared repeatedly in public statements from MONREC, the Presidency, and assorted government documents I obtained. I saw a draft of the National Environmental Policy for Myanmar, for example, currently in consultation, whose very first line is framed by a pitch-perfect conception of the green economy: "Myanmar has long been recognised for its rich natural capital, which provides critical benefits to its people" (MONREC 2016). The document later proposes that Myanmar establish as one of its National Environmental Policy Principles that "natural capital and ecosystem services" be "recognised as a critical factor in environment and natural resources management" (MONREC 2016). Again, however, personnel cautioned me not to read too much into these and other documents. These insertions of preambular framings into speeches were recognized as a somewhat superficial accomplishment—only the starting point for the "real, hard work" that was yet to come.

During the workshop, WWF's green economy lead was emphatic on this point, and about the substantial undertaking that still awaited their Green Economy Policy Framework. She noted, in exacting detail, the many rounds of engaged legwork their approach required—a "concept note to get all the ministries on board," "bilateral consultations with all the ministries to ensure that this broad framework will be *used* by all ministries," "public consultations inviting all the NGOs and civil society and INGOs, academic institutions," and so on—before the framework could then go to Cabinet for further rounds of review and, "if all goes well," approval. "You might think that we're all done now," she continued. "But actually, *that* is when the real hard work begins. That is when we actually start ensuring that this feeds into sectoral, national development plans, both annual and five year plans. This is when we really ensure that the green economy is integrated in all sectors, in all plans, in all policies." Once conservation (now packaged in ecosystem services concepts) had been shepherded more-or-less intact through each of these stages, once all of the interconnected policy frameworks incorporating those precepts had been meticulously crafted and carefully harmonized with one another, once all of these policies had been consulted on, re-written, consulted on again, re-written again, and (hopefully) finalized, she reiterated, "*then* starts the hard work."

These remarks begin to capture the essence of mainstreaming as I have come to understand it. As introduced earlier, she again draws into sharp focus just how much *work* this mainstreaming takes. These ideas in and of themselves are functionally inert without the incessant, situated enactments of expertise and corresponding production of expert subjects striving continually to make the ideas "stick," as NatCappers were fond of saying. Addressing this point in an interview, another of WWF's more experienced natural capital mainstreaming practitioners had concluded, "information by itself would not have gotten far." In contrast to expectations of ecosystem service discourse as so commonsensical, so hegemonic and so inescapably compelling that practitioners must now scramble to align their organizations and practices to its tenets, participants in the workshop instead recognized a fragile idea that had to be carefully, painstakingly maneuvered into the process, *throughout* the process, with absolutely no guarantee of success. Nothing about this process was automatic or could be taken for granted. As another WWF staff member explained:

> the biggest problem is that we don't have the forces in our ranks, lined up, to be able to say, at every step, *this* is how you operationalize this. We largely have the research, some desktop based analysis with some ground-truthing to say 'these are important and you should do something with these'. But realistically, what we struggle with, and what we need to do a hell of a lot better of a job at, is to be able to provide guidance at every step of the way from theory to mainstreaming to policy to actual implementation. We've been great on the policy side getting the right words in documents, but when it comes to implementation? That's when it gets a lot messier.

WWF needed properly situated "forces in our ranks": the enrollment of committed practitioners closely embedded in the process, staying vigilant throughout the process, to safely shepherd this re-constituted conservation from gate to gate (using ecosystem services translations) in order to give it any chance of being practically realized. "Getting the right words in documents" was one thing—indeed, it is widely and clearly observable across the wide world of ecosystem services policy discourse—but getting those words properly institutionalized and translated into sustained actions, regularized practices, and taken-for-granted rules, norms, and reasoning seemed to be an entirely different matter.

Beyond how *much* effort this work would take, WWF's green economy specialists also elaborated on what *kinds* of effort they believed it required. As WWF's green economy lead emphasized later, "I believe that bringing all the ministries together is what makes this process so unique." Workshop participants regarded the deep fragmentation of the institutional landscape as a definitional feature of the terrain on which they were operating, with a diverse array of private, non-governmental, and especially governmental players (many in processes of re-organization) jostling with one another and somehow needing to be roped in and convinced to consent across the messy, snakes-and-ladders stages of the "policy cycle." The notion of administrative "silos" served as an important frame both for WWF personnel (e.g. Bassi, Gallagher, and Helsingen 2016) and the government practitioners I met. In this context, ecosystem services could help set the goals for the country's prospective Green Economy Policy Framework (e.g. by identifying more rational, sustainable courses of action with a wider consideration of relevant costs and benefits), but more importantly, it also provided various means of practically carrying out the day-to-day work of connecting, brokering deals across, and wrangling together these cacophonous, fractious agencies. Nature, re-expressed as natural capital (symbolically *and* operationally), could thus be re-articulated as a different and appealing value proposition from any conceivably relevant angle.

Note also the characteristic dynamic between WWF and MONREC implicit in these remarks. In interviews, the success of mainstreaming was frequently attributed to a well-functioning relationship with (and the presence of) what they called a "local champion." This champion could be a group, and was often a specific, well-positioned, and highly-motivated individual (or individuals) within that group, through whom NatCap could begin to operate in the given political context. This figure was consistently stressed by NatCap personnel as critical to their work across many different projects. Throughout the workshop, these roles were clearly delineated.[81] In this respect, there were several key scientists and bureaucrats either within MONREC or connected to it, such as with the Forest Research Institute (FRI, a local consortium

[81] WWF participants in the workshop emphasized how the "leadership of MONREC" had been "very ambitious in making sure this is the way forward for this country," and made repeated statements to this effect.

of academic and government experts), who were brokering WWF's and NatCap's access throughout the process.

Broadly speaking, WWF and MONREC seemed to have developed an understanding of each other as allies with roughly shared or aligned goals (e.g. shepherding environmental considerations more robustly into key governance processes). In turn, their relationship was defined by a distinct set of surrounding 'outside' players (i.e. other parts of the government) which brought an array of other and likely conflicting goals to theirs. The discussions I observed between MONREC officials and WWF personnel seemed to explicitly acknowledge these roles from the outset: that the challenge was how to team up and strategically work together—MONREC as a comparatively marginalized Ministry with little clout and WWF as a newly installed (albeit relatively well-resourced) conservation organization—to influence the array of other more powerful Ministries whose jurisdictions entailed, and often positively required, extreme environmental consequences. As one WWF staff member explained to me, "it's the classic dynamic where we engage with the Ministry of Environment who realistically has no power in a developing country context because they are seen as inhibitors to economic development."

I met several FRI practitioners during the workshop. They spoke knowledgeably about various methodological issues associated with natural capital valuation before reflecting on the potential uses, and implications, of those approaches in Myanmar. They broke down for me the shifting authorities and character of the bureaucracy as they saw it, whose leadership was now involving more professionals and academics over military appointees, and how these shifts constituted specific opportunities for improving environmental governance. Their characterization of the significance of ecosystem services approaches in this context bore striking resemblances to the interpretation advanced here. Their remarks, convergent with explanations provided in interviews, pointed to the critical role of bureaucratic brokers: boundary-maneuvering operators capable of leveraging a high (enough) degree of fluency, legitimacy, and personal connections across relevant institutional settings. Such qualities and positioning uniquely enabled these operators to convene different constituencies, to steer conservation as expressed through ecosystem services across different phases of the policy cycle, and to skillfully deploy its framework as a needle-and-thread to stitch together an improvised patchwork of different and ordinarily incongruent, disjunctive logics. One WWF staff member, for example, said that she noticed officials from other Ministries (i.e. outside MONREC) regularly greeting one of WWF's senior bureaucratic allies with the Burmese salutation for "teacher," signaling in her interpretation precisely the kind of cross-cutting authority they believed to be vital for any of their mainstreaming efforts to function.

As we continued our discussion, it became clear to me that these FRI practitioners were not sharing idle observations but simply providing accounts of what they were currently doing together with WWF and NatCap. This basic pattern—NatCap plus local champion (e.g. MONREC), connected through one of NatCap's NGO partners (e.g. WWF-Myanmar), strategically collaborating to maneuver an intransigent surrounding institutional landscape (e.g. often the terrain of government itself) populated by diverse and often much more powerful actors (e.g. other Ministries and varied development interests)—repeats again and again over NatCap's ten years and dozens of engagements with diverse political processes.

THE ALCHEMY OF NATURAL CAPITAL: ENDLESS BOUNDARY OBJECTS

The way WWF's green economy lead described how to effectively align their Green Economy Policy Framework with (and within) a range of other policy frameworks also in formation was similarly revealing. "There are many strategies being developed in Myanmar," she observed. "There's the National Comprehensive Development Plan which sets the vision […] and really provides the overall umbrella for the development of this country. There are also a number of other strategies. The climate change strategy. The waste management strategy. There is the INDC.[82] A lot of the other sector strategies. Climate-smart agriculture. How can we develop something that tries to bring all of these strategies together and harmonize them?"[83] Bringing together these ordinarily incongruous frameworks, riven by administrative silos—the task of fostering "strong coordination" among them and fulfilling this drive she expresses for *harmonization* of institutional cacophony—were, once again, heavily dependent on the skillful deployment and careful integration of ecosystem services concepts.

I was treated to multiple examples of practitioners attempting to assemble this "harmonization" during my visit, and more broadly throughout my research, which involved the deployment of specific kinds of representations. The kinds of operational translations I have been introducing—transmuting a forest, for instance, and its constitutive ecological functions into a series of recognizable valuable propositions through the alchemy of ecosystem services—rely on the continuous production of what are known as "boundary objects." Star and Griesemer (1989, 393) characterize the analytical concept of the boundary object as "those scientific objects which both inhabit several intersecting social worlds" and "satisfy the informational requirements of each of them." They explain that these are "both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain common identity across sites. […] They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable, a means of translation" (Ibid). Consider, for example, a context where different social worlds come into contact: say, the multiplicity of constituencies interdigitated within any conservation context and the disjunctive epistemologies, institutional logics,[84] politics, interests, and other incongruences that mark the boundaries between them. In this context, boundary objects can serve as a means of anchoring interactions among those social worlds, facilitating communication, coordination, and coalition-building across them and smoothing frictions between them.

One WWF staff member neatly illustrated this dynamic, as well as her facility with employing it, using the example of road construction. She explained, "I always try to make the point when I meet a group of people who are from different ministries of how much they actually depend on and relate to each other and impact on each other's work." Through a series of careful, simultaneous representational manipulations at a workshop she led the previous year, she was able

[82] Intended Nationally Determined Contributions (INDCs) are proposed actions related to climate change set by respective countries that were party to the agreement negotiated in Paris at COP-21 of the United Nations Framework Convention on Climate Change (UNFCCC)

[83] She also situated these interdigitated frameworks within other international agreements such as the recently-negotiated Sustainable Development Goals (SDGs)

[84] Institutional logics, which I discuss later, are "defined as the 'belief systems and associated practices that predominate in an organizational field' (Scott et al. 2000, 170), or 'taken-for-granted, resilient social prescriptions' (Greenwood and Suddaby 2006, 28)" (Levy & Scully 2007)

to turn a specific road into a common, overlapping point of interest, a *starting* point for drawing connections and establishing sites of potential cooperation:

> I basically weaved in all the ministries in the room and how they were in one way or another impacted or dependent on that road and what happened with that road. I talked about how roads increased deforestation so there you have the Ministry of Environment. And with lots of deforestation you have increased sedimentation so there you have the Ministry of Agriculture. And then you have the Ministry of Livestock and Fisheries because a lot of these streams are habitat for fish. And there you have livestock and the Department of Rural Development, where lots of communities depend on these services. Then you have the Ministry of Transport, because a lot of these rivers in Myanmar are critical for transport. And the story went on. […] Our theory of change is really about these networks. Establishing these relationships and these links between these various people—*that's* where they will be able to address all these various drivers and challenges.

Her use of the word "weaved" is instructive. In this case, the framework of ecosystem services—here functioning as a kind of discursive 'needle-and-thread'—was expertly wielded to draw the various links between these divergent government Ministries, never conflating them, but always foregrounding their partially overlapping interest (in this case, around that road). In this example, the road is quite clearly transformed into a boundary object but so too are the myriad ecological functions themselves once transmuted into natural capital: the fish (provisioning service), the sediment retention (regulating service), the free-flowing rivers (regulating service), the 'pristine' forests (cultural and other services), and so on, each re-constituted in terms of the measurable, quantitatively rendered ecosystem services they provide and the combinations of variously aimed value propositions they are made to represent. The ecosystem services framework served as an endless repository of boundary objects—a boundary object-making *machine*—supplying indefinite means of bridging gaps, forming common (enough) cause, and pinning down that sweet spot in whatever Venn diagram needed to be drawn at any given moment, clearly, vividly, and with scientific authority.

While scholars have somewhat acknowledged this translational quality of ecosystem services as a sort of boundary object or "polysemic metaphor" (Abson et al. 2014; Åkerman 2005; Kull, Arnauld de Sartre, and Castro-Larrañaga 2015; Suarez and Corson 2013), my attention here is not merely with the overlapping interests ecosystem services makes conceptually possible. Rather, I emphasize the multi-faceted forms of embodied knowledge that NatCap (and others) have been sharpening to a fine point over these past ten years and draw into focus the continuous, situational enactments of this expertise, which are necessary to actually bring these overlapping interests together. These expert subjectivities and situated enactments are critical to understanding and indeed to operationally carrying out natural capital mainstreaming. They draw into focus its specific forms of *work* (i.e. the necessary moment-to-moment translations constitutive of the green economy's ostensible "harmonization"), the *capacities* required to effectively 'wield' the prolific boundary objects ecosystem services produces (i.e. the cross-cutting fluencies, personal connections, and legitimacies enabling these 'science/policy-whisperers' to properly do their jobs), and the sort of *bricoleur* who manipulates those representations like an ecological-economic jazz artist improvising the various combinations, and re-combinations, that the delicate alchemical transmutation of nature into natural capital involves.[85] The deployment of ecosystem services, here

[85] This metaphor of organizational change through improvisation is usefully developed in Weick (1998).

and in many other contexts I observed, reveals the types of practices and subjects most capable of manipulating (or 'wielding') the framework's constitutive boundary objects and makes visible how, toward what ends, and with what effects those representations are being mobilized.

Figure 15 - An informational graphic from the feature website, "Myanmar's Natural Capital," created by a collaboration between NatCap, Stanford, WWF, Columbia University (which was providing expertise for WWF's climate change and renewable energy work in the country), and Myanmar's Ministry of Natural Resources and Environmental Conservation (MONREC)[86]

Star and Griesemer's qualification that boundary objects are never apprehended in quite the same way across different settings further captures the slippery versatility I highlight as a key feature of ecosystem services. In a political and institutional context of deep heterogeneity (e.g. the assortment of disjunctive social worlds colliding around conservation),[87] boundary objects allow for the maintenance of autonomy between domains, thus preserving the idiosyncratic logics, ways of operating, and myriad other particularities that prevail within each, while also creating possibilities for communication, cooperation, and coalition-building across them. As David Mosse (2004, 647) notes with respect to development interventions, to enrol the necessary support of "a range of supporting actors" toward a given project, its proponents typically require the action of "interpretive communities" capable of undertaking

> the constant work of translation (of policy goals into practical interests; practical interests back into policy goals), which is the task of skilled brokers (managers, consultants, fieldworkers, community leaders, [and NatCappers]) who read the meaning of a project into the different institutional languages of its stakeholder supporters.

In similar terms, the framework of ecosystem services and the ways that NatCap and its allies have learned to harness its representations provide a quintessential instantiation of such boundary object dynamics. In turn, those dynamics are crucial to explaining how NatCap and its allies operate.

I noted repeated examples of this dynamic during my time on the road with WWF and NatCap and more broadly in other components of my doctoral research. In Myanmar, WWF staff

[86] Link: http://www.myanmarnaturalcapital.org/en/natural-capital.

[87] Most conservation interventions will involve some combination of local communities, development agencies, state bureaucracies, business concerns, conservation organizations, and so forth, each of which are usually heterogeneous and constituted by further distinctive social domains.

described crafting a variety of situationally-dependent storylines, translating conservation in analogous ways to fit with multiple logics and centered around other focal points, which they deployed to similar effect. "I think the water story can be a powerful story to tell and a powerful tool to bring these various issues together," explained WWF's green economy lead in reference to a hydrologically-focused set of translations she deployed in another context. She elaborated later how, equipped with ecosystem services concepts and expertise, water could be "connected to so many problems, so many sectors, and so many solutions. Water tells a really good story. Water brings people together. It's easy to understand and a very good tool for engagement and for stakeholder activities. It's something people can relate to and that opens up a lot of doors."

While most ecosystem services proponents expressed enthusiasm about the concept in and of itself—perceiving that their ultimate goal was to establish the framework as an encompassing, underlying paradigm and policy discourse—I also met many ecosystem services practitioners who preferred not to draw attention to the concept itself as they deployed it, instead focusing on the material specificities of what was at stake. WWF's green economy lead in Myanmar, for example, explained that she would much rather "explore [water] more at an issue level rather than calling it ecosystem services." While I observed many practitioners turning the ambiguous, polyvalent meanings of ecosystem services to their advantage in various ways—indeed, this is a core characteristic of how boundary objects function—she also described her simultaneous frustration with the "identity crisis" surrounding what these concepts were really about, what they meant, and how they were supposed to be used. She noted how challenging she found it "having this term that's included in your job title, that you use 50 million times a day, but no one can actually describe to you what it is." As one of the Stanford NatCappers explained:

> We work in this field that's very nuanced. It's tiny and emergent. The language isn't really clear. Sometimes we talk about ecosystem services, environmental services, natural capital. So we're coalescing around what our story is, and we hope to get clearer and clearer. But in each decision context, we make sure that we're crystal clear on what it is we're trying to achieve, who the players are, and how we're making these arguments to each other. Getting together around a common language is one of the key things that we can do with the kinds of information we provide and the outputs that we create.

Analogously to the 'water' and 'road' examples, I also observed 'maps', often articulated as scenarios, frequently being put to work as a translational focal point. Indeed, along these lines, these were stressed to me as especially important tools for NatCap. One ecosystem services practitioner whom I met at a 2015 NatCap workshop, who was involved in natural capital mainstreaming initiatives in South Africa, made this connection to boundary objects explicitly, observing how "[m]aps are a *very* good way of integrating diverse knowledge systems and different perspectives. As such, because they are at the boundary of these knowledge systems, they are very good boundary objects for working in this space and for getting people to engage during workshops." Similarly, a WWF analyst working in Myanmar explained how "maps can be good or bad. But they can be *powerful*. People react to it. 'Oh, *that* area! That area is important for such and such', or 'that is where I live!' Those maps can really resonate."

Here, the admonition by Myanmar's President to WWF and the national ecosystem service assessment that NatCap eventually produced in response—titled, *Natural Connections: How Natural Capital Supports Myanmar's People and Economy*—ties together many of the social processes narrated in this section. For their final report, NatCap's analysts used InVEST to model a suite of services they considered realistically possible to assess within the quick turnaround

period (recall the sense that 'time was of the essence' in their rationale) and which they anticipated would be high priorities for the country. Their analysis focused on the role of Myanmar's ecosystems (especially forests) in providing: drinkable surface water (through upstream sediment retention), greater water availability (by regulating baseflows during dry seasons), reduced downstream flood risks (through flow retention), protection from storm risks (through coastal vegetation), and improved functioning of dams and reservoirs (again, through sedimentation retention). NatCap generated a series of maps for each of these services, all of them analyzed in relation to estimated distributions of human populations, depicting where ecosystems were providing which services and in what amounts. As in other contexts, they modeled a combination of current flows and potential future flows of ecosystem services under different scenarios.

By overlaying these various maps, the report identifies key areas of complementarity which provide "high levels of ecosystem services [and] where natural capital provides the highest benefits" (Mandle et al. 2016, 8). In Figure 15, I compare three maps derived from NatCap's analysis combining the terrestrial ecosystem services they modeled (drinking water, flood risk reduction, dry season baseflow). The first of the three maps (left) presents the results of this combined analysis, highlighting areas estimated to provide greater amounts of each of these services. The second map (middle) depicts this same analysis but with the additional overlay of the country's existing protected areas network, highlighting clear discrepancies between where ecosystem services were currently coming from and the capacity of current protected area coverage to ensure the continued delivery of these vital services. Finally, the third map (right) again shows the combined ecosystem services analysis but with the additional overlay of "Key Biodiversity Areas" (KBAs) as identified by Birdlife, Conservation International, and the World Conservation Society (2013), in this case highlighting significant (albeit not complete) overlaps between important sources of ecosystem services and areas of high importance to biodiversity and wildlife protection.

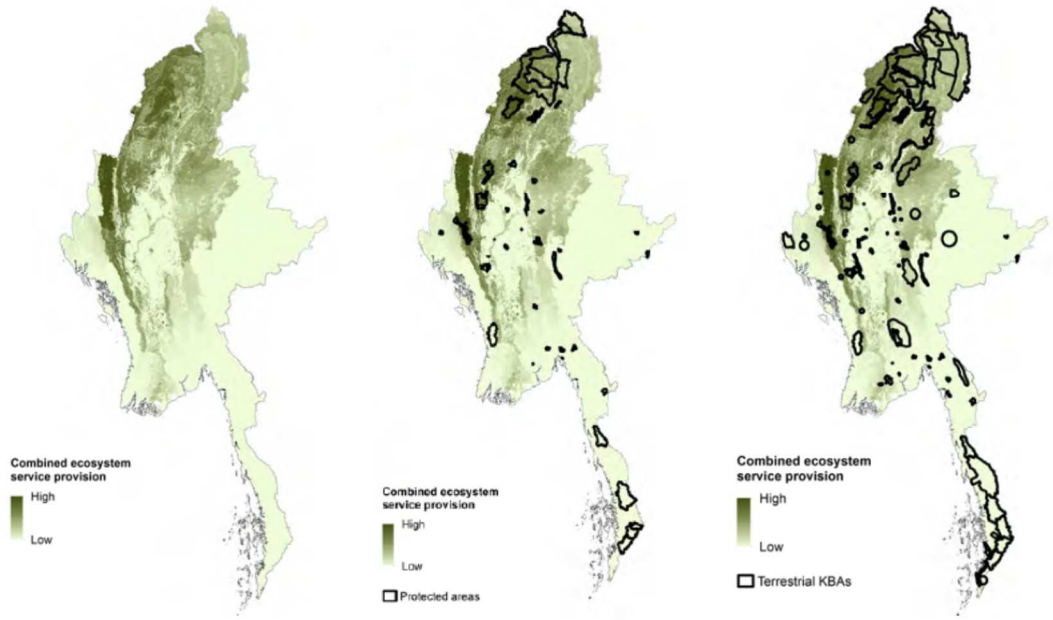

Figure 16 – Three maps presented in NatCap's natural capital assessment for Myanmar (Mandle et al. 2016). They show results of combined analysis of three terrestrial ecosystem services: (1) drinking water, (2) flood risk reduction, and (3) dry-season baseflow (also for drinking water). The map on the left depicts only the results of that combined ecosystem services analysis. The map in the middle depicts that combined analysis overlaid with existing protected areas. The map on the right depicts the same analysis but overlaid with "Key Biodiversity Areas" (KBAs) as identified by Birdlife, Conservation International, and the World Conservation Society (2013).

In considering these maps, the implication is straightforward: the current protected area network does not protect enough KBAs nor does it safeguard enough of the important sources of ecosystem services. As with the road, these maps serve to legibly foreground a range of overlapping interests—a classic and eminently reasonable 'win-win-win' (and more) opportunity—compelling decision-makers not only to maintain but to substantially expand their protected area network for the benefit of one and all. These maps, together with the dozens of others presented in the report, provide another quintessential illustration of boundary object dynamics at work (at least, on paper). In this case, and numerous others, NatCap deployed these maps as a means of bringing together the disparate logics, priorities, and practices of those tasked with governing natures claimed by these overlapping yet administratively fissured issue areas—now finally *connected* via these various ecosystem services.

The report is explicit about the relevance of its findings and about how they intended it to be used (it concludes with a section titled "How to Use This Assessment"). These results, they argue, are "important to ensuring that strategies and policies now under consideration pave the way for more sustainable, climate resilient development" (Mandle 2016, 65). It proceeds to enumerate a wide range of applications:

> coordinated planning across sectors, providing an understanding of how existing and planned investments both impact and depend on natural capital and the benefits it provides […], planning and development within key sectors, including agriculture and food security; environment and natural resources; energy, transport, and industry; urban, building, and human settlements; education, awareness, science and technology; and disaster risk reduction, health, and early-warning systems.

The report seems poised to effect sweeping changes across all realms of Myanmar's continued state-building and development processes. Framed in such grand terms, ecosystem services opens up into vast transformative potentials for revamping the way that environmental governance is seen, made, and carried out. It expands the scope of nature into an indispensable natural capital whose conservation comes to infiltrate, to *permeate*, all branches of government. In this regard, its language is recognizably aligned with broader published commentary among scientists and academics promoting ecosystem services as an inescapably logical, common-sense framework bound to grow the reasons, and the constituencies, needed to advance conservation.

As I have already emphasized, however, and as the following chapters make abundantly clear, these claims exist purely as potentials without regular, often painstaking enactments of embodied expertise performed by specific kinds of specially-positioned practitioners. These claims cannot be accepted at face value. Rather, as NatCappers themselves would explain in increasingly intricate detail, for those claims to be 'accepted' they must be carefully and situationally maneuvered into place, over and over again, with no guarantees that they will actually "stick." Again, through processes of translation, intermediation, and brokering, these expert subjects are what can (possibly) embed those claims and (maybe) give them practical expression. Indeed, as I elaborate in Chapter 4, NatCap's efforts to understand its own work have emphatically

re-affirmed this point. For instance, the facilitator of one NatCap strategy workshop asserted, "in any decision-making process, there *has* to be an active biodiversity advocate in there—*in* the decision-making. They have to occupy these institutions so they are on all files and making sure biodiversity is incorporated in all processes they have going." He later felt he had to drive this point home even further:

> I can hear a hope that one may have rules in decision-making that would almost make automatic the taking into account of ecosystem services. However, when you think about how decisions are actually made by public bodies, no systematic tool really works automatically. […] The way decisions are really made in an organization, the complexity of the pieces, there is no room for automated valuation. […] So the answer to the question is the following: to be used, the tools need a tradesman, meaning, in any decision-making process, there *has to be* an active biodiversity advocate. There is no automated technique to account for the environment or biodiversity. So, the way toward progress is having more biodiversity advocates in more decision-making entities, working on each file, and having the tools that they can use to improve their case and advance their negotiations for biodiversity.

In short, it takes work. Or, as the WWF practitioner put it earlier, it requires closely embedded "forces in our ranks, lined up," and effectively deploying ecosystem services representations in bureaucratic context. These reports, however well-packaged and convincing, need people to *operate* them. With this recognition in mind, continuing debates surrounding the methodological rigour, the internal conceptual coherence, and indeed the political significance of ecosystem services can come substantially unmoored when abstracted from these practices: the embodied, situationally improvised, and somewhat haphazard institutional bricolage performed by a range of ambivalent subjects, syncretizing the recombinant elements of ecosystem services and (potentially) stabilizing them in enduring organizational forms. What ecosystem services promises to do—as pitched in the report quoted above and as critiqued extensively in wider commentary—versus what it *actually* does (or perhaps doesn't do) increasingly appear as different matters.

NatCappers repeatedly emphasized getting "flak" for their use of comparatively simple models. Indeed, they would freely acknowledge that their analyses left them vulnerable to legitimate methodological critiques. Again, however, the outputs from InVEST and other ecosystem services tools, techniques, and calculations represent not the end of the process but its beginning. One of WWF's analysts, for instance, with whom I spent considerable time, was deeply involved in producing Myanmar's ecosystem services assessment. In addition, he was also clearly performing this vital role of 'institutional bricoleur'. Far beyond simply 'preparing a report', he described several years of sustained engagements with his government counterparts which were necessary to conducting the analyses: an extensive, iterative, and fundamentally dialogical process that involved repeated rounds of shaping, refining, tailoring, and deliberating on its various elements in collaboration with WWF's "local champions" in MONREC and elsewhere. Another NatCapper who had taken a leading role in the analysis for the national assessment reiterated this point in some in-house press coverage, noting how the process had required extensive collaboration, engagement, and iteration—in short, it involved much "more than just running InVEST models."

Echoing comments made by many NatCappers I interviewed, the WWF analyst explained how "time and again with a tool like InVEST I find you can usually go in perhaps somewhat blind but yet produce generally interesting results that you can put on the table, get people to look at,

and contest if they will. But at least it *leads* you somewhere. You can start improving things." Reflecting more broadly on his mainstreaming experiences across South East Asia, he elaborated later:

> The scenario development process was one of the most engaging parts of the entire advocacy and outreach that we were trying to do, and the modeling. So if you're sitting in a workshop, you'd be into the second day of it, you're discussing water models, and carbon, and people's eyelids are drooping—it's too much modeling. But you get into this iterative, interactive scenario development session. People get passionate. It's *their* lands and water you're talking about. You're developing storylines. They form groups. They start workshopping out stories. They start building these scenarios. And you realize that, wow, even if this does not result in a useable product for our analysis, just the power of this approach in bringing people to the table and making them see what is important, that is very powerful in and of itself.

In yet another interview, he explained how ecosystem services provided him with the means to "open up a conversation about how we can work together around joint objectives. […] [T]here really are ways of engaging across multiple interest groups and sectors and here natural capital is a powerful approach." For a satisfactory analysis of the rise of ecosystem services, the specifics of the calculations, metrics, and analyses that comprise ecosystem services are obviously important and necessary to consider. However, if we are to understand the *effects* of these representations, we must situate them in their broader political and institutional context and attend to how they are *played*. As another NatCapper stressed to me, "it's not just a black box where you hit 'go' and it gives you the ultimate answer." At least with respect to ecosystem services, the term "calculative instrument" almost begins to seem more appropriate than "calculative device" (Muniesa, Millo, and Callon 2007) insofar as the term "instrument" more properly connotes the sense that these representations must be *used*, and that it is only *in use* that they can have the capacity to do things (as opposed to a "device" that you might switch on and simply allow to operate). While either of these conceptions (i.e. 'device' and 'instrument') would theoretically fold both operator and operated into a bigger socio-technical tangle of actors and agencies—an encompassing human and non-human *agencement* (Callon 2007)—this re-phrasing usefully serves to check, particularly in the context of debates around ecosystem services, the notion that the calculations can somehow be relied on to do much of the work on their own.

The vocabulary also perhaps draws into focus the possibility that these instruments could contribute to different 'songs': a repertoire conceivably as diverse as the range of musicians ready to play them. Indeed, in theorizing institutional bricolage, Cleaver (2002, 16) notes that different practitioners, in this case, ecosystem services experts, "apply their knowledge, power and agency […] in differing ways," resulting in a dynamic and "rich diversity of pliable, if approximate, institutional arrangements." When viewed from this angle, and as I elaborate in the following two chapters, the details of the tools seem largely overshadowed by the sorts of political subjectivities and embodied knowledges associated with their wielders: the peculiar combination of technical proficiency, an aptitude for code-switching, seasoned experience tempered by numerous 'attempted mainstreamings', the kind of disarmingly earnest charisma I described earlier, and a specific 'reading' of the political conjuncture and what it required them to do. A common refrain expressed during interviews intimated that what often mattered was not really the specific number at issue but simply that there *were* numbers somewhere in the background, big enough, tailored enough, or otherwise contextually appropriate enough to 'work with'. In this way, it was the ability

to wield these numbers with the requisite finesse during 'windows of opportunity' that really made the difference. As I explore in the following chapter, critically, these dynamics are *also* bound to lively yet broadly structured organizational dynamics that shape how those tools can be wielded. Borrowing a phrase from WWF's green economy lead, the tools themselves can perhaps be used to "open doors." But, they still require people to walk through them.

Figure 17 - The front page of the Myanmar Times' Weekend edition featuring WWF's photo exhibition as its front-page story.

HUMAN / NATURE

Underscoring this point about the viscerally engaged nature of natural capital mainstreaming in practice—again somewhat vividly—was the final vignette I will narrate involving the art exhibition, "Human / Nature," hosted by WWF in Yangon. Already the title begins to capture a mild disorientation I experienced at various moments during the trip. An art show celebrating ecosystem services. I arrived early to the opening reception to review the exhibit and chat with the team as the event space gradually crowded to nearly a hundred people—a combination of locals and expats. The event self-consciously sought to undermine the 'nature/culture' binary that has so preoccupied (and bedeviled) conservation with what I took to be a rather engaging photo series produced by Minzayar, one of Myanmar's most highly regarded photographers, and curated by WWF. The images depicted a variety of scenes: fisher-folk landing their catch, a woman washing her face with water she had collected, a small boy bobbing in a river, an aerial shot of a road through a rugged forested landscape, farmers packing betel nuts into burlap sacks, a nighttime shot of a loaded logging truck, and so on. Each image, in turn, was accompanied by brief commentary, written in English and Burmese, narrating various lessons regarding human dependence on nature and looming threats to that nature in the country. The caption for the boy swimming in the river, for instance:

> A boy swims in the Banchaung River near his village. People in his village rely on the river for food, drinking water and domestic use, but say the river has been getting drier in recent

years. U Myo Win from Phaung Taw Gyi village believes deforestation up-river is to blame. “We have a saying—weather and climate rely on the forest.” Myanmar’s forests help to regulate the flow of water across seasons, thereby helping to ensure a steady supply of water to downstream areas throughout the year. Without forests, people would experience increased risk of droughts during the dry season.

Each of the other photographs was narrated in a similar fashion. However, what most intrigued me about this exhibit was how WWF had chosen to intersperse these images with alternating giant-size ecosystem service maps—the ones from the national-scale assessment produced with NatCap (Mandle et al. 2016). The maps themselves were visually rather striking: in order to match the photographs, each map had been artfully illustrated, arranged, and captioned, responding to a different ecosystem services question: “Where do forests help provide a steady supply of water throughout the year?”, “Where do areas important for wildlife also benefit people?”, “Where do forests reduce flood risks?”, “Where do coastal habitats reduce the impact of storms?”, and so on. Together, woven among Minzayar’s photographs and WWF’s commentary, these maps provided a colourful atlas telling the story of the various indispensable services Myanmar’s ecosystems were performing for the country, its people, its development, and its economic progress.

Figure 18 - Images captured at the Human / Nature exhibition prior to the opening reception.

While I cannot really speak to its overall efficacy, I interpreted the exhibition in that moment at least as a recognition, an *affirmation*, by NatCap’s personnel that numbers alone were not going to convince anybody or do much of anything, further dismantling the notion that they (or others) could simply run the models and let reason take hold and do the rest. This sentiment, while perhaps intuitively obvious, was nevertheless expressed to me repeatedly and insistently in interviews and in informal conversations: it was a notion that that they felt still had to be disabused or at least distanced from themselves. Throughout my time with them, WWF and NatCap illustrated (here, literally) how the numbers had to be embedded and engaged: they had to be

framed, presented, viewed, debated, contextualized, personalized, and in this case, fetchingly dressed for their own party and bathed in mood lighting. Of course, these maps do arise from a deeply technical, analytical process, requiring all kinds of quantifications, assumptions, reductions, simplifications, and commensurations (the InVEST user manual is humongous). That evening, however, these calculations seemed to recede behind the storylines that could be constructed from them—the sorts of stories that could be brought to nearby Presidents and cobbled together in various ways to appeal to a range of aesthetic sensibilities, diverse interests, and idiosyncratic epistemologies.

Curiously, it was only rather late in the evening that I noticed a whole second floor to the exhibit. What did not escape my notice was that this out of the way plane was where they had chosen to cloister the more straightforwardly biodiversity conservation-oriented photographs: the tigers, the sun bears, the leopards, and so forth. Personnel were often coy in acknowledging a generational divide, present across my interviews, that had caused some tension between an old guard still primarily focused on wildlife protection and a younger cohort of practitioners who had more firmly embraced the framework of the green economy. As I perused the images of these classically charismatic megafauna, upstairs and alone, and as I looked down over the rafters at the party waxing below on the first floor, that divide seemed not only apparent but to have manifested visibly in the spatial arrangement of the venue itself.

My main point in highlighting this celebration of ecosystem services at "Human / Nature" is simply to convey the inextricable liveliness—the affective charge, the multiple political valences, and the sorts of creative, representational jury-rigging—literally on display here at the discursive frontier of ecosystem services. It also draws important contrasts with caricatures of ecosystem services as a necessarily reductive, violently abstracting, and market-based arithmetic tantamount to the total quantification of life on Earth according to a unitary logic of calculation. The deployment of these calculative instruments can certainly include many or all of these elements, and together with the broader contexts through which they take expression, it does necessitate serious critique (which I begin to expand on in the following chapter).

Yet I could not shake the feeling that in this space, in this moment—itself a stand-in for countless others peppering my fieldwork—the framework seemed much more mutable, revealing traces of more open political possibilities divorced, or at least divorceable, from those *other* moments that did somewhat live up to the caricature (and there were a fair share of these too). The exhibit expressed a basic point: in specific ways, we depend on ecosystems to live and are interfering with their ability to keep letting us to do that. To the extent that we accept that more straightforward scientific expertise ought to play *any* role in how we come to relate to nature—the knowledges of climatology, ecology, hydrology, oceanography, and so forth—it seems worthwhile to have, alongside other ways of knowing nature, some rigorous, systematic means of responding to the simple questions attached to those maps I just described. The knowledge practices necessary to developing some distributional clarity on who is getting (and not getting) how much of what, where, and under what conditions can imaginably re-combine to assemble all kinds of different projects, ranging from schemes seeking to turn nature into a site of accumulation (Fletcher et al. 2014) to political-ecological analyses of dispossession and exclusion that seek to contest those schemes and help to animate counter-hegemonic resistance.

In this light, such knowledge begins to sound rather benign and its promise of clarity appears difficult to fundamentally dispute. Considered in this open-ended and rather friendly 'formless' form, ecosystem services seems rather felicitous to all kinds of different conversations,

ways of thinking, and ways of being. And yet, at the same time, these ideas and images neither emerge from nor operate in a vacuum. The seeming innocuousness of the ecosystem services celebrated at WWF's art show—'we need nature to live, people!'—conceals a tension explored throughout this dissertation, which I revisit over subsequent chapters and address more directly in my conclusion in Chapter 7. The rise of ecosystem services arises in part from a fervent, even desperate desire—one that I often consider appropriate—among important quarters of the scientific community to bring their expertise to bear, somehow, some way, on the urgent, hugely challenging, and, in the absence of dramatic intervention, probably terminal socio-ecological crises that define the present moment. And yet, dislodging this expertise from the hegemonic discursive, institutional, and political-economic orders that produced those very crises together with that expertise and its associated political subjectivities cannot be anything but a fraught endeavor. Here, again, the slippery versatility of ecosystem services somewhat confounds the prospect of definitively nailing down what exactly it represents. Indeed, its key characteristic seems to be that it is incessantly mobilized as many different representations situationally improvised to do many different things.

In Myanmar, I was not able to form an especially strong impression of NatCap's 'likelihood to succeed' other than to say that it never seemed implausible—that their work could have significant effects within those swirling political ecologies whose intricacies I backed away from earlier. In any case, and more importantly to this analysis, WWF's efforts in Myanmar continue apace: they have poured substantial resources and made a bold gambit in Myanmar and elsewhere, but *especially* in Myanmar, on ecosystem services. Drawing from ten dense years of practical experience with natural capital mainstreaming and a specific analysis of the political terrain on which they were now operating, NatCap and WWF have constituted and been co-constituted together with a cohort of conjuncturally-shaped, expert subjectivities possessing peculiar faculties for translation, boundary-maneuvering, brokering, and intermediation—subjectivities now reliant on ecosystem services. During this formative moment of heightened contingency in the country, their embodied expertise and continuous representational improvisations have been aimed squarely at "harmonizing" a dangerously incongruent conservation with the fractious institutional cacophony that surrounds it.

DOWNSTREAM

Given NatCap's prominence in the ecosystem services movement—it touts "market leader" status in recent informational materials (Natural Capital Project 2016)—the organization, its network, and its personnel provide a revealing window into the kinds of micro-social processes by which ecosystem services practitioners and proponents participate in broader cultural, institutional, and political-economic shifts in environmental governance commonly associated with their work. In the next chapter, I continue to build on these observations from my time in Myanmar and on many other engagements with NatCap's network and personnel. Specifically, I parse specific mechanisms through which NatCap's personnel undertake their mainstreaming work by theorizing their practices as a power-laden form of institutional bricolage (combined with the dynamics of "institutional entrepreneurship"). This analytical approach focuses especially on the translational, boundary-traversing capacities of these practitioners—as described in this chapter—which are, I argue, central to understanding NatCap's work and what ecosystem services 'does' (or is used to do) more generally.

Prior to theorizing in more detail *how* NatCap works, I should also briefly address whether their work 'works'. To conclude this chapter, I highlight the persistent trickiness of ascribing

'impacts' to natural capital mainstreaming work. What kinds of social change has the rise of ecosystem services been associated with? Given the slipperiness of what ecosystem services means, what it does, and how it ought to be used—a 'versatility' which has become a defining feature of how NatCap deploys the idea—assessing the tangible impacts of the concept remains somewhat difficult to pin down. In the previous chapter, I highlighted three broad 'functions' of ecosystem services: as rhetorical toolkit, as decision-making input, and as organizational arrangement. Whether critical or supportive of the concept, analysts typically acknowledge major and ongoing changes in conservation that may implicate ecosystem services along each of these three dimensions: the rhetoric by which conservationists frame the legitimacy of their work, the kinds of measures and criteria by which decisions are made and evaluated, and the organizational forms by which conservation is arranged and enacted all appear to be shifting in ways consistent with or even operationalized through (at least in part) ecosystem services concepts and expertise. In turn, these functions can be mobilized to serve a range of different conservation objectives such as instituting stricter environmental protections, directing greater financial resources toward conservation endeavours, or simply engendering more supportive attitudes or lessening the likelihood of hostility toward conservation among new constituencies.

NatCap's strategy involves operating across all three of these dimensions: at the level of framing, discourse, and legitimation (e.g. its prolific scientific knowledge production, frequent high-profile commentaries, dissemination of case studies, network-building, etc.); at the level of operationally inserting ecosystem services metrics into existing decision-making processes (e.g. various practical applications of InVEST and related tools); and at the level of fashioning new institutional arrangements or re-fashioning existing ones (e.g. in the design of national spatial development plans or the establishment of PES or PES-like programs).

Once again, NatCap's self-narrating impulse provides a useful starting point. Although I characterized NatCap's work as halting in its manifestations—indeed, NatCappers themselves speak openly about their impatience with the limited extent of their achievements[88]—the organization is nevertheless careful to point to several indications of their reach and influence. They report logging over 30,000 downloads of InVEST in 167 countries; 6,000 enrollments in their online course offerings; and 4,000 participants in their in-person trainings and capacity-building activities. "Our community," they argue, "has successfully raised awareness of the importance of nature's benefits, and has advanced the science and tools to a point at which people can map, measure, and value the benefits nature provides" (Natural Capital Project 2016, 36). Equipped with such tools, they emphasize a growing portfolio of "great success stories where natural capital approaches have changed decisions so the fates of both people and nature can be improved" (Ibid). They tout on-the-ground partnerships with real-world decision-makers in 50 locales spread across 24 countries (one of which is Myanmar), and a growing and diversifying network of collaborators across public, private, and non-profit sectors. "NatCap," they conclude, "has come a long way" (Ibid).

And yet, measuring the precise extent of ecosystem services' influence—in other words, establishing unambiguous evidence of the types of desired organizational change fixed at the center of NatCap's stated mission—remains, they admit, somewhat challenging. The ecosystem

[88] As one of NatCap's chief strategists remarked in an interview, "I guess I've been drinking this Kool-Aid long enough that I'm actually kind of more focused on how much work still needs to be done. I don't understand why it's not more in the mainstream. There's more talk about ecosystem services and not really a lot of understanding of how to do something with this information."

services talk is certainly ubiquitous: one NatCapper asserted that the term was as popular as Michael Jackson (at least, when measured by the frequency at which these words appear in books). And they have indeed developed a growing portfolio of (often painstakingly achieved) 'model' case studies accompanying the development of their technical tools. When reflecting on their work in Myanmar, for instance, they emphasized that they had achieved "incredible" access to government using the language of natural capital, ecosystem services, and the green economy.

However, as WWF and NatCap personnel also acknowledged, "getting the right words in documents" was a somewhat superficial accomplishment. Indeed, although my observations were largely shaped by the relatively recent establishment of WWF-Myanmar's office, it was never quite clear to me what effects they were having beyond the production of reports and the hosting of meetings. More broadly, this question of whether and how exactly ecosystem services may have meaningfully affected environmental governance at a more comprehensive level remains opaque and NatCap still struggles to come up with clear slam dunks proportionate to the scale of their ambitions.[89] "In spite of individual triumphs," laments one multi-authored NatCap publication reflecting on their progress, "the pace at which the theory of ecosystem service valuation is being incorporated into real decisions has been painstakingly slow, with disappointingly few success stories" (Ruckelshaus et al. 2013, 12). And as they acknowledge in a more recent strategy document, "these examples remain isolated bright spots. We haven't yet affected a fundamental shift in decision-making" (Natural Capital Project 2016, 36). Indeed, as the head of a major conservation organization acknowledged during a workshop NatCap hosted in 2016:

> We've been doing this for about 17 years and have had all kinds of different experiences as far as outcomes. Sometimes we've done studies that are incredibly detailed and careful and sophisticated. We have one of the most cited contingent valuation studies in a tropical forest. And yet, again, I'm still waiting for that impact on policymakers.

A literature review conducted by Bille et al. (2012, 1) showed that while "economic valuations have raised high expectations to influence policy," and although methods for ecosystem services valuation are "now highly mature," and despite the fact that tremendous resources have already been poured into the tools meant to perform these operations, the question of whether those tools are actually being *used* at a significant scale "is rarely addressed beyond general statements and suggestions about *possible* uses" (Ibid, 4; emphasis added). They conclude that the striking "paucity" of evidence for ecosystem services concepts and tools being used in practice may simply arise from the fact that the "use of valuations may be limited in reality" and "may fall short of ambitions in practice" (Ibid, 3). At one particularly awkward reception hosted by NatCap at the 2016 World Conservation Congress, an official from the Global Environmental Facility took the microphone to take NatCap (and, indeed, the broader ecosystem services community) to task for essentially squandering the considerable resources that had been invested in the Millennium Ecosystem Assessment and related initiatives with far too little impact to show for it.

As I argue in Chapter 4, the difficulties in attributing definitive impacts to the idea of ecosystem services (and NatCap is certainly *trying* to establish such evidence) is partly rooted in the slippery, multi-dimensionality of the concept itself and what it 'does'. However, my goals here relate less to impact evaluation and more with apprehending the subjectivities and social worlds

[89] With the notable exceptions of water-related PES and PES-like programs in Latin America (Natural Capital Project 2015) and conservation programs China which utilized ecosystem services mapping tools like InVEST (Ouyang et al. 2016).

of the practitioners pursuing such impacts through ecosystem services. For now, I simply acknowledge that the influence of ecosystem services has been non-negligible and multifaceted—something and not nothing is certainly afoot—and NatCap provides one of the best available examples through which to unpack how this influence (such as it is) comes to be constituted. Time will tell how this gambit on ecosystem services will unfold. We can, however, clearly identify the kinds of everyday practices, underlying strategies, institutional dynamics, and broader power relations that these natural capital mainstreaming initiatives harness as they are folded into context. I turn to these subjects now.

CHAPTER 3 – CONVERTING THE ALREADY CONVERTED

> What we *really* meant way back, 15 years ago […] what we were all feeling was that the things we cared about did not seem relevant much anymore. It was really about *relevance* in a sense, and natural capital is one way of entering relevance. It was really about these things that we care about, these things we think are so deeply important, and we look around, we look at much of the world, and we see it's a trivial part of the discussion. […] And it was also about something else. About mainstreaming. I think it was about changing everything. It was actually that radical.
>
> - Peter Kareiva, 2016, Palo Alto, Natural Capital Symposium

"THIS CHANGES EVERYTHING"

For Peter Kareiva, one of the Natural Capital Project's four co-founders—as well as a leading proponent (and controversial lightning rod) advocating for a reinvented, pro-people, and business-friendly "New Conservation"[90]—the turn to ecosystem services was "really" about re-establishing conservation's relevance. But to whom? And how exactly? Never one to mince words, at a separate debate colourfully framed around whether "money *can* grow on trees," in other words, if "capitalism" and "nature" were truly at odds, I watched him state the point somewhat more bluntly. "That adversarial position," he lamented. "If business is an adversary of nature, nature doesn't stand a chance."

Looking back, Kareiva explains that the rise of ecosystem services was, most of all, an expression of this need to translate conservation into something less "trivial" and more broadly amenable to "the people who have the future of the planet in their hands," as another of NatCap's co-founders put it. By refashioning biodiversity conservation around the concept of ecosystem services—by transmuting nature into natural capital—their cause could be renewed: rendered clearly legible to the governing vision cast by those powerful decision-makers persistently deciding not to see, not to care about, and certainly not to fund the conservation of nature. In this way, the rise of ecosystem services was, among all of the other things that it represented, fundamentally a plea to power: a means of winning favour among those whose hands were now firmly holding onto the planetary reins. Faced with unbeatable odds, the conservation of biodiversity, as Kareiva indicates, had to prove it was worth keeping around.

Although NatCap's stated mission is articulated around a vision of "aligning economic forces with conservation" (Natural Capital Project 2016, 3), in this chapter I contend that the

[90] Kareiva argues for the need for "conservation to embrace marginalized and demonized groups," to re-purpose itself to "benefit the widest number of people, especially the poor," and, rather than "scolding capitalism," he asserts that "conservationists should partner with corporations in a science-based effort to integrate the value of nature's benefits into their operations and cultures" (Kareiva et al. 2012, 4). Kareiva was also former Chief Scientist and a Vice President of The Nature Conservancy (TNC). He is currently the director of UC Los Angeles' Institute for Environment and Sustainability.

process might just as appropriately be interpreted as aligning *conservation* with "economic forces." As I will discuss, although Kareiva envisions the ecosystem services gambit as a "radical" endeavour to "change everything," its main accomplishments so far have been changing the institutions, organizations, and political subjectivities internal to the conservation movement itself.

Building on the empirical material presented in the previous chapter, and reflecting on the full range of my engagements with NatCap's network, I will now develop a more sustained theorization of the organizational dynamics implicated in "mainstreaming" ecosystem services. Here, I adapt conceptual frameworks from organization studies (Clegg et al. 2006) and critical institutionalism (Cleaver and Koning 2015) as a means of analyzing the discursive, institutional, and political-economic shifts that have re-shaped contemporary conservation: shifts of a broadly 'neoliberal' character which seem to implicate ecosystem services concepts and expertise.

In the following section, I begin by highlighting analytical tensions among an array of different approaches to explaining the rise of ecosystem services—a wide spread which is reflected in the critical scholarship but also in the responses I elicited from the many dozens of ecosystem services experts whom I asked to narrate it for me. Their accounts ran the gamut from more directional to more contingent understandings of its formation; from more structurally-driven to more agent-oriented interpretations of how it unfolded; and from more locally-defined to externally-circumscribed explanations of how it was shaped. Here, I draw on theoretical debates parsing these analytical tensions in relation to the diffusion of neoliberalism as a means of further teasing out analogous tensions in the spread of ecosystem services.

Accordingly, to understand the generative practices and institutional hybridities that comprise ecosystem services, Van Hecken et al. (2015, 73) suggest that "we must acknowledge the dynamic interplay between agency and structure, where emergent political processes reflect both the agency of current actors and the influence of historically embedded structures, practices and legacies." In this regard, I turn to several concepts from critical institutionalism and organization studies. Drawing from critical institutionalism, I theorize ecosystem services practitioners as "institutional bricoleurs" (Christiansen and Lounsbury 2013; Cleaver and Koning 2015). As illustrated in Chapter 2, the work of mainstreaming is enacted by precisely this kind of subject whose practices of "bricolage" rely heavily on the boundary objects constituted through ecosystem services, involving "an active assembly of parts, the adaptation of norms, values and arrangements to suit a new purpose" (Ibid 16). This institutional bricolage is generative of organizational dynamics "forged in practice through daily interactions, the necessary improvisation involved in social life" (Ibid, 20). The formation and transformation of institutions from this perspective thus arises from a messy "process of piecing together shaped by individuals acting within the bounds of circumstantial constraint" (Ibid, 17). As I will elaborate, this sense of situationally cobbling together elements of available institutional logics into contextually shaped, syncretic institutional forms defines NatCap's work and how they utilize ecosystem services.

Drawing from organization studies, I further elaborate on these conceptualizations of institutional bricolage by: (a) connecting constructivist understandings of institutions and institutional change (Clemens and Cook 1999) to biodiversity conservation; (b) highlighting the consistent observation among these literatures that "organizational fields" fragmented by multiple institutional orders are uniquely susceptible to such change (Lounsbury and Boxenbaum 2013); and, most importantly, (c) identifying a recurrent type of subject observed across settings as instrumental to initiating this form of institutional change—the "institutional entrepreneur" (Hardy and Maguire 2008). Applying these three conceptualizations to NatCap's use of ecosystem

services, I identify its personnel as quintessential examples of institutional entrepreneurs: subjects that are uniquely situated in bridging roles between diverse organizational contexts, possessing the requisite kinds of cross-cutting expertise, connections, and legitimacies needed to maneuver between and translate among them. Under these conditions, with these proficiencies, and from this positioning, as Garud et al. (2007, 962) write, these institutional subjects display distinctive capabilities for subverting "existing rules and practices associated with the dominant logic(s)" in a field, and brokering coalitions to "institutionalize the alternative rules, practices or logics they are championing."

Thus, as I will argue, the rise of ecosystem services has been effected through situated practices of "institutional bricolage," the dynamics of "institutional entrepreneurship," and the embedded agencies of expert subjects like those now associated with NatCap. In turn, I trace how these micro-social processes are implicated in broader institutional re-alignments now widely observable in biodiversity conservation, where ecosystem services provides an operational means of translating the institutions of conservation, context by context, piece by piece, into new forms.

What connects this whole analysis, as I conclude later, are power relations. More specifically, I emphasize that these organizational dynamics are profoundly shaped, and indeed made possible, by deeply *uneven* power relations (MacDonald 2010b). In this context, the organizational change arising from ecosystem services—how it is used to situationally 'translate' conservation to better accord with dominant discursive, institutional and political-economic orders—serves to further stabilize the entrenched position of Gramsci's (1971) historic bloc. While some scholars have associated the incumbent-undermining activities undertaken by institutional entrepreneurs with the subversive role played by Gramsci's "organic intellectuals" (Levy and Scully 2007), in this context I instead interpret them as Gramsci's "ideological functionaries" (Igoe, Neves, and Brockington 2010). From this perspective, their role, while locally disruptive, is ultimately hegemonic rather than counter-hegemonic in character. As I conclude later, ecosystem services may not have "changed everything" but it certainly has changed the internal composition of organized conservation. By aligning its interests, its constitutive political subjectivities, and its organizational forms and functions with so-called "economic forces," the operational translations effected through ecosystem services, taken in aggregate, may simply entrench existing power asymmetries and serve to evacuate conservation of whatever radical potential it may have had.

ANALYTICAL TENSIONS: ALIGNING THE ASSEMBLAGE IN META-CONTEXT

In this section, I begin to problematize different modes of explaining the rise of ecosystem services as expressed by its practitioners. I explore analytical tensions between more agent-oriented and structurally-driven accounts of its emergence. I highlight the contingencies and variegations attendant to how ecosystem services manifests in context (which are emphasized, for example, in the analytic of the "assemblage"). However, I also situate those contextual contingencies and variegations within their wider system of interrelationships (what scholars have referred to as their "context of contexts"). As I will discuss, the work of NatCap's personnel involves maneuvering between contexts at precisely this 'meta-contextual' level. In turn, this mode of operation implicates them in consequential cross-scalar organizational dynamics that connect local entanglements with broader institutional re-alignments in conservation—shifts oriented toward market logics and neoliberal rationalities which have grown increasingly pronounced over the past decade (Fletcher, Dressler, and Buscher 2014).

In her account of neoliberalism as a contingent, contextually configured, and fundamentally unstable "assemblage" of "global forms and situated political regimes," Aihwa Ong (2007, 5) highlights the need for a kind of "midrange theorizing" aimed at conceptualizing "promiscuous entanglements of global and local logics" and how they "crystallize different conditions of possibility" in different contexts. Through the analytic of assemblage, this approach enables her to think through, in very particular terms, how neoliberalism as a specific technology of governance "becomes translated, technologized, and operationalized in diverse, contemporary situations," indeterminately and selectively (Ong 2006, 13). As Brenner, Peck and Theodore note, this approach usefully foregrounds the specific practices of policy mobilities, such as those related to ecosystem services, and the "flows of governmental technologies, rationalities, and expertise that constitute the invariably messy assemblages within which such practices are (temporally) embedded" (Brenner, Peck, and Theodore 2010, 201).

However, this approach—which I apply here—must also be careful to situate those practices within the wider, trans-local discourse coalitions in which those practices are mobilized and in relation to the macro-institutional and political-economic dynamics in which those practices are enmeshed. These wider dynamics provide what Brenner, Peck and Theodore describe as the meta-context (or "context of contexts") to those practices, binding them, however idiosyncratically, to "macrospatial rules, parameters, and mechanisms that serve to channel, circumscribe, and pattern […] contextually embedded forms of regulatory experimentation" (Brenner, Peck, and Theodore 2010, 201). They caution that such an insistent emphasis on indeterminacy and locally-contingent contextual mutation (as articulated, for instance, in the analytic of assemblages) may result in premature dismissals of the explanatory importance of this meta-context, running the risk of unfairly interpreting its invocation as "functionally predetermined, universalizing, territorially immobilized and rigid" (Ibid)—in other words, as an overly simplistic caricature for structuralism.

Can we attribute the rise of ecosystem services to a combination of identifiable, structurally determinative causes which portend clear trajectories? Or, does it instead represent an indeterminate and conjunctural outcome, an unstable articulation of the contingent, recombinant agencies of those that happened to constitute it? As I will elaborate, and picking up from Van Hecken et al.'s (2015) proposals regarding how to parse the embedded agencies constitutive of ecosystem services, its ascendance has encompassed elements of both. I put these questions directly to dozens of leading ecosystem services experts and practitioners and elicited a wide range of interpretations trying to account for the rise of ecosystem services (Kareiva's being one snippet). Indeed, whether shared in conversation, expressed in writing, or performed at meetings, I recorded many 'pocket explanations' offered by practitioners for interpreting why exactly ecosystem services had come to seize center stage across the organizations where they worked.

Their stories would hinge on different plot points. Some emphasized scientific progress: the emergence of environmental and ecological economics, their gradual integration with previously disconnected networks in the life sciences, and a growing acceptance of applied versus fundamental research within the academic community. Others pointed to the orchestration of pivotal events arranged in a series with a crescendo around the Millennium Ecosystem Assessment (2005). They detailed key moments instantiated by the publication of influential reports, the formation of key alliances, or the founding of new organizations, each effected by specific groups of people who, through a combination of personal connections, skilled leadership, and propitious

timing, managed to mobilize their networks and assemble the coalitions necessary to move the idea forward.

While explanations would often express reasons for 'why it was about time', pointing to the latent obviousness of the approach (i.e. it was simply a good idea), others situated the embrace of ecosystem services within deeper histories. They would emphasize geopolitical shifts (e.g. facets of the 'sustainable development compromise' negotiated over decades among blocs of developed countries and increasingly assertive, newly sovereign developmental states in the global South); cultural shifts (e.g. a generational changing-of-the-guard displacing old school conservation with the sort of anthropocentric, instrumentalizing, and market-oriented "New Conservation" promoted by Kareiva and colleagues); and political-economic shifts (e.g. the post-war dominance of market-driven economic development, the widespread rollout of neoliberal de/re-regulatory policy programmes, the expansion and intensification of capitalism, etc.) as facilitating its emergence and driving its apparent ascendance. Nearly all the practitioners I spoke with, however, converged on a dawning, collective recognition of just how bad things had gotten—the so-called "scarcity" of nature was reaching crisis proportions as one interviewee explained—and how badly the organized conservation movement had failed to avert it. As Gretchen Daily herself explained in one conversation, "the Natural Capital Project was born out of this panic."

These explanations, involving various combinations of more contingent, agent-driven factors and more determinative, structural dynamics echo the spectrum of academic interpretations I discussed in Chapter 1. In trying to account for where ecosystem services came from, why it took the shape that it did, and what it 'does', we confront perennial chicken-and-egg questions of structure and agency, contingency and directionality, context and wider meta-context. This wide spread of explanations, and *kinds* of explanations, highlights an ever-present theoretical tension in thinking about the rise of ecosystem services between: (i) the indeterminacy of deeply contingent, contextual assemblages materializing unpredictable forms and emergent possibilities for ecosystem services in respective instances; and (ii) the analytical importance of meta-contextual processes in circumscribing, structuring, and imposing some relational yet ultimately ordered and directional pattern among those assemblages.

Clearly, the diverse institutional manifestations of ecosystem services do exhibit pronounced, locally-articulated patterns of variegation. Indeed, a now-voluminous literature has demonstrated how market-oriented, neoliberally-inflected governance comes "in all manner of forms and formations" (Peck 2013, 144). However, properly understanding these contextually-configured instantiations requires comprehending their mutual constitution—"the relational analysis of hybrids amongst *other* hybrids"—on a more than case-by-case basis (Ibid). It involves analytically situating each of these contexts within their shared meta-context, "connecting and dialectically relating 'in here' conditions, projects, struggles, and alternatives with 'out there' rule regimes, disciplinary pressures, [and] competitive constraints" (Ibid, 143).

NatCap's self-styled function is precisely to maneuver this context of contexts, to criss-cross between various "in heres" and "out theres." Its avowed aims and sprawling, transnational activities are focused on getting ecosystem services approaches into circulation, replicated, and scaled up by shepherding its framework, context by context, into those varied places where conservation does its work. An appropriately relational and process-based analysis of ecosystem services, therefore, and those ideological, organizational, and political-economic transformations in which it has been implicated, must be multi-sited and conjunctural in its outlook. As Peck (2013, 143) argues:

> Rather than floating offshore as a detached but all-determining superstructure, out-there neoliberalism is seen to be jointly constituted through all the various in-heres, even as this more-than-local phenomenon can be shown to be disproportionately animated by certain centers of calculation and sites of conjunctural power. An additional aspect of this dialectical commitment, to *always* positioning the local, is an abiding skepticism concerning attempts to detach or bracket off—for whatever reason—the in here from the out there.

Curiously, at many points throughout my research (as discussed in Chapters 4, 5 and 6), the political polyvalence of ecosystem services seemed to test the limits of neoliberal characterizations, appearing archetypally neoliberal yet frequently less-than and more-than neoliberal simultaneously, either missing critical elements or overflowing its strictures. And, as I described in the previous chapter, the continual, effortful practices of translation, boundary-maneuvering, and brokering where ecosystem services is enrolled, as well as the improvised representational bricolage which I placed at the center of that dynamic, all seem to imply a strong form of contingency, indeterminacy, and local particularism. While mainstreaming does require incessant, situationally improvised enactments of the peculiar forms of expertise and embodied knowledge, I argue that all of these locally contextualized practices are nevertheless inextricably connected, and indeed, profoundly conditioned by a meta-context defined by power relations—and more to the point, "radically asymmetrical power relations" (MacDonald 2010b) in conservation—configured trans-locally and across micro- and macro-institutional scales.

I suggest that the constitutive practices of ecosystem services operate in large part through their connections to these uneven power relations and, perhaps just as importantly, through the intersubjective production of *imaginaries* that name, describe, frame, interpret, and otherwise make sense of those uneven power relations. To state this point even more strongly, for any of the practices I have just described to function they must be discursively placed within a bigger picture that narrates the defining power relations among conservation and the institutional worlds and political projects that surround it. In short, these practices depend on power asymmetries, and on the intersubjective *experience* of those power asymmetries, to work.

In Myanmar, for example, WWF's deployment of ecosystem services specialists was shaped by a considered 'reading' of the political conjuncture: a reflexive theorization of how conservation fit into its bigger picture whose defining power relations demanded certain kinds of political strategies while precluding others. There, an analysis of WWF's puniness in the face of a cacophonous array of more powerful interests and unstoppable institutional inertias prompted them re-fashion their work around an ecosystem services approach such that conservation could be made to accord with these other, more dominant logics. These power relations, the interpretation of their political meaning, and the intersubjective dynamics by which they come to be internalized and accepted have profound implications for the continuing organizational and institutional re-shaping of conservation. Moreover, they are vital to understanding the functioning and political significance of ecosystem services within those ongoing transformations.

In this context, I contend that the practice of ecosystem services—including its political subjectivities, its embodied knowledges, its representational objects—provides a pivotal means by which practitioners can perform the intimately-scaled work of *aligning* their various organizations and institutions to a variety of discursive, macro-institutional, and political-economic orders increasingly normalized as dominant and accepted as overwhelming. Indeed, this very language is often used by NatCappers themselves. As one NatCap lead scientist remarked to delegates at the

2016 World Conservation Congress in Honolulu, for instance, NatCap's work revolved around "aligning diverse sets of goals and actors" and around "aligning multiple objectives within the same approach." Of course, these alignments do not happen over an undifferentiated plane of equality. Across a fractured field of deeply uneven power relations, ecosystem services represents both an expression of and a key instrument in effecting this process of alignment and re-purposing: a framework enrolled to enact the requisite forms of work necessary for translating conservation to make it 'fit' with the array of overriding logics and other more powerful political projects arrayed around (and too frequently against) it. In other words, these re-alignments are not symmetric but revolve around centers of power: conservation is compelled to align with dominant logics more than the other way around. In the process, ecosystem services comes to reconfigure the constitutive subjectivities and organizations of those who practice it.

Thus, while the rise of ecosystem services in conservation can be attributed to a combination of big-picture and structurally-derived causes, including many of those hinted at by my informants—i.e. the variety of "macrospatial rules, parameters, and mechanisms that serve to channel, circumscribe, and pattern […] contextually embedded forms of regulatory experimentation" (Brenner, Peck, and Theodore 2010, 201)—it is the organizationally embedded practitioners who perform the specific operations: the everyday and often painstaking, improvised work of ingraining ecosystem services into conservation practices and subjectivities (not least their own) to "harmonize" their institutions with dominant logics. The political work of these practitioners—diffused across the sprawling transnational networks of conservation, performed through the representational repertoires of ecosystem services, and disciplined by the intersubjective experience of irresistible power relations—is what translates those big-picture causes into particular instances of organizational change (and vice versa).

My approach thus aims to capture what Lawrence and colleagues describe as those "myriad day-to-day instances of agency that, although aimed at affecting the institutional order, represent a complex mélange of forms of agency—successful and not, simultaneously radical and conservative, strategic and emotional, full of compromises, and rife with unintended consequences"—in other words, the kinds of "institutional work" which I saw operating across these different institutional scales and causal registers (Lawrence, Suddaby, and Leca 2011, 52). This approach attends both to the situationally improvised quality of how I saw practitioners deploying ecosystem services and to the analytical necessity of situating the framework's local contextualizations within their broader meta-context, tracing the relational, co-constitutive dynamics that link across these micro- and macro-social processes.

By situating these practices within their broader, power-laden meta-context, this approach serves to rectify overly agential accounts of the rise ecosystem services which rely too heavily on narratives of charismatic leaders, heroic visionaries, and small bands of savvy experts as the primary drivers of its ostensible ascendance. While I would contend that specific epistemic networks have played vital roles in the emergence and shaping of ecosystem services, those roles remain deeply embedded in, constituted through, and enabled by identifiable macro-institutional dynamics. Although consequential, their actions are circumscribed by and largely dependent on this broader context—the apostles of ecosystem services did not simply nor single-handedly "take this idea and make it happen" (Salzman 2011, 598).

However, an explanation of ecosystem services that attributes its emergence to social forces also seems incomplete. Thus, my analysis aims to qualify more structural accounts of ecosystem services positing varying combinations of discursive, organizational, and political-

economic explanations for its apparent ascendancy. MacDonald (2010a, 257), for instance, suggests that the embrace of norms, rationalities, and organizational forms characteristic of the private sector, including growing involvements of corporate expertise and personnel, and burgeoning partnerships with specific corporations, represent "a reflection of the coordinating action of global capitalism, its affiliated transnational capitalist class, and the need to redefine conservation in ways that accommodate rather than challenge the dominant ideological and material interests that underlie these broad political projects." While my overall argument largely converges with this interpretation, the sense of teleological inevitability connoted by these characterizations (e.g. of the "need" for conservation to follow such a trajectory as a predictable result of "the coordinating action of capitalism"), although justified, nevertheless seems analytically partial and rather deflating politically.

By zooming in to examine the specific practices and expert subjects necessary to operationally producing such higher order effects in conservation, I try to recover an analytically and empirically robust (yet appropriately tempered) sense of agency and contingency within this process. At this micro-social resolution, focused on the active and intentional yet often haphazard, frequently disrupted, and syncretized translational 'hacks' being improvised through ecosystem services—in other words, by seeing the hard work that goes into animating those unfolding logics of history currently having their way with conservation—a richer portrait of construction, alongside the dynamics of structures, comes into focus. Here, the "complex terrain of complicity and resistance" being navigated by these often-ambivalent practitioners and the political possibilities attendant to that terrain's "cracks and fissures, this precarious making of expert subject" (Roy 2012, 37) may become more clearly visible (to the extent that they are present). As I will continue to illustrate throughout this chapter, these dichotomies between context and meta-context, between contingency and directionality, and between agency and structure collapse around ecosystem services—a synthesis which becomes clearer from the vantage of those actually putting it into practice in organizational context.

A CRASH COURSE IN INSTITUTIONALISM: EMBEDDED AGENCIES

To assemble this approach, I engage several key concepts from organization studies and critical institutionalism (Cleaver and Koning 2015; Clegg et al. 2006; K. Hall et al. 2014). As I will elaborate, this approach involves adapting notions of "institutional work" (Lawrence, Suddaby, and Leca 2011) and "institutional entrepreneurship" (Battilana, Leca, and Boxenbaum 2009; Garud, Hardy, and Maguire 2007; Hardy and Maguire 2008); examining the character of the "organizational fields" through which these dynamics take shape (DiMaggio and Powell 1983; Wooten and Hoffman 2008); theorizing the sorts of "institutional bricolage" involved in those dynamics (Christiansen and Lounsbury 2013; Cleaver 2002; Cleaver and Koning 2015; K. Hall et al. 2014); and emphasizing the specific power relations that suffuse them—power relations which, again, I interpret as critical to enabling the rise of ecosystem services and to understanding its role in aligning conservation with and re-purposing it to suit prevailing political and institutional orders.

Within this tradition, institutions (not to be confused with organizations) are generally conceptualized as enduring, "higher-order determinants" of one kind or another that pattern and stabilize social life (Amenta and Ramsey 2010, 16). Their precise characterization differs markedly between respective streams of institutional theory. Douglass North's popular definition, for instance, inflected by "rational-choice" variants of institutionalism, describes institutions

simply as "the rules of the game in society," or as "humanly devised constraints that shape human interaction" through various economic, political or social incentive structures (North 1990, 3).

The so-called "new institutionalism" (traceable to earlier works by DiMaggio and Powell 1983; and Meyer and Rowan 1977), whose post-structural and constructivist variants I draw on in this chapter, instead conceives of institutions as *cultural* formations. Here, institutions are collectively shared meanings and related practices that can over time become regularized, taken-for-granted, and socially compelling (i.e. institutionalized). They do not simply constrain action but comprise discursive means by which institutional subjects interpret, orient themselves, and are made in relation to each other and together with their social worlds. Institutions constitute (and are constituted by) the categories and assumptions, the norms and values, the tastes and subjectivities of those caught up in them, shaping the bounds of what is prudent, appropriate, and imaginable. They define reality, outlining the nature of things and demarcating what can and cannot be done (Hoffman 1999). Marriage and the military, French cuisine and stamp collecting, conservation and development: at various scales, each encompasses not only a set of formal and informal rules (i.e. 'incentive structures') guiding the decisions of individuals and organizations but also a highly interactive and deeply symbolic social process generative of discourses and identities, assigning roles, framing collective endeavours, and shaping everyday thoughts and practices.

As a heuristic, institutional theorists tend to group these ways of patterning and stabilizing social life into three main varieties (Scott 2014). These are labeled as the "regulative" (i.e. people consciously responding to explicit rules and constraints), the "normative" (i.e. norms of appropriateness prescribing and sanctioning what counts as legitimate), and the "cognitive" (i.e. underlying, taken-for-granted assumptions, categories, and beliefs that structure and demarcate what is thinkable): the key dimensions of how institutions shape actors, actions, and interactions.[91]

Many of the major developments in institutional theory have been defined by debates surrounding structure and agency—themes which have come to "occupy a dominant place in institutional studies of organization" (Lawrence, Suddaby, and Leca 2009, 3). As the field's label implies, and in deliberate contrast to individuated rational-actor conceptions of human behaviour which it sought to challenge, scholars working in this tradition have developed increasingly elaborate accounts of *institutions*—again, understood as emergent higher order structures patterning and stabilizing social life—and how they endure and impose social order on those subject to them.

This preoccupation with describing the structural determinations expressed through institutions and "the tendency to equate institutions with stability and durability" (Clemens and Cook 1999, 442), however, struggled with how to explain widespread and clearly observable instances of institutional change and the sorts of agencies implicated in it. These approaches to institutional life elicited growing critiques questioning the notion that change was an exception to the rule rather than the norm. Furthermore, these approaches tended to consider the role of agency as thoroughly determined by and subordinated to higher-order structures: an assumption that seemed to foreclose and unhelpfully straightjacket the development of more sophisticated accounts of agency beneath an array of variously regulative, normative and cognitive shackles. Indeed as Richard Scott remarks in relation to the apparent tautology that this creates, "[i]n highly

[91] These patterning effects of institutions can be arranged from those more consciously abided (regulative), to somewhat (normative), to less conscious (cognitive).

institutionalized systems, endogenous change seems almost to contradict the meaning of institution" (Scott 2001, 187).

Thus, Berk and Galvan (2009, 575) observe that in recent years, "[a]gency is creeping back into the study of institutions." As they and others note, these critiques of the "structural and deterministic principles of earlier scholarship" (Ibid) have incited a proliferation of "new" theoretical approaches. These approaches attempt to reconcile this now considerable accumulation of often sophisticated yet deeply structural accounts of how *institutions* shape agency with equally elaborate accounts of how *agency* can also be understood to shape, and re-shape, institutions. This "creeping" trajectory in institutional theory since the 1990s, involving an increased emphasis on apprehending the dynamics of institutional change (versus an expectation of stability) together with "a much stronger focus on agency" (Suddaby 2013, 382) provides an intriguing font of conceptual resources for thinking through ecosystem services and the sorts of theoretical "structure-agency imbroglios" it expresses (Levy and Scully 2007, 986).

The constructivist variants of institutionalism which I engage here have been defined by a central problematic: how to re-insert agency coherently into institutional dynamics, and especially into accounts of institutional change, within a realm of social theory strongly pre-disposed and densely articulated toward thinking in structurally-oriented and non-agential terms—where agency is conceived as thoroughly constrained, produced, shaped, channeled, and diffused through wider intersubjective dynamics, socio-technical systems, organizational processes, and discursive and political-economic orders. Scholars working from this tradition, and from this starting point, have sought to develop careful characterizations describing how subjects can, even under these conditions, re-shape their institutions—albeit in highly particular, co-constituted, and circumscribed ways—while recognizing how those subjects are at the same time profoundly shaped *by* those institutional orders in which they are embedded and from which they are constituted.

The sorts of studies and theoretical solutions institutionalist scholars developed while attempting to wriggle free of this so-called "paradox of embedded agency" (Leca and Naccache 2006) can offer useful insights and points of comparison for understanding ecosystem services. Framing this central and recurring problematic of institutional analysis, Greenwood and Suddaby (2006, 27) write:

> If, as institutional theory asserts, behavior is substantially shaped by taken-for-granted institutional prescriptions, how can actors envision and enact changes to the contexts in which they are embedded? A central challenge for institutional theory, therefore, is to show how and why actors shaped by (i.e., embedded within) institutional structures become motivated and enabled to promote change in those structures.

Or, as Holm (1995, 398) articulates the paradox: "[h]ow can actors change institutions if their actions, intentions and rationality are all conditioned by the very institution they wish to change?" The literatures sprouting from this starting point are by now voluminous and have produced a varied body of work examining recurring instances of institutional change positioned precisely at the locus of this paradox. This problem framing, as I discuss, captures salient theoretical tensions inherent to thinking about ecosystem services. But it also seems to provide a way of describing the characteristic predicaments of many of the conservation practitioners I met, the circumscribed character of the institutional change in which they had involved themselves, and the sorts of embedded agencies now implicated in continuing political re-alignments in

conservation—which, again, have all grown increasingly reliant on the representational repertoires of ecosystem services. My analogous attempts at wriggling ecosystem services out of this theoretical tension, paralleling the broad arc of institutionalist scholarship (and indeed drawing from it), will preoccupy the remainder of this chapter.[92]

REFLEXIVE SUBJECTS: SEEING INSTITUTIONS INSIDE-OUT

While authors propose a spectrum of approaches for unraveling the paradox of embedded agency, most involve some degree of hedging. From this spectrum of approaches, I draw on several specific lines of analysis that attempt to carve out theoretical space for 'endogenous', [93] agent-driven sources of institutional change.

A first step is to insert a degree of reflexivity and conscious intentionality into the dynamic relation between institution and institutional subject. As Lawrence, Suddaby and Leca (2011, 55) recognize, "[a]gency is neither just an effect of the actors' institutional embeddedness nor isolated from this embeddedness." They describe a "permanent recursive and dialectical interaction between agency and institutions" where institutional subjects can "reflect on and strategically operate within the institutional context where they are embedded." Similarly, Vivian Schmidt's discursive institutionalism posits a "foreground discursive ability" which can "enable agents to think, speak, and act outside their institutions even as they are inside them, to deliberate about institutional rules even as they use them, and to persuade one another to change those institutions or to maintain them" (Schmidt 2008, 314). The task for institutional analysis, then, is "to not only account for the institutional embeddedness of actors but also for their capacity to reflect on this embeddedness" (Lawrence et al. 2011, 55). Critical institutionalists envision institutional subjects in similar terms as "conscious and unconscious social agents, deeply embedded in their cultural milieu but nonetheless capable of analyzing and acting upon the circumstances that confront them," wherein "individual action is characterized both by agency and structural constraint" (Cleaver 2002, 16).

Berk and Galvan's (2009) notion of "creative syncretism" takes even further this re-positioning of institutional analysis around the lived experience of institutions as a means of re-interpreting not only how they change but what they are. "As institutionalists recast institutions in less deterministic roles," they suggest, "we notice more fully those who build and live within institutions and what they do to alter them" (Ibid, 575). Drawing on the work of John Dewey and later interlocutors in the American tradition of philosophical pragmatism, they posit a dynamic of "creative syncretism" as a "shorthand for a phenomenological way of making sense of structure and change" (Ibid, 544). They propose that we flip our view of institutions upside-down (or rather, turn them "inside out") in order to regard "institutional life as the lived experience of rules and institutions as always-decomposable resources, rearranged and redeployed as a result of action itself" (Ibid). Borrowing metaphorically from the definition of syncretism as the "popular modification of religious orthodoxy through unauthorized recombination of ritual, symbols, or practice" and riffing on the term's connotations of apostasy and impurity, they point to "the

[92] As I will show, this scholarship depicts dynamics with striking convergences with what political ecologists, science studies scholars, and other analysts have been observing in conservation and specifically with respect to ecosystem services. This analysis joins a growing scholarship that has begun to link these literatures (Arpin et al. 2016; Van Hecken, Bastiaensen, and Windey 2015; Ishihara, Pascual, and Hodge 2017; MacDonald 2010b; Wilshusen and MacDonald 2017).

[93] As opposed to theorizations of 'exogenous' change attributed to structurally derived or externally induced sources of disruption (i.e. external 'shocks', etc.)

transformative agency implicit in syncretism's transgressiveness" (Ibid). Emphasizing themes of openness and mutability in the composition of institutions, they argue that "[w]hat we call the experience of living under rules is really an experience of living through rules, of not just playing by the rules but actually playing the rules as if they were instruments" (Ibid). Thus, they propose creative syncretism as "an engine of indeterminacy and possibility in institutional life […] an invitation to unshackle theories of institutional change from the constraints of structuralism and the related confines of agency as an overdetermined or residual category" (Ibid, 576). I have come to understand the practices of ecosystem services, and the ways in which its representations are deployed by NatCappers, largely in these terms: the cornucopia of boundary objects produced through its framework provides an operational means whereby available "rules and institutions" are transformed into "decomposable resources" which can then be "rearranged and redeployed" to address new situations.

Berk and Galvan's claim that "transformation may originate from actors in most any position" (Ibid, 544), however, does seem to underestimate the differentiating effects of uneven power relations among varying institutionally-embedded subject positions.[94] As I have already introduced, my understanding of agency in the context of natural capital mainstreaming, through its dynamic connections with broader and macro-institutionally configured power relations, falls rather short of this much stronger form of agency proposed by Berk and Galvan. In this way, I try to avoid falling prey to what Thornton, Ocasio and Lounsbury (2012, 9) describe as the risk of creating exaggerated characterizations of a "hero entrepreneur" in theorizations of institutional change, positing subjects who somehow possess a seemingly "unbridled ability to freely manipulate institutions." As Clemens and Cook caution (1999, 460), "[i]n our efforts to appreciate human agency, we should beware of assuming every actor a Cosimo de' Medici." The capacities and effectual scope of ecosystem services practitioners are, I suggest, accordingly circumscribed and differentiated, with significant implications for how natural capital mainstreaming comes to function politically.

Nevertheless, this chapter endeavours to take seriously the experiences, embedded agencies, and consequential work of those now operating diligently and strategically to institute ecosystem services as a means of effecting institutional change in conservation. Regardless of whatever qualifications may be necessary in adapting their conceptualizations, Berk and Galvan's notion of creative syncretism—the mixing and matching, the tinkering and re-crafting, the improvisation and modification of available practices, representations, and institutional elements—maps remarkably well to the reflexive forms of "institutional bricolage" I have observed ecosystem services proponents undertaking. This invitation to see the construction of institutions from the "inside-out," I suggest, can provide useful analytical inroads to making sense of what it is, exactly, that the self-described missionaries of ecosystem services are currently doing to conservation.

FISSURED FIELDS & KALEIDOSCOPIC BOUNDARIES

Complementary to this admonition to examine institutions at a more intimate, experiential level, institutional theorists have contributed numerous cases pointing to characteristic types of *conditions* that seem especially conducive to institutional change. Here, I return to the notion of

[94] One of the examples they draw on to substantiate their theorization of creative syncretism revolved around the actions of the President of the United States—not exactly an unexceptional position from which to exercise the type of agency implicit in 'creative syncretism'.

"the field" (Bourdieu 1990) introduced in previous chapters to relate institutionalist theorizations to the context of biodiversity conservation. From this perspective, conservation represents an "organizational field" in that it constitutes an ensemble of "frequently and fatefully" (Scott 1994) engaged actors and institutions.[95] Maguire, Hardy and Lawrence (2004, 659) describe in further detail the composition of such fields as outlined in this theorization:

> Composed of sets of institutions and networks of organizations that together constitute a recognizable area of social life […], an organizational field develops through patterns of social action that produce, reproduce, and transform the institutions and networks that constitute it. Through repeated interactions, groups of organizations develop common understandings and practices that form the institutions that define the field and, at the same time, these institutions shape the ongoing patterns of interaction from which they are produced.

Here, institutional theorists distinguish between "mature" and "emerging" fields. So-called "mature" fields fit the mould of this definition rather neatly. These are more structured and strongly institutionalized social arenas where those subject to them possess widely shared and broadly accepted understandings of their respective roles and relationships. They express a high degree of awareness of their involvement within some "common enterprise," producing relatively stable and "identifiable patterns of interaction such as domination, subordination, conflict, and cooperation" (Ibid). Elaborating on Bourdieu's (1990) characterizations of the field, institutional theorists understand organizational fields not only as coordinated constellations of structured subject positions but *also* as conflictual terrains of contestation and struggle over resources, stakes, and access (Battilana 2006).

In contrast to mature fields, theorizations of "emerging fields" (as well as those in crisis) depict loosely organized and less coordinated collections of organizations with only weakly entrenched "proto-institutions" patterning their interactions (Maguire, Hardy, and Lawrence 2004). Here, actors share a fainter, more fissured sense of mutual interest and shared endeavour, with their roles and relationships remaining largely latent and potential rather than established and regularized. Whereas individuals and organizations in mature fields will tend to interact with each other more than with those 'outside' their field, here the involvement of field members is more intersectional. As such, identities remain fluid, norms are unclear, values may conflict, and rationalities will regularly cross wires.

Despite conservation's long vintage, its deeply variegated configurations across diverse scales and locales—the refractory and kaleidoscopically fragmented politics, epistemologies, and institutional logics intersecting (and abrading) in different ways around real-world conservation contexts—seem to be marked, if not defined, by these qualities. They are cacophonous, unsettled, and fundamentally adaptable. As MacDonald (2010a, 257) and others have pointed out, the fields

[95] The "organizational field" described by institutionalists shares some similarities with "regime theory" as discussed by international relations scholars. However, MacDonald (2010a), echoing critiques from within scholarship in global environmental politics, notes that regime theory can be "poorly contextualized" when abstracting from placed, intersubjective dynamics and given an apparent lack of interest in empirically observing how these dynamics play out in situ. He argues, "[r]ather than attending to questions of how the process of negotiation or interaction expresses a specific cultural-political history and shapes the outcome of conventions, agreements, or organisational mandates, regime work is primarily concerned with the outcome and is empirically grounded in textual analysis and representations of interaction rather than direct observation of those interactions" (MacDonald 2010a, 258).

of conservation and its leading organizations have regularly undergone major transformations at various moments throughout its history "in relation to political projects of colonialism, nationalism, and science," and more recently in relation to increasing entanglements with business and the private sector. Across their range of theoretical approaches, institutional scholars converge on these sorts of emerging and disrupted organizational fields—conservation being a perennial, emblematic example—as constituting exceptionally dynamic contexts marked by heightened contingency, instability, and responsiveness to the kinds of institutional change now implicating ecosystem services practitioners.

Crucially, these conceptualizations of organizational fields—whether mature, emerging, or disrupted—have zeroed in on "the presence of multiple institutional orders or alternatives" (Clemens and Cook 1999, 459) as *the* key condition that makes them unstable and especially conducive to change (Seo and Creed 2002). This condition of institutional multiplicity and multivocality can give rise to the sorts of reflexivity discussed earlier, and as described by Lawrence, Suddaby and Leca (2011), as it provokes self-reflection on a subject's own embeddedness. Here, institutional subjects experience an array of available and often contradictory sets of rules, norms, and rationalities (Thornton, Ocasio, and Lounsbury 2012), exceptionally so in the context of biodiversity conservation, as they continuously have to deal with situations where these disjointed institutional logics intersect.[96] Consider this presentation slide, for example, projected during a discussion of NatCap's ecosystem services work on the west coast of Vancouver Island (Figure 18; discussed further in Chapter 4), which begins to convey this sense of multiplicity:

Figure 19 – Identification of stakeholders engaged during a marine spatial planning process undertaken by NatCap in partnership with the West Coast Aquatic Management Board (WCAMB) in British Columbia on the west coast of Vancouver Island

[96] As Thornton and Ocasio (2005, 101) write, "while institutions constrain action they also provide sources of agency and change. The contradiction inherent in the differentiated set of institutional logics provide individuals, groups, and organizations with cultural resources for transforming individual identities, organizations, and society."

This broad range of stakeholders is fairly typical of NatCap's large and growing portfolio of on-the-ground projects, especially with respect to the large number and wide diversity of players the project required them to simultaneously engage. Here, their efforts connected multiple federal, provincial, and municipal government agencies, First Nations, and a broad range of sectoral interests, each interpreting, using, and relating to the landscape (and seascape, in this case) in different and often incompatible ways. As I noted in the previous chapter, maneuvering effectively among different combinations of such groups, as well as the divergent epistemic, institutional, and political terms through which they operate, can be a highly delicate and demanding task. It produces, and *necessitates*, an embodied, experientially-shaped expert subjectivity oriented around the nimble deployment of ecosystem services and the prolific, improvised boundary objects constituted through it.

The head of a prominent conservation organization, for instance, addressing NatCap at one of its symposia, stressed the complex challenge that these mainstreaming operations represented. (The backstory and extended anecdote he shared is included in Appendix II as a textured example of what natural capital mainstreaming looks like.) He argued:

> To understand who these values matter to, and the institutional context, and who is making decisions, and to really do analysis that can have an impact, you have to *be* there. You have to go. You can't do it from 35,000 feet. You have to go collect real contextual information and be working with local partners who understand the politics and understand how different arguments are going to resonate. I saw someone cringing at the back of the room when I started talking about gorillas as ATM machines. Sensitivity to audience is *very* important [audience laughter]. Know how to present the information, know how to talk about economic values, and whether or not to say things like 'present value', or put it in more layman's terms, or if you need to pump up the jargon depending on the audience you're working with.

As Lounsbury and Boxenbaum (2013, 4) note, institutionalists have increasingly come to recognize how "conflicting and overlapping pressures stemming from multiple institutional logics create interpretive and strategic ambiguity." In turn, these conditions can force institutional subjects, at any given moment, to have to respond "locally, creatively, incrementally, and more or less reflexively" (Lawrence et al. 2011, 57) to new or ambiguous situations (omnipresent in contexts like conservation). Thus, despite the seemingly inescapable subjective conditioning inherent to institutions—structuring rules and incentives, furnishing norms and rationalities, producing roles and identities, in short, constituting social reality—the inhabitation of *multiple* social realities routinely creates "slippages" (Streeck and Thelen 2005) as well as opportunities for those with the skills to operate through them.

Thus, as institutional subjects "occupy multiple simultaneous positions in multiple fields," Lawrence and Suddaby (2006, 248) conclude, they are regularly exposed to contradictions, slippages, and ambiguities produced by the frictions among plural and overlapping logics. It is here, they argue, that institutional subjects can also find "the resources to engage in activities of contestation and reconceptualization" aimed reflexively, consciously, and intentionally at altering the institutions in which they are embedded. Reviewing constructivist work in this vein, Berk and Galvan (2009, 546) similarly seize on how "institutions themselves generate structural disorder." They emphasize how even seemingly stable fields "always consist of multiple, incongruous institutions created at different times in response to different problems," which in turn, "inevitably abrade with one another" (Ibid). This "intercurrence" (Orren and Skowronek 1996), they argue,

understood as a necessary by-product of the very existence of institutions, thus produces dynamic opportunities "for imagination, entrepreneurship, innovation, and creativity" (Berk and Galvan 2009, 547). Building on the work of Karl Weick (2001), Berk and Galvan (2009, 550) describe how "organizations are never monoliths, but are made up of segments, which can be recombined by innovative bricoleurs."

MAKING DO WITH WHAT IS ON HAND: INSTITUTIONAL BRICOLAGE

It is in these sorts of fragmented fields marked by kaleidoscopic boundaries—which are, again, definitive of conservation—that the possibility of institutional bricolage is most heightened. Formally, institutional bricolage refers to "a mechanism related to institutional and organizational change where solutions to problems involve a recombination of available and accessible institutional elements" (Christiansen and Lounsbury 2013, 203).[97] As Cleaver (2012, 45) writes, institutional bricolage is:

> a process in which people consciously and unconsciously draw on existing formulae (styles of thinking, models of cause and effect, social norms and sanctioned social roles and relationships) to patch or piece together institutions in response to changing situations. […] The institutions produced through bricolage are inevitably uneven in functioning and impact, and are often fuzzy assemblages of meaning practices, which overlap and serve multiple purposes.

In other words, it entails "making do by applying combinations of the resources at hand to new problems and opportunities" (Baker and Nelson 2005, 333) and "creatively assembl[ing] new things by using the historical remains and debris of events or structures" (Christiansen and Lounsbury 2013, 203).[98] What arises from this process are chimeric institutions constituted from "a patchwork of the new and second hand," including "habitual ways of doing things; well-worn practices adapted to new conditions; [and] organizational arrangements invented or borrowed from elsewhere" (Cleaver and Koning 2015, 5).

The prolific boundary objects constituted through the framework of ecosystem services, as well as the kinds of translational abilities I highlighted in the previous chapter, provide an operational means by which properly positioned and sufficiently skilled practitioners can perform this kind of institutional bricolage in conservation. Through this process, "old arrangements are modified and new ones invented" and "[i]nstitutional components from different origins are continuously reused, reworked, or refashioned to perform new functions" (Ibid, 4).[99] And, again, for this institutional bricolage to work, there must be a multiplicity of institutional logics to serve

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[97] The term is widely recognized as having originated from Levi-Strauss (1962), which was then adapted by institutional theorists.

[98] Lounsbury and Christiansen (2013, 219) elaborate a more specific argument, noting how practices of institutional bricolage can serve to reconstitute organizational identities as a means of negotiating among conflicting logics, as I discuss later: "As in most organizational change efforts, a trigger is required—some sort of problematization of the current state of affairs, and the emergence of leaders who propose solutions. What is different here is that when external logics threaten the dominant logic of the [organization], the problematization of organizational identity is typically required. This problematization results from complicated internal negotiation processes that center around how to bridge or find a settlement between the dominant and insurgent logics."

[99] As organizational theorists and critical institutionalists alike will emphasize, although this process is dynamically embedded in and constituted by everyday practices, it is also conditioned and circumscribed by the context and its available routines, rules, norms, and categories. As Cleaver and Koning (Ibid, 4) remark, "the bricoleur might make a lampshade out of an umbrella stand but the same umbrella stand cannot be made into a space shuttle."

as "resources." As such, "there is no change without actors and there is no way to account for change without multiple institutional logics available to provide alternative meanings as the sources for change" (Christiansen and Lounsbury 2013, 205).

Thornton and Ocasio's (2005) influential theorization of "institutional logics" (see also Thornton and Lounsbury 2014; Thornton, Ocasio, and Lounsbury 2012) argues that this condition of institutional multiplicity implies an understanding of society as a kind of "inter-institutional" system where people will "actively import and export elements of institutional logics across institutional orders" (Thornton and Ocasio 2005, 117). Each of these institutional orders—increasingly imbricated with one another in the context of biodiversity conservation—is thus constituted by a dynamic array of decomposable, modular elements drawn from other logics. Understanding how subjects negotiate this process, Thornton and Ocasio argue, is key to coherently theorizing institutional change and its specific realization through practices of institutional bricolage—as enacted, for instance, by ecosystem services proponents and practitioners in biodiversity conservation.[100]

In all of these ways, institutionalists have stretched more structuralist theorizations of institutions—approaches which have traditionally diffused agency among a range of broader discursive, political-economic, and macro-institutionally configured processes—to accommodate numerous observed instances of subjects appearing to purposively tinker with and re-craft their encompassing institutional orders, sometimes very effectively. Thus, at the same time that these orders shape what is prudent, appropriate, and imaginable they can also be reflexively and dialectically re-worked by those subject to them (to some extent, in specific ways, and under certain conditions).

By now, these theorizations should be clearly recognizable in the earlier descriptions I provided of ecosystem services and the practitioners deploying it to effect (or at least, trying to effect) institutional change around conservation. These theories envision fractured, loosely coordinated, and unstable organizational fields (often in formation or crisis) as engendering a sort of reflexivity among those subject to them, thereby expanding the scope for agency. I argue that conservation is perennially distinguished by precisely these features. In turn, these subjects face (and therefore have to sort through, pick from, and reflect on) an overlapping and often incongruent mix of abrading institutional orders, regularly exposing them to new practices and alternative logics.[101] Here again, I argue that the fissured institutional topographies of conservation as a cross-scalar multiplicity of organizational fields increasingly surrounded, interpenetrated, and dominated by greater political projects—colonialism, nationalism, capitalism, science, development, neoliberalism, and a panoply of others over its varied contexts and deep histories—are *riven* by an exceptionally, kaleidoscopically diverse array of disjunctive logics and institutional orders.

As one senior NatCapper put it at a workshop in Honolulu during the 2016 World Conservation Congress, NatCap's work involves "integrat[ing] many different agendas. It integrates the agenda of poverty alleviation. Of human health and security. Of economic development. Of business value. Of biodiversity conservation. All with the ultimate goal of

[100] They define bricolage as "the creation of new practices and institutions from different elements of existing institutions" (Thornton and Ocasio 2005, 117).

[101] As Suddaby and Greenwood (2006, 40) note, 'boundary bridging' can expose actors to alternative practices. Hence, certain embedded actors "may have access to alternative practices in other fields" (Maguire et al. 2008, 201).

bringing together all of these communities in joint efforts to create a more sustainable future." It is precisely these types of conditions of institutional multiplicity that are most conducive to empowering institutional bricoleurs and thereby enabling processes of endogenous institutional change.

In the terms laid out above, practitioners of ecosystem services can be understood to be re-fashioning their encompassing institutions through a situationally improvised process of slapping together available bits and pieces of various institutional logics pulled from various institutional orders. In contrast to imagery depicting the meticulous design of "architectural blueprints to control [institutional] change in its details," Berk and Galvan describe how "[p]eople look back to the intimate knowledge they have of the parts of the organization and recombine those parts to cobble together a novel response to a new problem" (Berk and Galvan 2009, 550). Here, too, the distinguishing practices associated with NatCap's personnel seem to come immediately into focus. Through practices of institutional bricolage operationally enacted through ecosystem services, NatCap and its allies craft coalitions carefully articulated around a combination of contextually-compelling logics. Through practices of translation, intermediation, and brokering, they patch together the fractious constituencies converging around conservation, all of them making divergent claims on the same nature.

BOUNDARY MANEUVERS: INSTITUTIONAL ENTREPRENEURS

Having stressed the sorts of *conditions* (i.e. fragmented fields) and *practices* (i.e. institutional bricolage) that seem to most readily give rise to institutional change, I now turn more directly to characterizations of the institutional *subject* who maneuvers these conditions and effects such change—the bricoleurs themselves—as a recurrent figure central to institutionalist theorizing around structure, agency, and change.

To reiterate my argument up to this point, I have suggested that NatCap illustrates more broadly how practitioners of ecosystem services wield the prolific boundary objects churned out by its conceptual framework. Through the situational deployment of these representations, practitioners perform the constitutive operations necessary to "mainstreaming" natural capital in and around conservation. This work depends on incessant and contextual, embodied enactments of expertise defined by unique facilities for translation and brokering positioned at the interstices of a continually shifting and kaleidoscopically diverse array of boundaries: political, epistemic, institutional, and so forth, often simultaneously. The widespread mobilization of this expertise is, in turn, relationally constituted with wider discourse coalitions: those trans-locally articulated efforts, NatCap itself being a leading example, endeavouring to better align a dangerously incongruent conservation (currently sticking out like a sore thumb) within prevailing discursive, institutional, and political-economic orders. In this way, the "institutional work" (Lawrence, Suddaby, and Leca 2011) of natural capital, together with the broader discourse coalitions that mobilize it, ostensibly eases frictions, neutralizes contradictions, and defuses antagonisms between conservation and the institutional logics of its many 'others', fitting it safely into the logical grain of superordinate political projects. Thus, practitioners of ecosystem services—dispersed across a sprawling array of perennially emerging, disrupted fields and working organizational context by organizational context—enact the everyday, micro-social labours of re-purposing conservation to suit the overriding logics that have increasingly encroached on it: a higher-order effect now widely visible to analysts.

These descriptions bear striking resemblances to another line of theorization posited by institutional scholars. These theorizations revolve around a specific type of subject known as an "institutional entrepreneur" (Clemens and Cook 1999; Garud, Hardy, and Maguire 2007; Hardy and Maguire 2008, 2010; Leca, Battilana, and Boxenbaum 2008; Maguire, Hardy, and Lawrence 2004; Schneiberg et al. 2005). Closely matching my earlier descriptions of the positioning and capabilities of NatCap and its personnel, institutional entrepreneurs are generally conceptualized either as groups or as individuals, often uniquely situated in bridging roles between diverse organizational contexts, and who possess the appropriate kinds of expertise, connections, and legitimacies required to maneuver between and translate among them. In this way, they are able to "hop and bridge from one social world to another" (Thornton and Ocasio 2005, 117). To "qualify" as an institutional entrepreneur, Garud et al. (2007, 962) explain, a subject must "break with existing rules and practices associated with the dominant institutional logic(s)" while *also* displaying the specific sets of capacities needed to effectively "institutionalize the alternative rules, practices or logics they are championing."

Institutional entrepreneurs represent a challenge to the status quo (or at least 'a' status quo as I elaborate later). Thus, their change projects necessarily involve some degree of conflict and the need to overcome potential resistance from incumbents committed—materially, normatively, and cognitively—to the existing order. For change to be possible, and for institutional entrepreneurship to be effective, they must therefore enlist a sufficiently broad base and the right kinds and combinations of support—an especially complex and daunting task in heterogeneous organizational fields marked by diverse logics and divergent political constituencies (e.g. conservation).

At a workshop in 2015, one of NatCap's collaborators from TNC who was directing that organization's corporate engagement activities admonished NatCap to focus on sharpening precisely these abilities. "I would encourage everyone to become multilingual," she began. Breaking down the process by which ecosystem services approaches could be shepherded into corporate settings where it may be difficult for NatCap to locate their exact technical counterparts within the company (i.e. "local champions" who could facilitate NatCap's access), she explained:

> [T]here are very few job descriptions that say 'optimize land use planning for multiple objectives and a wide variety of stakeholders'. So, getting to that next nitty-gritty level of who is making not only the decision about how to use the model—maybe a particular engineering solution or something like that—but who, then, is the CFO or the folks at other decision-making levels that are important to implementation. Really understanding those perspectives is key. You have to be able to tell your story in different ways and emphasize different pieces of it to sell to different audiences.

Another practitioner working for an organization analogous to NatCap—a 'competitor' of sorts prolifically engaged in its own parallel "mainstreaming" work—explained in similar terms how their shared movement, "being a transdisciplinary and multidisciplinary effort, has really required that kind of stitching together of distinct threads from different siloed departments, agencies, organizations, and so forth." That effort has taken a long time to mature as Gretchen Daily emphasized. She recalled how, near the beginning of her career, the economists she now regularly collaborates with were perceived as "a group of devils" by her colleagues in conservation biology. The gradual bridging of these and other types of divides comprised pivotal and recurring elements of explanations narrating the emergence of ecosystem services.

Leveraging their peculiar expertise and positioning, institutional entrepreneurs are distinctly capable of traversing an organizational field's varied "gatekeepers" and "keymasters" (Campbell et al. 2006), potentially assuming these roles themselves, while brokering access to dispersed sets of resources distributed across a complex array of political, institutional, and epistemic boundaries. Their unique proclivities for code-switching, intermediation, and translation enable them to more readily "identify political opportunities, frame issues and problems, and mobilize constituencies" (Maguire, Hardy, and Lawrence 2004, 658) as they maneuver across diverse boundaries to gather scattered resources, negotiate new coalitions, and attempt to outmaneuver active and potential opposition. One NatCapper got really into this strategic outlook, explaining:

> There's always a team. It's always interdisciplinary. We always come with different languages and approaches. It's really important to think about the team composition, building up the relationships among team members, both at the beginning through a shared goal and throughout the process. […] The second thing is resources. It's always hard to gather the resources together especially across multiple institutions, but knowing what your resources are and might be, and who's responsible for gathering them can help to ensure they are used appropriately throughout the process. Lastly, and it's really critical, one of the enabling conditions, probably *the* enabling condition to integrate ecosystem service information into decisions, is to have the time to do a salient, credible, and legitimate assessment. So, have that policy window in mind—the decision you're trying to influence.

The particular ability of institutional entrepreneurs to discern *meaning* across a range of logics is vital. I especially emphasize their ability to skillfully fold this discernment into practical, strategic appraisals of the character and layout of existing resources, both cultural and material, in a field which can then be used to tailor, as needed, compelling storylines capable of articulating at various levels (i.e. materially, normatively, cognitively, etc.) with a range of logics. As one seasoned NatCap analyst and field operative explained to me, "[e]cosystem services means speaking different languages to different groups and understanding what they each care about." At a 2016 NatCap workshop, I met a Bolivian ecosystem services specialist who had spent years developing PES-like schemes in Bolivia. She tried to explain the delicacy of these operations:

> The language that needs to be used is just critically important. I am not an academic, really, but I know how to implement stuff. I know how to work with people in the field. […] When we started our work, we started by using this concept of Payments for Environmental Services. It has a strong association with privatization of government services. And, people found this connection threatening—like, you're selling something that you never should be selling. We were using the wrong language in talking this way. It took us at least four or five years, it's been really hard, and not only at a local level, at any level of government too. Using the language, thinking before how you will present this is so important.

Similarly, another NatCapper who had been deployed to Colombia described interviewing landowners about their experiences with the regional water fund (a PES-like mechanism) accompanied by an official from the water fund itself. She remembers how the official provoked one landowner who, upon discovering that the payments originated from the sugarcane industry, immediately demanded to know whether they had come "to take our land." The NatCapper explained to me how historically in that area "people's land has been so insecure," meaning that the official's comment about the sugarcane industry appearing to want to 'buy' that landowner's water was bound to raise red flags. Hence, in Bolivia at least, ecosystem services practitioners

came to develop the more carefully-framed and contextually-sensitive "reciprocal water agreements" (a PES without 'PES').

This theorization should also start to recall that road which WWF's green economy specialist narrated in Myanmar and her description of the sorts of nimble representational manipulations and translational practices she had to bring to bear on it—specifically, the conjuration of ecosystem services boundary objects on the fly—in order to bring together a variety of government ministries. In such instances, these subjects manifest an embodied expertise akin to a chameleon's perceptive acuity for discerning settings, although in this case, in relation to institutional settings. Indeed, one mainstreaming specialist (affiliated with NatCap but working in East Africa) sought to explicitly affirm this analogy, explaining to me several times that his identity as a "chameleon," his ability to detect and "change colours," was an unambiguously essential trade skill. Toying with this metaphor, another NatCapper later elaborated that "because ecosystem services is this holistic framework, its versatility, its multiple dimensions, its multiple applications, means that the chameleons can change their colour but can still draw on the approach to make connections between people and nature that speaks to different perspectives."

In these ways, organizational scholars suggest, institutional entrepreneurs are well-positioned and often instrumental to creating new institutions or to transforming existing ones. Scholars have documented a variety of specific practices, techniques, and strategies commonly deployed by institutional entrepreneurs, all of them utilized by ecosystem services practitioners: the simultaneous use of multiple arguments to appeal to multiple constituencies illustrated, for instance, in the wide assortment of win-win-win [etc.] scenarios produced through InVEST and deftly wielded as boundary objects by NatCappers; the development and propagation of technical "demonstrations of efficiency and effectiveness," illustrated in NatCap's painstaking and scrupulously compiled catalogue of case studies (Hardy and Maguire 2008, 208); a focus on enrolling the professions and professionalization processes, which is again illustrated in NatCap's deep involvements in academic research and pedagogy (Rao 1998); normalizing new practices by "attaching them" to established routines, values, sources of legitimacy, and ways of doing things, which is illustrated in NatCappers' representational proficiencies in wielding the boundary objects constituted by ecosystem services through practices of institutional bricolage (Clemens and Cook 1999; Maguire, Hardy, and Lawrence 2004); and a range of other contextually-formulated means of persuasion, collective sense-making, and consensus-building.

Through varied discursive practices, these subjects attempt to assemble change coalitions: they narrate problems, frame solutions, calibrate urgencies, define collective identities, configure relationships, stoke grievances, highlight opportunities, identify allies, set up enemies, and construct compelling storylines capable of satisfying diverse constituencies and building potential bases for cooperation. The pervasive three-step narration of spiraling ecological crisis, widespread institutional failure, and the need for a new way forward has been especially salient in efforts to legitimate the turn to ecosystem services in conservation (Suarez and Corson 2013). As Hardy and Maguire (2008, 204) stress, the right crisis can enable institutional entrepreneurs to "bring to the surface contradictions and tensions," to precipitate the intrusion of "new players" or the "ascendance of existing actors," and to transform the "intellectual climate of ideas."

The degree to which NatCappers themselves had been trying to theorize their own role in this process, including identifiable engagements with certain science studies literatures, was striking (I elaborate more fully on this point in the next chapter). One of NatCap's co-founders, for example, explained how he understood one of their key functions to be about breaking down

barriers: barriers between science and policy, barriers between different ecosystem services organizations, and barriers between different scientific disciplines. Here, he explicitly identified NatCap as a "boundary organization,"[102] which he described as "the ones who can take the science and translate it, implement it, think about all the myriad practical details that prevent good information, good science, good practice, from *getting* into practice. I think those are the really powerful organizations." Building on this point, another of NatCap's co-founders argued, "the power is at the boundary organization. NatCap is sitting right at the place, or one of the places, at the boundaries between worlds where change can be most effective. That to me is really exciting." One NatCapper elaborated on this self-conceptualization as a boundary organization extensively in Palo Alto at the 2016 Natural Capital Symposium:

> Boundary work, like the iterative engagement that NatCap does, is quietly recognized as being important to lots of decision processes. Boundary organizations facilitate interactions, they help people communicate with common vocabulary to develop shared understandings of topics. They help identify pathways for people to engage with policy. And we really try to identify policy-relevant research areas. We talk to people on both sides and try to get them in a room together.

As I elaborate in the next chapter, this conceptualization of "both sides" (i.e. "science" and "policy") underestimates what I take to be a much more fluid and exceptionally fragmented and diverse proliferation of boundaries in biodiversity conservation. However, the reflexive and strategic sense displayed here, the systematic drawing of lessons to focus their work, was clearly thoughtfully considered. Moreover, it revolved emphatically around a process of translation and boundary-bridging as the key element of their recognized role and of their success in performing that role. As the NatCapper continued to reflect on this identity, he shifted focus from describing *what* boundary organizations were to *how* he thought NatCap performs their functions, highlighting how:

> [t]hey don't only serve a variety of actors across a complex science-policy landscape. They actually *shape* that landscape by building partnerships and institutions. They actively shape the network. They exist in connections between different nodes which can be strengthened. It can be easier to communicate and share information within the network. New connections are made and the network can be made richer and more resilient. Boundary organizations can provide entry points to the network for different people.

In a later discussion, he added that he believed that one of NatCap's key jobs was "identifying the needs that policy-makers have" and in finding "policy windows," explaining how "we spend a lot of time gauging the appetite for different kinds of research. That's a really critical role we play."

Bringing together the general elements of these theorizations, Maguire, Hardy and Lawrence (2004, 674) outline this dynamic succinctly: "[e]merging fields present would-be institutional entrepreneurs with relatively unconstrained spaces in which to work and a wide range of disparate materials from which they might fashion new institutions. However, these spaces need to be structured and materials assembled in ways that appeal to and bridge disparate groups of actors." Thus, they conclude, "institutional entrepreneurship in emerging fields is a form of institutional bricolage" (Ibid). I argue that ecosystem services practitioners (including and

[102] They seemed to be drawing on theorizations stemming from the specific conceptualizations of "boundary organizations" presented by Cash (2003) and Guston (2001), among others.

especially NatCappers) have unmistakably and self-consciously come to occupy this subject position and to possess these distinctive capabilities in their bid to "discredit the status quo and to present the alternative practices they are championing as necessary, valid, and appropriate in ways that resonate with other field members" (Hardy and Maguire 2008, 204).

My discussion of Pavan Sukhdev, for example, whom I describe in Chapter 5 (and analyze in more depth in Suarez and Corson 2013), clearly and vividly displays these dynamics. Sukhdev is a former Deutche Bank executive, from India, fluent in the languages of ecological sciences, and, crucially, in translating *among* those languages and across other technical dialects. He developed close connections to UNEP through past leadership of their Green Economy Initiative and displayed particular talents for cross-cultural communication and code-switching between different realms of expertise. This positioning and set of characteristics have uniquely enabled him to maneuver among and bridge across the key constituencies intersecting around the cacophonous worlds of conservation, development, and the corporate sector through which he circulates. As such, he was not only an appropriate study leader for the initiative that became The Economics of Ecosystems and Biodiversity (TEEB 2010), one of the most prominent successors to the Millennium Ecosystem Assessment (MA 2005), but an instrumental operator in the broader, collective work of intermediating and brokering—accomplished through ecosystem services and enacted by initiatives like NatCap, TEEB, and others—mobilized around the systematic re-alignment of conservation. As I discuss later, his specific legitimacy as a banker, his fluency with the argots of economics and business, and his knack for importing these ideas, practices, and logics into biodiversity conservation is especially instructive. Alongside many others, including Peter Kareiva, Robert Costanza,[103] Robert Watson,[104] and, as one senior NatCapper emphasized in the previous chapter, Gretchen Daily and Achim Steiner,[105] Sukhdev represents one of the most prominent public figures leading the ecosystem services movement and an emblematic and influential institutional entrepreneur (MacDonald and Corson 2012; Suarez and Corson 2013).[106]

In a remarkably similar manner to these theorizations, the institutional entrepreneurs of ecosystem services are endeavouring to effect institutional change in and around conservation through proficiencies for discerning, leveraging, and brokering access to various kinds of resources dispersed across an exceptionally variegated and fragmented organizational field. Maneuvering its cracks and fissures, they translate between the disjunctive logics of different institutional orders, serving as intermediaries among conservation and its 'others', thereby facilitating communication, coordination, and coalition-building across fractious constituencies in their bid to win support,

[103] A prolific ecosystem services scientist, founder of the Ecosystem Services Partnership (ESP), and lead author of one of the most famous (or infamous) publications in the field of ecosystem services (Costanza et al. 1997), which estimated the total economic value of the world's ecosystems at around USD 33 trillion.

[104] Discussed further in Chapter 5. Currently the Chair of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), and a leading figure in many past assessments, including the Intergovernmental Panel on Climate Change (IPCC), the Millennium Ecosystem Assessment (MEA), the UK's National Ecosystem Assessment (NEA), the International Assessment of Agricultural Knowledge, Science, Technology and Development (IAAKSTD), and others. He has also held prominent scientific advisory posts in the World Bank and the US White House.

[105] Former head of UNEP and current head of UNDP: a prominent proponent of ecosystem services and broader green economy discourses

[106] As I discuss later, institutional entrepreneurs are not always in the spotlight, at the top of their hierarchies, nor working alone.

gain acceptance, and assemble sufficient consensus, in this case, around a vision of "aligning economic forces with conservation" (Natural Capital Project 2016).

Beyond its salience in ecosystem services and conservation (as I argue here), researchers have observed these dynamics operating in consistent ways across many other contexts ranging from education and health care to criminal justice, accounting, gastronomy, and more.[107] Convergent with theorizations of the kinds of conditions most conducive to institutional change, across studies, institutional entrepreneurs appear to have an especially pronounced impact in emerging fields (where again, biodiversity conservation is emblematic). The outsized influence of institutional entrepreneurship as a specific mechanism of change in such contexts, Maguire et al. (2004, 668) suggest, may be attributable to the comparatively diffuse distribution of power and resources across emerging fields where roles, relationships, and patterns of interaction remain relatively unclear, unsettled, and under-institutionalized. In contrast, in more stable and mature fields, they suggest that "economic and cultural capital tends to be controlled by dominant actors who typically have access to—and sometimes monopoly over—key resources that are needed to bring about change" (Ibid). Hence, among the dynamic openings produced by the splintering proliferation of institutions, disorienting diversities, and tangled, abrading social worlds constitutive of biodiversity conservation—where much remains wobbly, unsettled, and therefore up for grabs (materially and symbolically)—institutional entrepreneurs flourish.

I should emphasize that institutional entrepreneurs are not necessarily associated with formally inscribed or hierarchically superior authorities. Rather, they seem to be primarily distinguished by those facilities for code-switching and boundary-traversing: the requisite cross-cultural legitimacies, fluencies, and personal connections necessary to bridging diverse constituencies, traversing multiple institutional orders, mobilizing varied logics, and brokering new coalitions. Thus, institutional entrepreneurship can and does arise from many different subject positions, whether "central" or "peripheral," dominant or subaltern—they are judo specialists more than professional wrestlers. As Levy and Scully (2007, 983) suggest, the influence of institutional entrepreneurs is therefore somewhat subtle as they tinker with "field-level norms, routines, and rules rather than directly coercing a particular adversary." These operations therefore also imply a significant degree of *skill*, not to mention serendipity. In these theorizations, institutional change requires not just hard work but finesse, careful strategy, the right conditions, and a considerable degree of luck.

Thus, scholars also recognize that institutional entrepreneurship is rarely the work of a few heroic individuals overcoming the odds.[108] Instead, it typically describes a collective and diffusely distributed social process coordinated among a range of variously embedded subject positions. As one of NatCap's lead scientists phrased it while imploring her audience to mobilize around ecosystem services at their 2014 symposium, "we consider ourselves as trying to bridge this divide between conservation and development. We're building this bridge together, and we need your

[107] Other studies have observed institutional entrepreneurship in the contexts of craft brewing, industrial waste regulations, responsible investing, whale watching, recycling, independent power production, museum business plans, diversity programmes, electronic music exchange formats, the camera industry, radio broadcasting, Norwegian fisheries, etc., etc. (Hardy & Maguire 2008; Levy & Scully 2007; Lawrence 2008)

[108] Hardy and Maguire (2008, 209) describe how "institutional entrepreneurs engage in a range of material and discursive interventions aimed at changing inter-actor relations and bringing about collective action. In so doing, institutional entrepreneurs do not work single-handedly; they engage with other members of the field. Institutional entrepreneurship therefore seems to be predominantly a collective process"

help. This is the beginning of a whole new era, as Gretchen was saying, of trying to mainstream this kind of thinking into the whole world. And this is a real community effort, which takes a village to build." In these ways, the subject of the institutional entrepreneur can be understood as 'channeling' power rather than directly 'exercising' it—whereby, in a sense, these subjects do not 'have' power but power 'has' them as its operations are expressed through their work. More straightforwardly, that also means that institutional entrepreneurs are typically not themselves the ones who undertake the desired changes. Rather, their role is to initiate, coordinate, organize, navigate, and ultimately try to manipulate 'the rules of the game' so that others will compel the desired changes at scales far exceeding the individual capacities and resources of the institutional entrepreneurs themselves.

At a 2016 workshop organized by NatCap, for example, a senior practitioner with Forest Trends described in similar terms to NatCap's strategy many past experiences establishing PES schemes around the world. She emphasized how their approach depended on working "with and through local partners with all the communities that we're working in." As institutional entrepreneurs, their role was not to embroil themselves in trying to change practices directly but instead to operate through local champions whom they enabled by "facilitating, providing resources, providing some technical expertise, and consultation." Accordingly, institutional entrepreneurs are not conceived as simply *imposing* new logics and new practices. Instead, they work shrewdly to *adapt* new logics and new practices, through practices of institutional bricolage, borrowing elements from available orders and trying to 'fit' them into the grain of existing institutions. As Berk and Galvan emphasize, creative syncretism involves the recombination of available institutional elements rather than making them up from whole cloth.[109]

CONVERTING THE ALREADY CONVERTED

These theorizations centering around the institutional entrepreneur help to characterize the types of subjects most capable of utilizing the boundary objects ecosystem services represents, the practices of bricolage they are used to perform, and the conditions allowing these subjects to maneuver, speak persuasively across, and bring together the diverse constituencies which those boundary objects interface. In my fieldwork, the dynamics of institutional entrepreneurship mapped strikingly well to my observations, but also to how many ecosystem services practitioners described themselves, how they thought about their work, and how they positioned that work within a bigger picture.

Over the course of my doctoral research, I learned that many of the established organizations I had been engaging—specifically, those which had begun to institute ecosystem services approaches in various facets of their activities—had done so because of the concerted efforts of identifiable institutional entrepreneurs operating within them: often a specific individual,

[109] While much of the scholarship on institutional entrepreneurship seems to assume a self-interested subject, I should add—echoing a considerable literature exploring the cultures of conservation—that I discerned a broad and often tangled mix of motivations expressed by ecosystem services practitioners, variously idealistic and pragmatic, mission-driven and mercenary, and always value-laden, politically complex, and multifaceted (Dempsey 2016). The frequent ambivalences I elicited in interviews and observed in public discussions reflect the varied subjectivities involved in this work. These are, as I described in the previous chapter, the "middling technocrats" identified by Ananya Roy (2012, 37)—the often-conflicted experts who are "charged with programming the apparatus" while simultaneously struggling to negotiate its contradictions—practitioners whose lived experiences, she argues, are central to understanding the broader circuitry constitutive of organized political projects like 'conservation' and 'development'.

or handful of individuals, described as having the requisite expertise, connections, and motivation needed to successfully maneuver and then 'hardwire' the concept into the organization. Indeed, the formation of NatCap itself provides one of the most prominent manifestations of this dynamic. "One of the things that's been clear to me," explained one of NatCap's lead scientists, was their group's influence in successfully re-purposing the major conservation organizations around NatCap's vision. As NatCap points out in recent promotional materials, that includes "two of the world's largest NGOs" (Natural Capital Project 2017a). She elaborated:

> I don't think NatCap can take 100% of the credit for this […] but we have been a player in moving these conservation organizations. At the time that NatCap was founded ten years ago, this idea of natural capital, ecosystem services, nature's benefits to people, was not a part of the dialogue at TNC and WWF the way it is today. You look at changes in their taglines over the last ten years and you can see evidence of that shift. It was about saving the last great places. That was what TNC was about. Nature for nature's sake. So, at the same time that NatCap has grown, and its profile, there's the changing stories of these conservation organizations. […] [P]art of the creation myth of NatCap is about these NGOs partnering around this kind of radical idea at the time […] which now seems mainstream.

While NatCap continues to struggle with bringing its carefully translated, re-constituted vision of conservation out to the 'unconverted', as noted in Chapter 2 (and argued in Dempsey and Suarez 2016), a much less ambiguous outcome of their work to date seems to have been successfully converting the 'already converted' *within* conservation: those constituencies already enrolled in conservation anyway. As noted in Chapter 1, conservation practitioners, scientists, and advocates have increasingly come to accept, and even the embrace, the concept. Most prominently, the large international organizations and multilateral processes that comprise the existing conservation establishment (Armsworth et al. 2012) have been enthusiastic promoters of the idea (WWF, TNC, CI, IUCN, World Bank, etc.). The emergence of ecosystem services has also given rise to a proliferation of new initiatives (recall the logo cloud depicted in Figure 3) structured around the notion, including massive scientific undertakings like the Millennium Ecosystem Assessment, TEEB, and IPBES. Indeed, the growth of ecosystem services research and practice has been exponential (see Figure 2), encompassing not just NatCap but other groups like ESP, ecoSERVICES, ValuES, OpenNESS, OPERAs, Invaluable, Earth Economics, Ecosystem Marketplace, and so on.

It seems safe to conclude by now that the natural capital frame has indeed gone "mainstream" as NatCap's lead scientist asserts above—but *only* if we limit our discussion to the transnational networks comprising organized conservation itself. Here, the larger framework of ecosystem services has indeed, in a spectacularly visible fashion (Buscher, Dressler, and Fletcher 2014; Dempsey 2016; Igoe 2010), been increasingly institutionalized as taken-for-granted common sense defining what is prudent, appropriate, and imaginable (again, most visibly among conservationists *themselves*). As Kareiva himself argued at a keynote address he delivered during the 2016 NatCap symposium:

> Take it back 15 years. How much has changed. […] Here's what conservation was. It was either you work on a species and you collect data on their births and deaths and then you use some algebra and some modeling to say where to intervene to save the species. […] Flash forward to now. I think there's zero percent overlap. If I were at a Nature Conservancy meeting I think there is *zero* percent overlap in the discussion. It doesn't mean that the early work isn't still used—it is used—and it's been of value. But it's just not

what's talked about. What's talked about is natural capital. And that's really changed the discussion in conservation.

Although their intended endgame of "aligning economic forces with conservation" (Natural Capital Project 2016) remains uncertain, especially in relation to the scale of their expressly "radical" ambitions (or anywhere near it), what is much clearer is how those economic forces—at least, those intersubjectively produced imaginaries narrating overwhelmingly powerful "economic forces"—have been effectively re-aligning conservation in return, as Kareiva observes. As he notes, "there's zero percent overlap" between the kind of conservation that existed prior to this shift and the conservation that was subsequently re-made into something that "economic forces" might deign to align with. It is in this context that the dynamics of institutional entrepreneurship and practices of institutional bricolage come into vivid focus as a mechanism for effecting macro-institutional change in conservation. Christiansen and Lounsbury (2013, 227) conceptualize a critical role that the "bricoleurs" of NatCap and other proponents of ecosystem services can perform in organizational contexts:

> a key condition for institutional bricolage of logics within the organization is that internal activists have to be able to skillfully frame key issues as centrally involving identity—'who we are' and 'what we do'—and then try to convince others that a marginalized (and to some extend compartmentalized) logic is a core and foundational organizational identity trait.

The logic in this case is that of natural capital, here serving as a conduit for dominant discursive, institutional, and political-economic logics to be injected—through the judicious facilitation of canny bricoleurs—straight into the heart of the conservation establishment. So far, the main achievement arising from this moonshot to natural capital may have been the transformation of the institutions, organizations, and subjectivities of conservation itself rather than those prevailing institutional orders at which natural capital was ostensibly aimed. Instead, ecosystem services practitioners have pulled institutional logics *from* those dominant political formations, creatively syncretized them, and diligently grafted them throughout the sprawling, transnational networks of a re-constituted conservation that has been rapidly "reinventing itself in its entirety" and aligning itself with market forces "to a degree unimaginable only a decade ago" (Buscher, Dressler, and Fletcher 2014, 3–4). Indeed, this focus on 'converting the already converted' appears to have been, at least in part, the reflection of an intentional strategy formulated years earlier. The publisher of Gretchen Daily's landmark book, *Nature's Services: Societal Dependence on Natural Ecosystems*, which came out in 1997 (a pivotal year in the rise of ecosystem services), recalls their conversations prior to its release:

> When Gretchen and I met for the first time, she wanted the book to be of interest to […] essentially everybody. I argued with Gretchen on something that we had learned painfully—when you want to talk to policy makers, the general public, leaders of major corporations, with one journal article or book, you simply can't do it. You won't speak to any of them effectively. We pushed back, saying we needed Gretchen and the team to focus on who it is she really wanted to be talking to if she wanted to get this field established. […] When push came to shove, I don't know whether Gretchen will remember it this way, she said I want to talk to the academy. 'If I can't convince my fellow scientists and economists that this is important, then we can't convince anybody'.

In short, step one involved enrolling her colleagues, especially those in conservation biology, and aligning them around this vision. Later steps would eventually reach out to "essentially everybody." It seems that the realisation of 'step one' has, to date, been the primary and only unambiguous outcome of this intensive two-decade campaign.[110]

For their part, NatCappers envision their translational work not as narrowing the scope of political possibility in conservation but as extending its priorities, practices, and logics out into new domains (i.e. to "essentially everybody"). Recall the natural capital assessment that NatCap produced for Myanmar, for instance, itself a stand-in for many other discursive arsenals configured around ecosystem services and brought to bear in many other "decision contexts" over the group's ten-year span. The impetus for the whole endeavour in the country, in this case led by WWF, is framed for all-out, endless relevance. Through concerted deployments of ecosystem services expertise and policy discourse, the campaign swings for the fences, imagining vast transformative potentials for conservation, re-cast specifically in terms of nationally-shaped logics and re-purposed as something that can go with the flow—as something that can be made to infiltrate, to *permeate*, into every nook and cranny of reasonable governance as it emerges in the country.

This logic, painstakingly re-crafted to articulate with so many others through the skilled translations facilitated by ecosystem services bricoleurs, ought to be irresistibly compelling. Indeed, the collective work, the time and energy, the resources, the *talent* already invested in these efforts to re-make nature in the image of natural capital have been remarkable: conservation has been arduously reconstituted for maximum appeal with respect to the sensibilities of the powerful (and everybody else too), practically served on a silver platter and made as supremely palatable, as *relevant*, as they could possibly imagine it. Thus, in Myanmar, WWF and NatCap had very visibly gone 'all in' on this bet of turning nature conservation into something congruent with and indispensable to the cacophonous array of seemingly implacable constituencies hitched to the country's rapid development and economic growth. The framework of ecosystem services ostensibly empowers WWF and NatCap to engage, 'to get a seat at the table', and to try to influence critical new constituencies on terms less burdened by past misinterpretations, apprehensions, and antagonisms: we are all on the same side, after all, and that side is survival.

However, while the ecosystem services gambit involves translating conservation into something that can fit with (and within) more dominant logics—an organizational posture now clearly visible and broadly realized among mainstream conservationists—the capacity of conservation to reciprocally transform those dominant logics, as even its advocates will readily admit, remains doubtful. NatCap's avowed mission to "improve the well-being of people and nature" (Natural Capital Project 2017a) by trying to get ecosystem services incorporated into the decision-making calculus of "the people who have the future of the planet in their hands" continues to elude them. And it continues to elude them because of how much the meaningful realization of that mission depends on the transformation of *other* logics ingrained in wider hegemonic political formations (i.e. capital, state, etc.) and on profound reconfigurations (and re-distributions) of tenaciously entrenched power relations (Dempsey 2016).

[110] As noted in Chapter 2, NatCap still struggles to come up with clear slam dunks proportionate to the scale of their ambitions. "In spite of individual triumphs," laments one multi-authored NatCap publication reflecting on their progress, "the pace at which the theory of ecosystem service valuation is being incorporated into real decisions has been painstakingly slow, with disappointingly few success stories" (Ruckelshaus et al. 2013, 12). And as they acknowledge in a more recent strategy document, their work has produced only "isolated bright spots. We haven't yet affected a fundamental shift in decision-making" (Natural Capital Project 2016, 36).

In the meantime, the higher order institutional effects enacted by NatCap and many others, working organizational context by organizational context through ecosystem services, has only continued to consolidate (within conservation) as materially necessary, singularly appropriate, and taken-for-granted common sense. Crucially, these institutional effects encompass important political assumptions regarding questions of power, political economy, and social struggle, which have been embedded in the ways that ecosystem services has taken root, comes to be framed, and gets operationally enacted. As Kareiva acknowledges rather bluntly, those assumptions involve adopting an accommodating posture in relation to where power is thought to reside. Whether that means state, capital, business, science, development, neoliberalism, all of the above, or someplace else, this framing prompts him to assert the need, the *urgency*, to subordinate their work, their cause, and themselves to dominant political projects in order to render conservation congruent with the array of irresistibly compelling institutional orders demanding that conservation get with the program to stay in the game.

The process evokes imagery not of a dynamic tango but of a frenetically contorting dancer whirling around an indifferent, unmoving partner. As I argue throughout this dissertation, it seems that the most major consequence of ecosystem services—its principal "legacy" as the NatCapper phrased it above—may arise from its intersubjective effects which are continuing to manifest among conservationists themselves: the production of acquiescent organizations, the consent of re-constituted expert subjectivities, and the disciplining of political imaginations and sensibilities increasingly oriented to "court, rather than confront, entrenched power structures, established regimes of capital accumulation, and private capital itself" (Dempsey and Suarez 2016, 15). While the fragmented fields and boundary-maneuvering abilities characteristic to NatCap's work might be necessary ingredients for institutional entrepreneurship to function—indeed, NatCappers have honed these contextually-attuned skills to a fine point over the past ten years—I again emphasize that these uneven power relations, and their narration, underpin how and why this process is unfolding in conservation. The translations performed through ecosystem services manifest not just through but *because* of these "radically asymmetrical power relations" (MacDonald 2010b).

THE HEGEMONY OF NATURAL CAPITAL

Once again, recent strands of institutional theory can provide useful concepts that may help to interpret these power-laden re-alignments. Its decidedly non-symmetrical nature among conservation and its 'others' merits particular consideration.[111] In this section, I specifically examine the arguments of David Levy and Maureen Scully (2007) who attempt to connect institutionalist scholarship with Gramscian understandings of hegemony in order to draw out these power relations more explicitly.

Levy and Scully (2007, 972) conceptualize institutional entrepreneurship as an instantiation of Gramsci's 'Modern Prince', or in other words, as the "collective agent" that works to transcend the stability of a social and political order "through critical analysis, organizational

[111] While conceptualizations of power in constructivist variants of institutionalism have been critiqued as rather thin (Fligstein 2001), more recent scholarship has increasingly tried to foreground the politics of institutional entrepreneurship and its implications for the reproduction and reconfiguration of power relations (Lawrence 2008). As Thornton and Ocasio (2005, 118) note, strands of institutionalism have sought to develop conceptualizations of "the organizational field as a battlefield where power struggles motivated by competing institutional logics get played out." Here, again, these theorizations posit dynamics with intriguing resemblances to what I have argued are the power relations connecting the micro-social operations of ecosystem services to wider, macro-institutional shifts observable in conservation.

capacity, and strategic deployment." In trying to change the institutions of a field, institutional entrepreneurs are in effect attempting to challenge the entrenched positions of dominant incumbents advantaged in that field. Here, Levy and Scully find that Gramsci's understanding of hegemony directly converges with theorizations developed by organizational scholars conceiving of institutionalization as "an ongoing political process that engages the agency and strategies of institutional entrepreneurs" (Ibid). Through a Gramscian reading, foregrounding the reproduction and reconfiguration of power relations through institutions, they try to account for how "institutional entrepreneurs can overcome structural power by outmaneuvering field dominants" (Ibid, 976).

They first argue that Gramsci's understanding of hegemony describes precisely the sorts of conditions highlighted by institutionalists as especially conducive to change. Hegemony, defined as the "contingent stability of a social structure that protects the privileged position of a dominant alliance" (Ibid), sustains what Gramsci referred to as a historic bloc. In turn, that stability depends on "coalitions and compromises that provide a measure of political and material accommodation with other groups and on ideologies that convey a mutuality of interests" (Ibid).[112] The historic bloc, comprised of specific organizations and alliances among dominant actors as well as the broader "alignment of economic and ideological forces undergirding them" (Ibid, 978), should, they argue, be conceptualized as an organizational field in the terms laid out by institutional theorists. Here, the constitution of the historic bloc parallels institutionalist observations of how variegated organizational fields—fields riven by multiple, interpenetrating, and contradictory institutions, often emerging or in crisis—can expand the scope for agency, give rise to a critical reflexivity, and thereby create opportunities for destabilizing the current order: opportunities particularly advantageous to institutional entrepreneurs.

While hegemony seems to imply "the articulation of discourse into a coherent ideology and an array of institutions that project the moral and intellectual leadership of dominant elites" (Ibid, 977), Levy and Scully also emphasize Gramsci's understanding of hegemony as fragmented and contradictory in terms analogous to those described by organizational scholars. It always conceals the presence of competing ideologies, contradictory institutions, and diverse interests, producing possibilities for agency, resistance, and the fostering of a critical "conception of the world" (Ibid, 976; quoting Gramsci 1971). They argue, convergent with institutionalist analyses, that it is those "tensions within and between the dimensions of hegemonic structures" (Ibid) that produces the critical room to maneuver and chances for strategic agency which, once seized, may counter and destabilize hegemony. The contingent stabilization of organizational fields,[113] now understood as equivalent to the notion of hegemony, therefore represents only an "institutional settlement"—always precarious and requiring sustained political work to maintain, as it is continually negotiated among dominant and subordinate groups through strategic accommodation: a dialectical "alignment of forces" that is always fragile and provisional in its configuration.

[112] They emphasize the importance of how "the values and interests of the dominant group" come to be conflated with the collective interest of the whole, highlighting three broad means by which they can work to institutionalize this hegemony: these include material strategies (i.e. economic relations and forms of control and domination); discursive strategies (i.e. ideology, the legitimation and consent of civil society); and organizational strategies (i.e. coercive and bureaucratic state power).

[113] In this understanding, the stabilization of an organizational field therefore also entails the stabilization of the position of the organizations and alliances of its dominant incumbents.

Beyond noting clear parallels in the *conditions* (and latent precariousness) characterizing the hegemony of a historic bloc and the (in)stability of organizational fields, they explain how institutional entrepreneurs display characteristic features of the organic intellectuals whom Gramsci described as engaging in the war of position (Ibid, 978). Both conceptions involve an embodied, experientially rooted expertise (in this case defined by boundary-bridging fluencies, legitimacies, and capacities for coalition-building); specific analytical capabilities for political discernment across multiple political, epistemic, and institutional settings (conservation, development, science, business, state, etc.); the facilities and appropriate positioning conducive to practices of translation, intermediation, and brokering in order to "facilitate the emergence of a critical worldview that links diverse experiences to an emergent ideological framework"; and the favouring of a "longer-term strategy, coordinated across multiple bases of power, to gain legitimacy, develop organizational capacity, and win new allies" (i.e. changing 'the rules of the game' in preference to a "futile frontal assault") (Ibid). In sum, they argue that institutional entrepreneurs, understood as organic intellectuals leading the collective agent of the Modern Prince, rely "on the skillful coordination and deployment of resources, a sophisticated analysis of field structures and processes, diplomatic acuity in constructing alliances, and creative agility in responding to evolving circumstances" (Ibid 982).

As I have argued, these are precisely the attributes that NatCappers have had to cultivate and now habitually rely on to do their work. However, while Levy and Scully (2007, 979) characterize institutional entrepreneurship as a catalyst for an "emancipatory process"—as effecting the displacement of dominant incumbents and as a counter-hegemonic challenge to the status quo—these dynamics appear peculiarly inverted in the context of natural capital and conservation. The institutional entrepreneurship being undertaken through ecosystem services is simultaneously *destabilizing* an existing status quo (i.e. the established institutions, organizations, and subjectivities historically constitutive of conservation), but it does so by *stabilizing* conservation within a 'wider' status quo (i.e. prevailing discursive, institutional, and political-economic orders with which conservation is thought to be not sufficiently congruent). While, in a way, these efforts do seem to displace the dominance of incumbent interests, institutions, and logics (those that had served to define conservation in the past), institutional entrepreneurs accomplish this displacement by systematically importing and installing in their place a variety of elements from more broadly dominant interests, institutions, and logics from 'outside' conservation.

To further develop this point regarding the political character of institutional entrepreneurship within an Gramscian analysis, I turn to Igoe et al.'s (2010, 489) characterization of mainstream conservation. Convergent with this analysis, they apply Gramsci as a means of apprehending "how such a complex and heterogeneous movement appears to be dominated by a relatively narrow set of ideas and institutional agendas," a circumstance "most clearly visible in the operations of conservation BINGOs, which dominate conservation funding" (Ibid). Extending this interpretation to the institutional entrepreneurship instantiated by NatCap, the re-alignment of conservation to accord with dominant interests, institutional logics, and political-economic orders cannot reflect the work of organic intellectuals, but instead draws into focus the work of what Gramsci referred to as "ideological functionaries" whose "ideas and worldview were closely associated with the interests of ruling elites" (Ibid). As political subjects in Gramsci's analysis, these ideological functionaries "rang[ed] in stature from petty bureaucrats to individuals publicly renowned for their intellect and expertise" (Ibid). Igoe et al. elaborate on this distinction between ideological functionaries and organic intellectuals:

> both groups exhibited competencies for making statements about the world, of being 'in the know', and the ability to explain the world in ways that were understandable and appealing to a broad cross-section of society. Since those in power publicly sanctioned ideologue intellectuals as the true holders of legitimate and valid knowledge, however, members of this class held a much higher position of authority, visibility, and credibility vis-à-vis the general public. Consequently, they had an enormous impact on the legitimation and propagation of the ruling class's understanding of the world. This is reminiscent of the ways in which techno-scientific knowledge is often mobilized to implement elite understandings of ecological-conservation practices, at the cost of silencing alternative types of knowledge (Ibid)

The portrait that emerges is a conservation whose established rules of the game and attendant status quo are indeed being dethroned: its material relations and resource dependencies, its roles and relationships, its norms and values, its subjectivities and collective identities, its common sense assumptions and normative frames regarding how things do, should, and can work are being overturned. And operationally constituting that process, context-by-context, is the institutional entrepreneurship—the diffusely distributed micro-social practices of bricolage—of figures akin to Gramsci's "ideological functionaries." What this process seems to entail is the ironing out of an incongruent wrinkle—a source of resistance (or at least, potential resistance) not yet fully subordinated to more dominant political projects—seemingly out of line with the alliances holding together the wider historic bloc and their efforts to maintain "a coherent ideology and an array of institutions that project the moral and intellectual leadership of dominant elites" (Levy and Scully 2007, 977). This characterization of ideological functionaries (the inverse of organic intellectuals) also matches closely in its details with the theorized dynamics of institutional entrepreneurs. However, it re-casts the institutional entrepreneurs of ecosystem services not as plucky opponents to but shrewd champions of ruling elites and the hegemonic "alignment of forces" that sustains them.

Thus, the concerted shifts in conservation being articulated through ecosystem services do represent, in certain respects, a notable departure from past paradigms and modalities of conservation (the latest in a long line of such shifts). However, in this reading, the work of its proponents seems distinctly hegemonic rather than counter-hegemonic in its functioning. As Kareiva himself argued, "nature doesn't stand a chance" when irrelevant (or even worse, positioned as adversarial) to established constellations of power. In relation to the broad asymmetries of power that define the present conjuncture—those entrenched discursive, organizational, and political-economic orders which extend through and far beyond the idiosyncratic politics of the conservation movement—ecosystem services functions to stabilize rather than to destabilize, to re-inscribe rather than to undermine. It aligns subordinate groups safely *with* rather than enabling them to mount quixotic challenges *against* the dominance of the contemporary historic bloc. Whether intentionally or inadvertently (often a mix of both), the re-alignment of conservation mainstreamed through natural capital is therefore not about displacing uneven power relations but rather re-asserting, intensifying, and expanding their reach into a domain that had previously remained (at least somewhat) incongruent with them.

Here, the institutional entrepreneur—although implicated in changing the established institutions, organizations, and subjectivities of conservation—represents in broader terms an agent of hegemony, an "ideological functionary," and a maintainer of organizational "field stability," rather than a source of counter-hegemonic disruption. Their work re-aligns the status

quo of the context within a meta-context defined by uneven power relations, rectifying a seemingly deviant social formation such that it harmonizes with a grander status quo. This is not to say that this kind of work will necessarily (or even can) result in 'sameness', or the erasure of locally particular difference in conservation, reducing its diverse, contextual entanglements to a singular and totalizing grid of calculative meaning. As I have argued, the numbers are, for the most part, secondary to how they are wielded and the political purposes they are situationally mobilized to construct. Indeed, the operations of ecosystem services can often be quite lively: it has to be locally articulated and improvizationally enacted, displaying a deep variegation with respect to its particular manifestations in policy and practice.

As I will continue to elaborate in following chapters, it is not so much the commodification, the marketization, the financialization, and the reductive abstractions frequently critiqued by political ecologists that seem most troublesome here, but the intersubjective institutionalization of uneven power relations. As I have argued, the sweeping changes envisioned by proponents of ecosystem services have largely failed to materialize either in the ways or to the extent they had envisioned (noted in Chapter 2 and elaborated more extensively in Dempsey & Suarez 2016). However, that has not stopped NatCap and a growing congregation of other organizations from continuing to work feverishly to envision and enact it.

The principal legacy of NatCap and the ecosystem services movement, in this reading, is thus tied more closely to the intersubjective production, normalization, and internalization of a political imaginary among conservationists. This imaginary concludes its narration of these big picture power asymmetries with an irresistible, overwhelmingly dominant historic bloc that is beyond challenge and must be yielded to and abided. Despite the richly varied instances of ecosystem services—its recognizably contingent, contextually configured, and unstable "assemblages" of "global forms and situated political regimes" shaped through "promiscuous entanglements of global and local logics" (Ong 2007, 5)—those assemblages are together relationally co-constitutive with and serving to reproduce meta-contextual power asymmetries, aligning conservation to suit them one "decision context" at a time.

THIS CHANGES…SOME THINGS

NatCap, alongside a small cadre of similar organizations, are implicated in the active construction of clearly visible and ongoing macro-institutional shifts in conservation as they work context-by-context through ecosystem services. Understood as institutional entrepreneurs, NatCappers are diligently transposing syncretized logics from 'outside' conservation 'into' conservation through practices of institutional bricolage. Yet, the extent to which their expressed aim of having some broader, reciprocal influence—the ostensible reason for undertaking this grand project to "change everything" through natural capital in the first place—remains uncertain. While conservation is visibly changing, the dominant logics ostensibly addressed by this turn to ecosystem services have remained challenging to meaningfully budge through these approaches. However, what these approaches *have* been effectively mobilized to do is to change conservation and align it to better fit with those dominant logics. As NatCap and others have prompted conservation to gaze long into natural capital and the dominant logics it reflects, those logics have gazed right back into conservation.

Conceptualized in this manner, the institutional entrepreneurs of natural capital—globally dispersed, transnationally networked, and working across sites, scales, and capacities—reveal themselves as performing the operational work of reconfiguring the institutions, organizations, and

subjectivities of conservation. Context by context, they endeavour to more safely translate it into "relevance" (and out of a dangerously "adversarial" position) in accordance with prevailing macro-institutional power relations. Through the representational repertoires of ecosystem services, these subjects work to conform biodiversity conservation to the governing vision of prevailing political-economic and discursive orders, thereby ostensibly reproducing conservation as a viable political project capable of advocating for nature.

Scholars of institutional entrepreneurship do seem to anticipate this observation.[114] Noting Levy and Scully's (2007) arguments, Hardy and Maguire (2008, 211–12) begin to question "the degree that power relations among actors are transformed when non-dominant actors engage in institutional entrepreneurship." Before highlighting the need for further research on its possible "negative consequences"—not a salient feature of the David and Goliath stories usually depicted in this scholarship—they consider the possibility that "new institutional arrangements emerge from some form of 'hegemonic accommodation' as dominant actors cede only limited ground, typically through partnerships with more moderate actors in the coalition pressing for change" (Ibid). Indeed, they portray a more critical narrative that could be constructed from the institutional entrepreneurship literature, whereby:

> [t]he new or changed institutions typically do not imply or reflect a radical reconfiguration of power relations in the field: they are 'elaborative' rather than 'reconstructive' projects […]. [D]ominant players may adopt new practices but retain their dominance and, in fact, may change their practices in order to remain dominant […]. In fact, institutional entrepreneurship activities are often described, in this narrative, as being directed at aligning change with—and often embedding it in—existing values, logics, and practices, which results in minimal change in power relations. (Ibid)

This chapter largely expresses a narrative of this kind. As Havemen and Rao (1997, 614) argue, "the essence of institutional entrepreneurship is to align skillfully an organizational form and the specific institution it embodies with the master rules of society." Accordingly, the logics and practices currently being imported from broader institutional orders, creatively syncretized, and ingrained into conservation seem to be flowing somewhat unidirectionally and decidedly 'downhill', producing a 'trade imbalance' of sorts—a dramatically unequal exchange of influence (and a pretty terrible bargain for conservationists, when viewed from this angle).

It is in these terms that NatCap as avowed and self-identified agents of "moderation"—parties, perhaps, to the sort of "hegemonic accommodation" speculated above—can be un-ironically described by Kareiva as "radical." Insofar as elements of the organized conservation movement had not (yet) shared in that political sensibility of moderation,[115] the movement within a movement that NatCap leads does seem to represent a significant departure. However, that "radicalism," as I have argued, is one that ultimately serves to bring conservation to heel and to radically narrow its political imagination.

The practitioners of ecosystem services seem almost to represent a kind of 'counter-insurgent' institutional entrepreneur, effecting a form of change that entails ironing out deviant

[114] Although institutional subjects may have some scope either to reproduce or innovatively transform the dominant logics of their institutions, Thornton, Ocasio, and Lounsbury (2012, 3) conclude that "more micro processes of change are built from translations, analogies, combinations, and adaptations of more macro institutional logics."
[115] An 'immoderation', which, in the context of conservation's checkered history and documented 'excesses' with respect to local and marginalized peoples, should be recognized as not necessarily a 'good' thing.

wrinkles to the prevailing institutional orders that sustain the status quo. As Levy and Scully (2007, 985) point out with respect to the political character of institutional entrepreneurship, "the nesting of fields [e.g. conservation] within more firmly entrenched institutions [e.g. those sustaining and sustained by the contemporary historic bloc] highlights the limits of strategic power and illuminates the contours of hegemonic accommodation." Regardless of their intentions, the work of NatCap is relationally constituted together with (and within) these "nested" power relations, which circumscribe the kinds of organizational change practitioners of ecosystem services opt to pursue. Not only that, these power relations are, as I have argued, critical to enabling their work: for the deployment of ecosystem services to be effective, it depends upon the production of a sense of overwhelming and irresistible political projects whose logics conservation must abide and whose dominance conservation must yield its consent to.

However, as I consider over the next three chapters, perhaps this does not need to be so. To the extent that conservation *is* being re-purposed by and around the hegemonic logics of the present historic bloc, I reiterate that this outcome is hardly automatic and must be won. Rather than accepting these reconfigurations of conservation as the necessary outcome of the "coordinating action of capitalism" (MacDonald 2010b, 257), however logically compelling this mode of explanation may be and however visible its higher-order effects are becoming, I try to maintain this more intimate focus on the constitutive micro-social practices of those subjects relationally co-constituted with these reconfigurations. In this way, I try to keep open the possibility of re-inserting an appropriately tempered but analytically robust and meaningful sense of agency and contingency into this process. By adapting constructivist variants of institutionalism drawn from critical institutionalism and organization studies, I suggest that analyses of ecosystem services can find intriguing (if still imperfect) vocabularies for appreciating the fissured fields and types of subjects implicated in the mainstreaming of natural capital. These theorizations connect those intimately-scaled, micro-social practices of ecosystem services that I observed among NatCap (and other groups) with the macro-institutional dynamics and ideological, organizational, and political-economic shifts now widely recognized in conservation.

As Stuart Hall (1986) has stressed, and as proponents of ecosystem services themselves will readily admit, this requires *work*. In this way, I reiterate that "there is nothing automatic" about hegemony: it must be "actively constructed and positively maintained" (Ibid). From this more intimately-scaled vantage, and through the experiences and perspectives of those enacting it, this hegemony might reveal itself as more fragile, precarious, and provisional in its configuration. Indeed, as I discuss in the next chapter, this active construction and positive maintenance is extremely difficult to accomplish and has, over NatCap's ten-year history, posed a disorienting challenge which they have are still figuring out how to interpret.

CHAPTER 4 – ECOSYSTEM SERVICES AS A THEORY OF CHANGE

> Words have power. Perhaps you're familiar with the Sapir-Whorf hypothesis? […] [T]here is a fundamental truth here. The map *does* become the territory to quote Korzybski. Or to unquote Korzybski, because he says the map is not the territory. But what the Sapir-Whorf hypothesis points to is that the map really becomes the territory because it is by virtue of linguistic exchange that we coordinate our actions. Whether or not words map the reality, they become reality.
>
> - A practitioner with one of NatCap's counterpart mainstreaming organizations

PERHAPS YOU'RE FAMILIAR WITH THE SAPIR-WHORF HYPOTHESIS?

By the time I was asked this question by one of my interviewees in early 2015, it had become fairly clear to me that ecosystem services practitioners, at the same time that I was studying them, were in parallel dedicating increasing attention to 'studying' themselves. Although ecosystem services discourse may oftentimes connote narrow (i.e. wildly simplistic) assumptions—mythic narratives of a planet of rational Decision Makers in need of better science in order to make the right choices—I noted many practitioners of ecosystem services, like the one above, toying with alternative ways of thinking about their craft.

Most practitioners, including those I met among NatCap, had rebuked caricatures of ecosystem services as a kind of planetary cost-benefit analysis for the Earth. Instead, they described learning to appreciate the many intricacies underlying (and limiting) how 'science' actually comes to be implicated in political processes. They described learning to embrace the irreducible, situated messiness inherent to those politics. And they occasionally described learning to indulge some unexpected realms of social theory to make sense of that messiness.

These remarks evince an increasingly elaborate self-consciousness among practitioners regarding their work which I will continue to explore in this chapter. This introspective and self-examining impulse (at times conflicted and even self-doubting) was prevalent across my experiences with NatCap and IPBES and in many of the other contexts where my doctoral research brought me. In this regard, my engagements with ecosystem services practitioners involved not just developing my own interpretations but joining a dynamic interpretive process already underway among these communities and structured around convergent questions.

Traces of this reflexivity are discernible in written commentary among conservation scientists and visible in public discussions across the various fora where conservationists gather. Indeed, ecosystem services discourse has since its inception been roiled by heated debates over what the concept means, what it 'does', and how it should or should not be used. These tensions have centered around an array of issues, including its definitions and theoretical framework (e.g. Costanza et al. 2017; Gómez-Baggethun and Muradian 2015; Laurans and Mermet 2014; Pirard 2012), its strategic promises and pitfalls (e.g. Armsworth et al. 2007; McCauley 2006; Redford

and Adams 2009; Spash 2009, 2011), and its political implications (e.g. Accion Ecologica 2012; Büscher et al. 2012; Dempsey 2016; Fletcher and Büscher 2017; Fletcher, Dressler, and Buscher 2014; Kill 2014a, 2014b, 2015; Lander 2011; Sullivan 2016, 2017a, 2017b, 2009; Turnhout et al. 2013; Turnhout, Neves, and de Lijster 2014). While these debates are often quite public, I was nevertheless struck by how even seemingly ardent supporters of ecosystem services would in our conversations express various ambivalences about what they were doing.

In my research, I circulated among communities of practitioners actively and collectively trying to make sense of whether, how, and in what ways they should enact these ideas. The call to mobilize around natural capital has confronted practitioners with an assortment of technical challenges but also with a disorienting array of thorny political issues and strategic dilemmas. In turn, the navigation of these questions necessarily forces environmental practitioners to reckon—whether explicitly or implicitly—with how they ought to conceive of their cause, their work, and their own identities as professionals and self-described agents of social change. Whether these questions served to re-affirm or to challenge their assumptions, ecosystem services draws them out into the open. I suspect it was largely for this reason that I encountered such a receptivity among practitioners to collaboratively explore and critically reflect on the political meaning of their work—for instance, by allowing me to conduct ethnographic research in their organizations. The questions I was posing, for many practitioners, seemed to raise tensions which had already come to preoccupy their own thinking. I had struck a nerve which they too had become intent on resolving and, as implied above, which they were also increasingly prepared to wax poetic about.

Having explored the approaches, practices, and strategies that constituted NatCap's campaign to transform conservation through ecosystem services—NatCap's 'game face' as discussed in the previous chapter—I now switch gears to discuss, inversely, the obstinate, messy realities that confronted that campaign and how NatCap's personnel adjusted to and made sense of these confrontations. In other words, I transition from discussing the operational 'how' of ecosystem services (i.e. the constitutive practices by which it is 'mainstreamed') to the underlying 'why' (i.e. the discourses, modes of reason, and forms of rationality that frame it).

In this chapter, I draw specific attention to the dynamic expert subjectivities of NatCappers themselves—the practitioners told to go forth and mainstream—as they learned on the job and improvised what exactly mainstreaming meant (and would come to mean). Here, I examine the myriad modifications, refinements, and particular lessons NatCap's practitioners came up with over the years as they wrestled with an array of complex and often challenging field projects. I highlight several specific 'course corrections' but especially focus on describing the social processes by which these changes came about which can reveal much about the political character of what they are doing (and what they believed they were doing).

Throughout this chapter I reflect on the evolution of NatCap's work in relation to key questions from critical scholarship foregrounding issues of power, political economy, and social struggle, with the aim of ferreting out the political orientations and latent political possibilities attendant to the field of ecosystem services (such as they are). As I conclude later, upon closer inspection the work of NatCap seems both less menacing and more benign than much commentary seems to imply. Yet new concerns take the foreground: the "anti-politics" (Ferguson 1997) ecosystem services consolidates and internalizes among those who practice it, together with the corresponding expert subjectivities it produces—at least in its dominant expressions—remain deeply worrying albeit not yet fully realized. I argue that the forms and functions of ecosystem services remain, to a politically consequential degree, contingent and amenable to re-purposing.

WIGGLE ROOM

As I argued in the previous chapter, a generation of disillusioned environmentalists, conservation scientists, and affiliated practitioners—irrespective of whether or not they liked it—have felt themselves being compelled to accept that the time for quixotic campaigns built on outmoded principles was ending. The time for pragmatic accommodation, of adhering to the new rules of the game, had arrived. These intersubjective dynamics have reinforced an impression that conservationists must now re-purpose their work to make it legible to the governing vision cast by dominant ideological and political-economic logics—where nature must be economically valued to be saved—if they wished to reproduce conservation as a viable political project capable of advocating for nature. These ideological and institutional shifts are now widely observable in "mainstream conservation" (Brockington, Duffy, and Igoe 2008; Büscher et al. 2012; Buscher, Dressler, and Fletcher 2014; Dempsey 2016; Holmes 2011; Igoe, Neves, and Brockington 2010).

In this context, I have suggested that the framework of ecosystem services provides an important tool for carrying out the operational translations that rearticulate conservation, site-by-site, to 'fit' with hegemonic political projects and prevailing institutional orders: the specific means by which practitioners transmute a dangerously incongruent nature into a more safely aligned natural capital. In this way, the boundary objects constituted through ecosystem services, the expert subjectivities of those who wield them, and the wider discursive and macro-institutional re-alignments now broadly visible in conservation are all dialectically interrelated. The situated micro-social practices of ecosystem services are constitutive of these higher-order effects, which in turn enable those practices. A crucial effect of this process, I contend, has been the intersubjective reproduction of asymmetric power relations that serve to stabilize the hegemony of an entrenched regime of accumulation and the contemporary historic bloc entwined with it.

Critical scholarship exploring the politics of conservation has taken note of these developments and dedicated significant attention to analyzing their meaning. For instance, drawing on Sklair (2001), Igoe et al. (2010, 490) identify in similar terms a "sustainable development historic bloc" within which they situate contemporary shifts in biodiversity conservation. Extending Gramscian conceptualizations of hegemony (as discussed in the previous chapter), they describe the historical emergence in conservation of transnational networks "whose ideas and worldview [are] closely associated with the interests of ruling elites" (Ibid, 491) working relentlessly to naturalize an impression that "the relationships between conservationist action and capitalist reality are necessarily beneficial" (Ibid, 488). Indeed, this notion has been "so systematically and extensively promoted," they argue, that it is acquiring "the appearance of being *the only* feasible view of how best to pursue and implement conservation goals" (Ibid). In the process, "[a]lternative and critical views of this logic are consistently kept at the margins or outright silenced" (Ibid).[116] Similarly, Buscher et al. (2012, 15) suggest that "neoliberal solutions in conservation appear as a consensus, and dissent is rarely visible." In the previous chapter, I traced specific practices involving ecosystem services which contribute to the social production of this narrowing scope of the politically "feasible" through an inverted and hegemonic form of institutional entrepreneurship.

[116] This elite donor base, historically rooted in the wealth accumulated during 'gilded age' capitalist expansion in the United States, is "frequently intertwined by tight networks of interests, values and agendas" and often shares "staff, personnel, and board members" (Igoe et al., 491).

MacDonald and Corson (2012, 180) likewise point to "processes of alignment and articulation" in conservation which "reflect the containment of an effective oppositional politics." They describe a process, illustrated in the discursive production of natural capital, whereby environmentalism, "[o]nce seen as a singular and distinct threat to accumulation," has instead "become in practice a politics that can be enlisted, contained and directed to the interests of capital accumulation" (Ibid). While efforts to create a "for-profit biodiversity conservation" as a site of capitalist accumulation have struggled to actually materialize at a broad scale (Dempsey & Suarez 2016), their political 'knock-on effect' of straightening out the discordant wrinkle constituted (potentially) by conservation such that it better accords with dominant discursive, institutional, and political-economic orders nevertheless has important consequences. I especially emphasize the delineating of a specific political imagination that is arguably evacuating conservation of its capacity and willingness to resist status-quo logics of accumulation now implicated in driving acute environmental devastations (among other kinds).[117]

Yet, in exploring the experiences of the practitioners most focused on enacting this vision—the "middling technocrats" (Roy 2012) now struggling to institute the tenets of natural capital among actual places and socio-natural contexts—I discerned what I took to be some potential wiggle room. As NatCap took its show on the road, including some of the more regrettable assumptions embedded in its initial theory of change, that vision (and those assumptions) were repeatedly and forcefully put to the test. Recall the tremendous work, the time and energy, the resources, and the talent mobilized by NatCap and methodically focused on squeezing nature, one context at a time, into the mould of natural capital. As these efforts collided with the messy and inescapably political complexities inherent to NatCap's dozens of "decision contexts," those contexts routinely overflowed that mould. Over ten years, the gnarled social realities attendant to those contexts regularly surprised and frustrated, stubbornly resisted, and pushed back on their advances. "Changing everything" through ecosystem services as Peter Kareiva and the other NatCap co-founders had envisioned turned out to be enormously challenging (outside of persuading conservationists themselves, of course).

In turn, NatCappers adapted. They developed new skills, sought out new types of expertise, re-evaluated old assumptions, and opened themselves to a degree of self-questioning and re-invention as they quested—again, with what I took to be a straightforward earnestness for the most part—to meaningfully influence 'The Decision Maker' on his or her (or its?) own enigmatic terms and thus "improve the well-being of people and nature" (Natural Capital Project 2017b). Along the way, NatCap's personnel cultivated notable cross-cultural facilities for intermediation, code-switching, and translation as described in the previous chapter. They came to possess an embodied, experientially-shaped expertise uniquely attuned to building relationships, brokering coalitions, and maneuvering across the diverse epistemic, political, and institutional boundaries that cleave across the contemporary fields of biodiversity conservation. As one NatCapper acknowledged with

[117] These tendencies are traceable in debates among ecologists and conservation biologists extending well before the ostensible halcyon days of ecosystem services in the late 1990s, and indeed, included key figures eventually involved in NatCap's formation (Dempsey 2016). As Jessica Dempsey notes, these discussions were deeply "tempered by the political-economic context" of the time, gradually producing what was regarded as "a pragmatic realization of the very marginality of their debates" (Ibid, 74-75). Taking in the wider implications, she recognizes "the tragic weight of the realpolitik, in terms of both the marginal nature of ecology but also the ease with which they seem to embrace a pragmatic complicity." This comment expresses a familiar feeling that pervaded much of my own experiences circulating among the frontiers of ecosystem services.

respect to how they had acquired this distinctive skill set, "[n]one of us are experts in it. We've just done this a *lot*. We've failed and we've succeeded in many different ways."

Haunting the fringes of what NatCap has been experiencing and learning throughout this process, I argue, has been the necessity of developing (rather than carefully sidestepping) a more robust theory of change capable of directly grappling with fundamentally central questions regarding the nature of power, social struggle, and political economy (Berbés-Blázquez, González, and Pascual 2016). Indeed, traces of this recognition appear implicitly and sometimes explicitly in the lessons NatCappers themselves seem to have been drawing.[118] The underlying theory of change articulated through ecosystem services, many elements of which NatCap had taken on board (and indeed pioneered) when launching their campaign, has encompassed, as many NatCappers themselves would often admit, some rather simplistic and problematic assumptions. Over time, as NatCap's personnel accumulated experience, reflected on what they were doing, and sharpened their strategic acuities, their theory of change also matured, jettisoning some of its more naïve and cumbersome assumptions, while keeping others.

As I will discuss, the outcome of this process remains politically ambiguous. At moments during my engagements with them, it appeared that NatCappers were labouring somewhat awkwardly to 'shoehorn' ecosystem services—together with its tenuous assumptions and focused emphasis on technical calculation—into situations where the specifics of numbers were eclipsed by the decisive importance of other, distinctly social and political dynamics. NatCappers had to learn how to grapple with the idiosyncrasies and conjunctural permutations of bureaucratic politics, ideological contests, frayed coalitions, rivalrous interests, uncertain governance, apprehensive communities, movement struggles, predatory capitalists, mercurial elites, and myriad other contingencies: critical features of their "decision contexts," each configured through deep histories and suffused with power relations. As one of their partners lamented during an interview, at times, NatCap's mainstreaming work felt akin to trying to ram a "square peg" through a "round hole." An overemphasis on getting the numbers right, this practitioner warned, was getting in the way of a more sophisticated understanding of the definitively political nature of the processes where they had entangled themselves and a more honest reckoning of how and whether their scientific knowledge and expertise was likely to be taken up within those processes. As many NatCappers themselves emphasized to me, there was never a magic number that needed to be 'discovered' to change The Decision Maker's mind.

While NatCap's already-established expertise as a group of scientists, software developers and technical specialists is perhaps most obviously *with* 'numbers', they have increasingly come to appreciate how those numbers must be skillfully shepherded, constructed into storylines, situationally deployed, gracefully performed, leveraged through relationships, and contextually recombined with a multitude of other practices only tangentially related to the specificities of their calculations or the precision of their valuations. For the conceptual framework of ecosystem services to have any efficacy, its wielders would have to learn how to throw themselves into the thick of these processes as well—and get good at doing so. By many of their own accounts, it has become increasingly apparent to NatCappers that mainstreaming ecosystem services might involve 'contexts all the way down', requiring direct and delicate, painstaking engagements for them to gain any traction.

[118] The word 'political economy' appears in their strategic plan!

What is especially striking, to further extend this point, is how ecosystem services practitioners seem have grown increasingly good at their jobs by becoming less and less like ecosystem services practitioners. As I have been discussing over previous chapters, NatCap's personnel have, through arduous trial and error, cultivated intuitions for navigating the myriad socio-ecological contexts and intransigent politics where they have been deployed. In the process, they have developed an increasingly sophisticated appreciation of 'social change' as something far stranger, and more difficult, than they at first envisioned when they began their campaign to save nature by turning it into natural capital. While they continue to express disappointment about the scale of their achievements, especially relative to their soaring ambitions, NatCappers have become skilled at what they do. Over time, their experiences have sketched out for them the silhouette of a deeply complex (i.e. social) process dependent on a knotted tangle of factors (i.e. politics) far in excess of the modes of technical reasoning they had brought with them and the constitutive calculations and valuation methods that had ostensibly defined their expertise at the outset.

And yet, at the same time that NatCappers have repeatedly gazed into this realization, I was equally struck by their persistent backing away from allowing themselves to really roll with its implications. Despite all of the insights NatCappers seem to have gained and the capabilities its personnel have painstakingly forged from those science-policy crucibles where they laboured (see Table 1 in Chapter 1)—all of it profoundly shaped by this realization—they displayed a puzzling aversion to letting themselves embrace it. Across voluminous reams of publications, years of public discussions, and hours and hours of interviews with me, NatCappers habitually shied away from explicitly acknowledging what they seem to already know.

Whether or not they like it and regardless of whether they choose to acknowledge it, the nature of what they are dealing with and what they are trying to accomplish is fundamentally, inescapably, and decisively political. Their work is, for better or for worse, and however they decide to come at the question, necessarily in some kind of relationship with the broader operations of deeply asymmetric power relations, with the wages of wider, interlocking, and increasingly desperate political struggles, and with a hegemonic status-quo built on a particular discursive, institutional, and neoliberalized, colonial-capitalist political-economic order whose grim ecological trajectories NatCappers are well-positioned to understand.[119] For whatever reasons, NatCap keeps refusing to stake a position—they profess a staunch "agnosticism" regarding how their tools are to be used—and in so doing, their position is in a way picked for them. I noticed that their most recent strategic plan, for instance, largely re-inscribes the same theory of change they had when they started insofar as it positions them to deepen their alignment *with* existing constellations of power rather than endeavouring to challenge or threaten them in any explicit way—a puzzling bid to "change everything" by keeping things as they are.

To be fair, I do not suggest that this positioning is made out of ignorance or without basis, as I discuss later. The NatCappers I got to know were, as a rule, quite exceptionally talented and often aware of these questions. Moreover, I acknowledge that I can never really know their work

[119] As I discuss later in this chapter, when I refer to questions of power, social struggle, and political economy, I am gesturing at a broader critical scholarship foregrounding the implications of this work, for example, in reproducing versus reconfiguring asymmetric power relations, in providing a moderating or mobilizing influence in wider social struggles (arguably requiring a much broader vision of how 'social change' actually works than the one NatCappers often seem ready to express), and in stabilizing versus destabilizing an existing discursive, organizational political-economic order with a clear and fairly scary trajectory.

or the contexts where they operate as they do. Despite having formed my own fairly ambivalent interpretations about their tenaciously anti-political politics (Ferguson 1997; Swyngedouw 2010), I recognize that NatCappers confront a predicament with no easy answers and many difficult dilemmas. In this way, they have entangled themselves in perennial movement tensions that have long bedeviled conservation—clashing visions of radicalism and reform, opposition and accommodation, resistance and consent. As I will discuss, while conspicuously silent on questions of power, social struggle, and political economy, NatCap's strategic sensibilities still strike me as considered in these regards in ways that are worth unpacking.[120]

As NatCap continues to wrestle with these questions, I suggest that their continuing ambivalences, myriad adaptations, and lingering political ambiguities—however modest—could signal potentially meaningful 'wiggle room' in ecosystem services: opportunities, perhaps, to pry its constitutive knowledges, practices, and political possibilities from those hegemonic social formations that are now enrolling it. Thus, in this chapter, I return to Gretchen Daily's invitation to reflect on NatCap's theory of change, her wondering aloud about whether "it still makes sense," and the ways that theory of change has itself changed over the past ten years.

I offer these observations not simply as curious anecdotes from an esoteric, evolving subculture—there are stakes here. These ideas have consequences (albeit not always the ones purported). Daily's question about whether their theory of change is tenable anymore speaks to the heart of the political identity of ecosystem services. Moreover, it draws into focus the question of whether a "radical" and "revolutionary" political programme, as NatCap's leaders sometimes notionally remarked, can in fact be recovered from it: whether it can be joined to, or is ultimately at cross-purposes with, ongoing and more avowedly and systemically transformational counter-hegemonic political struggles.

I provided in the previous chapter a sobering narrative. Despite the often-considerable skills painstakingly developed by practitioners of natural capital—NatCappers being foremost among them—the "revolutionary" change ecosystem services was supposed to deliver seems to have been foiled at (almost) every turn. This observation is now widely recognized among ecosystem services proponents. A recent strategy document developed in conjunction with NatCap, for instance, notes evidence showing that "new tools and scientific knowledge on ecosystem services are in reality not used for decision and action, and ultimately do not generate better outcomes" (Feger et al. 2017). One of NatCap's latest group publications articulating the task at hand acknowledges, "[t]he incorporation of natural capital and ecosystem service information into diverse decisions remains the exception, not the rule" (Guerry et al. 2015, 7352). Similar statements abound in the literature (e.g. Billé et al. 2012; Laurans et al. 2013; Natural Capital Project 2016; Ruckelshaus et al. 2013).

In this context, what the organized conservation movement may end up producing for itself is not only a stinging disappointment but deeply worrying political after-effects (or perhaps after-*affects*). At least in its prevailing forms, the political rationalities expressed through ecosystem services reflect but may also serve to reinforce the consolidation of an acquiescent, 'non-political' political orientation predicated on the benevolence of existing, elite-dominated structures and the forms of 'decision-making' contrived by them. In the absence of other impacts, the main legacy of the rise of ecosystem services might simply be an even more thoroughly disciplined

[120] I suppose an easy answer here is simply that they could not get away with talking like anti-capitalists all of a sudden.

conservation movement—one which has placed a *lot* of marbles in this strategy—that is conditioned to contorting itself (possibly irretrievably) into an institutionalized posture of subordination to power structures arguably at the very root of problems which that movement has tasked itself with alleviating.

NatCap brings to its work undeniable talents, an earnest dedication to halting, somehow, the carnage of ongoing socio-ecological devastations, and a degree of openness to alternative ways of thinking. Its network has at its disposal considerable technical proficiencies and organizational resources, elements of which could conceivably be mobilized toward political-ecological projects other than (or perhaps even counter to) the hegemonic, colonial-capitalist formations in which they are currently implicated.[121] Much of this dissertation, as discussed earlier, is the personal expression of my observations, experiences, and ambivalences as a critically-aligned scholar trying to make better sense of what these social worlds really amounted to by embedding in, dwelling among, and circulating through them. Central to this task, in turn, is foregrounding the somewhat analogous experiences of ecosystem services practitioners, including and especially those of NatCap, who are in parallel also trying to make sense of these social worlds and the nature of what it is that they are doing and making. The degree and character of the political wiggle room in this process—how willing they are to run with the sorts of clues their personnel have already been incorporating into their embodied expertise and intuitively engaging in their practices—signal politically consequential questions.

The mainstream conservation movement has made a momentous gamble on ecosystem services—its ideas, its tools, its frames, its prescriptions, its encompassing strategies, and its assumptions—all epitomized by NatCap and now being 'field-tested' by its personnel. Interpreted here as emblems for the state of the art in ecosystem services, how have NatCappers, as ambassadors for this idea, come to conceive of themselves within the broader political contexts necessarily implicating their work and giving it political expression? To what extent have they, as critical interpretations suggest, had their implicit threat to existing power relations effectively stared down, their political imaginations curtailed, and their solidarity with wider social struggles cut short by the kinds of discursive closure characterized throughout this dissertation?

The answer to this question casts NatCap in very different roles: as counter-insurgent, ideological functionaries of ruling elites, politically stabilizing a dangerously deranged hegemonic bloc and the institutional and political-economic orders that sustain it; as sympathetic but tragic protagonists caught in a pre-structured political arena already framed in terms hopelessly stacked against them as a residual by-product of compounding Faustian bargains made over decades of neoliberal market rule; or, maybe, as bricoleurs (Christiansen and Lounsbury 2013; Cleaver 2002; Cleaver and Koning 2015; Van Hecken, Bastiaensen, and Windey 2015)—tinkerers of something more subversive, something more difficult to align to the conditions demanded by status quo power structures, and something potentially more emancipatory and plausibly transformative. In my impressions with NatCappers, and more broadly among the practitioners of ecosystem services, the answer already involves combinations of all of these and many other roles.

[121] Of course, whether benevolently intended or not, as political ecologists have documented time and again, the wider circuits of power and knowledge in which groups like NatCap are embedded have often served to privilege, stabilize, and even extend the hegemonic visions and parochial interests of ruling elites, largely in the Global North. The reproduction of this pattern, as many critical scholars have expressed, seems readily apparent in the constitutive politics of ecosystem services.

My point, as I conclude later and as I suggest throughout this dissertation, is that these roles remain contingent questions (or at least not yet definitively closed ones for me). While circumscribed, the politics of ecosystem services are still politically provisional to a degree that is directly related to how much political wiggle room we (and especially its actual practitioners) can find in their continuing sense-making processes. As much as it has sometimes been difficult for me to keep suspending my disbelief, I cannot yet bring myself to foreclose the political possibilities of ecosystem services—to dismiss wholesale the communities of practitioners that have staked their talents, their hopes, and all manner of different survival efforts to its ramparts (however ramshackle they might be) as beyond redemption. I could be very wrong. But I pose the question all the same to try to obtain an answer. Thus, I present my experiences in this chapter as a means of exploring the constitution and meaning of these ambivalences—and my own—as I sought to interpret the amorphous political character of NatCap's work, the wiggle room that attends it, and whether and why it might matter.

CRISIS, FAILURE, SOLUTION: THE PROBLEM FRAME OF 1997

In this section, I introduce how NatCappers envisioned their theory of change prior to when there *was* a NatCap—before its ideas and assumptions had been subjected to the science-policy crucibles where its personnel would later find themselves. Here, I begin to compare NatCap's theory of change as initially set out 'on paper' with NatCap's experiences actually setting forth and running headlong into the churning politics of their many "decision contexts" where they were quickly forced 'off script'.

As pointed out in Chapter 1, the emergence of ecosystem services can be traced through multiple genealogies, converging around a series of identifiable events involving "the aligning of key actors at pivotal historical moments—moments often constituted by international meetings, the formation of key partnerships or alliances, or by the release of major reports" (Suarez & Corson 2013, 67). 1997 is one such moment: the year that marked the ostensible "turning point for this way of looking at things" (The Economist 2005). The specific tenor of the discussions that defined this moment provide a clear sense of the ideas circulating through these networks at the time—ideas which would later coalesce in NatCap's work. In 1997-1998, several figures who would later come to occupy leading positions in the scientific pantheon of natural capital emerged to "put ecosystem services on the map" (Fisher & Turner 2008, 1168; Ruhl & Salzman 2007). They published three seminal texts widely attributed with sparking the rise of ecosystem services in its current incarnation as a burgeoning field of research and practice. Those texts were: (a) the heavily cited[122] and now (in)famous US $33 trillion estimate of the total economic value of the world's ecosystems published by Robert Costanza and colleagues (Costanza et al. 1997); (b) a widely circulated case study touting New York City's Catskills watershed as a promising model (and ecosystem services "creation myth")[123] showing off the commercial potential of PES programs (Chichilnisky & Heal 1998); and (c) Gretchen Daily's landmark book, *Nature's Services: Societal Dependence on Natural Ecosystems*, an edited volume whose twenty-one chapters set out to provide the first "interdisciplinary, synthetic overview of the nature and value of ecosystem services" (Daily 1997, xviii).[124]

[122] Referenced over 18,000 times (and counting)

[123] Ruhl and Salzman (2007, 160) note that "[t]his example has since become somewhat of a creation myth, certainly the best-known and oft-repeated case for the merits and commercial promise of paying ecosystem services"

[124] Gomez-Baggethun et al. (2010) emphasize that 1997 was also the year that Costa Rica began its famed Payment for Ecosystem Services (PES) program, which would also come to serve as a widely-circulated case study.

Interviewees often noted how these ecosystem services luminaries had been coordinating their strategies in the years leading up to 1997. They highlighted, for instance, meetings of the Pew Scholars in Conservation and the Environment as an important site, among other venues, where these still relatively nascent epistemic networks could come together. The publisher of *Nature's Services*, for example, described these meetings at one of NatCap's annual symposia:

> We were very concerned with threats to biodiversity. There was a very clear disconnect between what scientists knew and what the general public understood. The frustration with this disconnect led to a group of Pew scholars who were meeting at a retreat—Gretchen [Daily] was one, and there may be many others of you who were here back at that meeting in 1995—to try to figure out what they could do to cross that bridge. Under the leadership of Gretchen, an effort was organized at one of those meetings to jumpstart the field of ecosystem services—something that almost nobody had ever heard of including many people in that group at the start of that meeting.

According to such narratives, these gatherings were of momentous significance to the rise of ecosystem services. Among other outcomes, they helped to frame and eventually to precipitate the decision to pursue Daily's (1997) edited volume and Costanza et al.'s (1997) economic appraisal of planetary ecosystems.[125] In the preface to *Nature's Services*, Daily narrates in similar terms these early efforts to shepherd ecosystem services out of obscurity and into popular (or at least expert) consciousness. She specifically remembers a discussion she hosted at one such meeting "after dinner one night under the Arizona desert sky" (Daily 1997, xv), which begins to illustrate the broad problem frame which would later come to be visibly articulated through NatCap's strategic approach and reflected in its aims and vision:

> A small group gathered informally to lament the total lack of public appreciation of societal dependence upon natural ecosystems. This ignorance […] represents a major hindrance to the formulation and implementation of policy designed to safeguard earth's life support systems. […] [L]ack of understanding of the character and value of natural ecosystems traces ultimately to a failure of the scientific community to generate, synthesize, and effectively convey the necessary information to the public. A collective strategy to address this problem emerged from the group's discussion, the first phase of which consisted of producing a rigorous, detailed synthesis of our current understanding of a suite of ecosystem services [i.e. Daily's book] and a preliminary assessment of their economic value [i.e. Costanza et al.'s enormous dollar figure].

Consider the three-part narrative encapsulated in this passage—the seeds of NatCap's theory of change: (1) a lack of ecological understanding is greatly exacerbating, if not a chief cause of, out-of-control environmental crises; (2) this lack of understanding is the direct result of the scientific community having failed to induce a sufficient appreciation for nature's importance; and (3) therefore, the scientific community must translate its knowledge into more palatable, inescapably compelling, and thus *economic* terms: those of ecosystem services. The aspirations Daily expresses here for ecosystem services have heavily framed NatCap's approach. Not only that, they announced the very justification for NatCap itself, articulating the impetus for its formal establishment as an organization.

[125] According to Costanza et al. (2017, 2), the meeting "included Jane Lubchenko, Stephen Carpenter, Paul Ehrlich, Gretchen Daily, Hal Mooney, Robert Costanza, and others"

Indeed, the theory of change diagram NatCappers currently use when introducing themselves to new audiences (see Figure 9) continues to largely echo this basic problem frame. A more recent synthesis paper produced by NatCap (Ruckelshaus et al. 2013) identifies what they refer to as different "pathways to impact" (Figure 20) and describes the channels by which ecosystem services science might influence decision-making and thereby yield improved outcomes for people and ecosystems. While the paper does disaggregate their theory of change in more detail, it too pivots around the familiar premises envisioned two decades earlier across each of these pathways: their escalation, as pictured, is solely dependent on providing information and counts on the rational benevolence of powerful decision-makers to win the day. Note, for instance, how the most active verbs discernible within the 'how' boxes in the diagram, where NatCap's knowledge practices translate into actions undertaken by political entities, involve "articulating" and "considering" information about biodiversity and ecosystem services. Notably absent from this diagram is any recognition of conflict: of the decisive role of power relations, political struggle, and political economy in shaping "outcomes for BES & human wellbeing," or of the need to engage, let alone potentially try to re-configure, the workings of any of those dynamics.

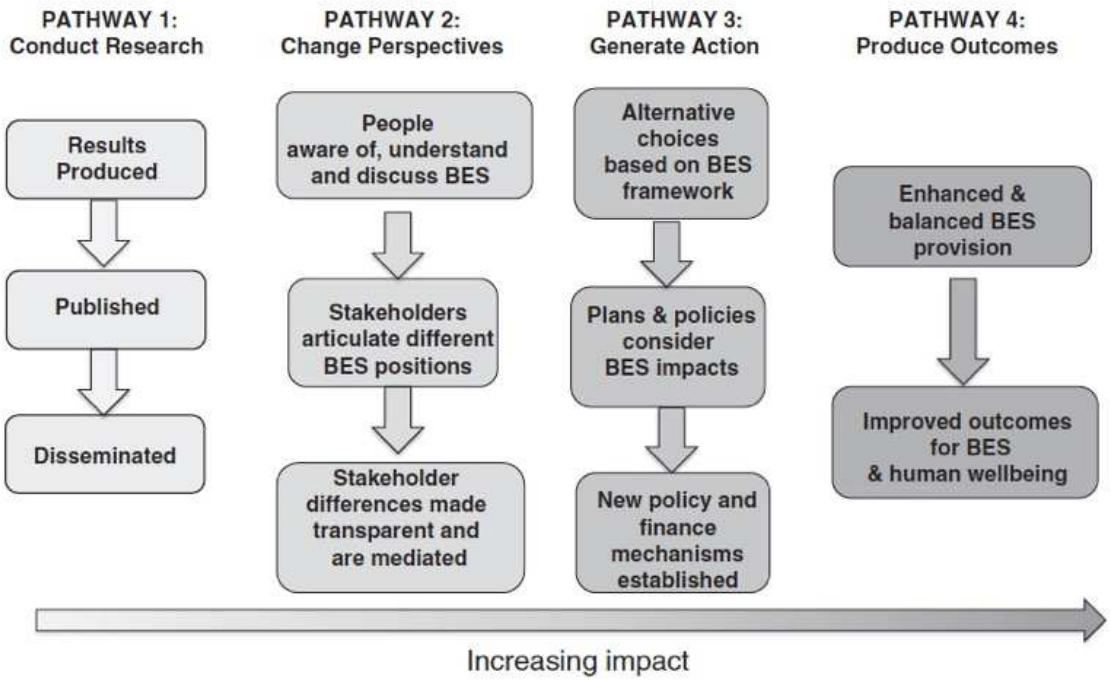

Figure 20 – "Pathways to Impact" diagram from Ruckelshaus et al. (2013), positing four classes of 'pathways' whereby knowledge about biodiversity and ecosystem services (BES) may yield changed outcomes: (1) producing and disseminating research (e.g. reports, scientific publications), (2) influencing the perspectives of "stakeholders and decision-makers" (e.g. changing attitudes and beliefs) (3) informing specific decisions (e.g. in budgeting, or continuation/termination of a given project or policy) and (4) contributing to the formation of new organizational arrangements (e.g. PES)

Many of the premises Daily expresses in the preface to *Nature's Services* continue to resonate in much of ecosystem services discourse and to crop up from time to time among NatCappers themselves: that a defining problem (if not *the* defining problem) of biodiversity conservation is the lack of the requisite information needed to formulate and implement good policy; that the production of rigorous science is the critical lynchpin in influencing "the public" and thereby catalyzing the kinds of social change needed to address this dire circumstance; that

for their ecological knowledge to be relevant to decision-makers, it must be made economic; that conservationists are confronting what is essentially a communications or information-deficit problem (rather than a definitively political one); that at the end of the day, an ecosystem services approach represents the best way forward for biodiversity conservation and for forestalling the ecological crises it is tasked with addressing; and so on.

Another recent group publication (Guerry et al. 2015, 7349), while continuing to pivot around this basic logic, inches closer toward addressing the political dimensions of its endeavour, suggesting the necessity of "changing institutions, policies, and incentives to reward long-term stewardship." It proposes several governance arrangements like PES, offset systems, certification schemes, environmental taxes, and (unfortunately unspecified) "laws and regulations." But again, it conspicuously stops short of addressing the deeply power-laden conflicts and struggles shaping whether even these fairly incremental proposals might be possible. The article does acknowledge the existence of politics: while "power" as a word does not appear, the word "politics" appears three times (two of those instances are in a quote from the UN Secretary General asserting that information about the costs of action and inaction will "summon" the necessary "political will"). Yet when listing the social science disciplines that must join together to advance the field of ecosystem services—they name behavioural economics, psychology, social psychology, resilience theory, sociology, and anthropology—they somehow leave out any fields explicitly focused on the study of politics (although they do note "other social sciences"). Thus, while I highlight various instances where elements of NatCap's theory of change seems to have taken on genuinely new and interesting forms, it has in other respects remained remarkably consistent.

Beyond their crystallization in NatCap's work, the sentiments coalesced in those early meetings and channeled by Daily trace the scaffolding of arguments I would later see deployed much more widely, and repeatedly, by conservation practitioners throughout my doctoral research. Whether in writing, at meetings, or during interviews, references to ecosystem services were almost invariably accompanied by the reiteration of some version of this basic narrative, the problem frame it articulates, and the implicit theory of change it begins to spell out. Despite the broad diversity of ways in which ecosystem services has been envisioned, many of the premises embedded in this simple three-point plot structure—i.e. crisis, failure, solution—manages to capture, surprisingly neatly, the basic rationale for ecosystem services that has underpinned (and been prolifically deployed throughout) twenty years of natural capital mainstreaming.

NatCap has struggled over the last ten years with how to assess the validity of these (and other) claims as they took their show on the road. As I will discuss, the reflexive learning process NatCap undertook since these early discussions articulated what ecosystem services was supposed to 'do', and the substantive adjustments NatCappers had to make along the way, provide clues about the sorts of wiggle room NatCappers may have available to them. In any case, this narrative and the proto-theory of change it outlines have remained influential among the varied communities of practitioners that came to congregate around ecosystem services (and, to varying degrees, among NatCappers themselves).

OVERDUE REFLEXIVITIES

NatCappers were generally upfront about acknowledging the limitations of their starting premises. Indeed, they would often proactively anticipate them in their own narrations, cautiously re-affirming some (usually with a generous helping of qualifications and modifications) while distancing themselves from others. As in any endeavour of this kind, their expectation was that

they would learn along the way as they got down to work, expanding their perspective, gaining experience, and refining their strategies. In this section, I begin to narrate in further detail NatCap's reflections on this process, highlighting the actively reflexive, self-examining, and occasionally ambivalent, even self-doubting impulse that accompanied it.

Many NatCappers would introduce their work to me by first describing the niche that NatCap was envisioned to fill in the years leading up to the group's formal establishment in 2006. Earlier efforts by ecosystem services proponents, they noted, had been primarily focused on making a 'splash'—that is, on broad-scale awareness-raising, on establishing ecosystem services as a recognized field of research, and on building up the networks needed to grow its nascent discourse coalition. Robert Costanza and colleagues, for example, looking back on the twenty years that had passed since the publication of their widely publicized US $33 trillion paper (Costanza et al. 1997), note with some satisfaction that it "got a huge amount of positive press coverage" and thus "had the effect the authors hoped for" (Costanza et al. 2017, 3).

NatCap, however, was envisioned as an organizational vehicle for taking the *metaphor* of natural capital—which, as one of NatCap's co-founders explained to me, had indeed become "the bandwagon frame"—and developing operational tools for *translating* it into concrete policies and practices (as discussed in Chapter 3). It was not enough, they reasoned, to come up with big numbers attached to dollar prefixes: these values had to be carefully translated, delivered to, and operationalized for actual decision-makers, all the while backed up with the requisite follow-through and technical support, and with carefully targeted forms of encouragement. Therefore, as this co-founder emphasized, the rationale for NatCap's formation arose not only from a "need for more information on the extent of ecosystem services, how they're changing, where they come from, where they flow to, who benefits and how much that's all worth." All of this information about the value of intact ecosystems also required strategic and closely engaged translations among decision-makers at "more management-related scales, state-wide type scales, as opposed to these big global headline numbers."

Thus, while Costanza et al.'s (1997) research had been garnering publicity, and while the Millennium Ecosystem Assessment (2005) had been building political consensus around the *idea* of ecosystem services among the mainstream conservation community,[126] NatCap's founders concluded that they had to take the vital next step of practically translating those values into appropriately-tailored forms that could be readily absorbed into existing governance processes. "The unique contribution of NatCap," this co-founder explained, was "to deliver with the operationalization."[127] Or, as another senior NatCapper put it, although the idea of ecosystem services had perhaps proven itself to be a "powerful, potentially revolutionary" idea, its underlying "science was either at too high a level, too global a level, or at tiny scales, and none of that's useable for decision-making. The science wasn't good enough for us to make something more action-oriented."

As I elaborate over the remainder of this chapter, this was only the first in a series of taken-for-granted notions which NatCap described having to dismantle and develop workarounds for—

[126] As one of NatCap's co-founder explained to me, "NatCap was started by three survivors of the Millennium Ecosystem Assessment. […] [W]e had been part of the Millennium Assessment and were fans of it but it was a big global assessment and no one is managing the whole planet."

[127] This co-founder emphasized their focus, in contrast to other approaches, on "getting InVEST (or InVEST-like things) used in a concrete way—not just raising awareness and generating commitment and discussion and things at the highest levels but just getting this information concretely incorporated into decisions."

in this case, the idea that simply broadcasting big splashy numbers with attention-grabbing dollar figures was at all sufficient, or even especially useful, in prompting the kinds of social change they believed to be necessary to address present ecological crises. Again, while NatCap's specific course-corrections are themselves noteworthy (and I will note them), I draw particular attention to the underlying discursive processes constitutive of those adjustments. Among other themes, they illustrate precisely the kinds of creative syncretism and institutional bricolage I introduced in previous chapters: the situational cobbling together of available practices, logics, and other institutional elements to deal with a novel situation (Christiansen and Lounsbury 2013; Cleaver 2002; Cleaver and Koning 2015; Van Hecken, Bastiaensen, and Windey 2015).

"Since then," the NatCap co-founder continued, "it's been papers and books and applications and partnerships and things, and it's now this really big organization with its own Executive Director." While this characterization appropriately describes the NatCap I encountered by the time I carried out my doctoral research, NatCappers often contrasted this somewhat sleeker image with their recollections of how meagre (and in hindsight, occasionally ill-advised) that project appeared at the beginning. One of NatCap's very first personnel, for instance, remembers the daunting task of having to build NatCap's modeling platform from the ground up. This early NatCapper pointed out that despite the massive enthusiasm that had emerged around ecosystem services, and despite the nearly ten years that had passed since its ostensible 'blast-off' moment in 1997, the underlying science and technical tools of ecosystem services remained rudimentary and very much non-operational at the time of NatCap's establishment in 2006. After a year of preliminary work, this NatCapper recalled reporting on an early version of what would later become InVEST at a major colloquium at Stanford, where, in short order, one of NatCap's more prominent scientific patrons "stood up after our presentations and said 'God. That is just pathetic'."

This sort of anecdote became a recurring theme in my conversations with NatCappers who were, for the most part, forthcoming about what they acknowledged to be fairly humble beginnings, naïve preconceptions, and frequently challenging lessons gained in fits and starts through an admittedly haphazard, trial-and-error learning process. Back at the colloquium, as the NatCapper continued to narrate, this senior scientist "went on from there, but he said this *twice*. […] That's all I can remember from this moment." He clarified that the frustration was not really directed at NatCappers themselves so much as at the sorry state of the field—how the "straw dog" they came up with reflected the best that could be done with what was available at that time. As this NatCapper explained, ecosystem services remained long in flash but short on substance throughout much of this period. Before anything else, they had to first get the numbers right. NatCap, alongside other ecosystem services researchers, would have their work cut out for them over the ensuing years as they endeavoured to rectify this through the step-by-step development of InVEST and related methods and technical resources. Dragging ecosystem services from its origins in big splashy dollar signs and turning it into something practical—an instrument of social change with a realistic shot at meaningfully influencing actual decisions (let alone "changing everything")—looked like it would be an uphill struggle. And, as NatCappers stressed, it certainly was.

Beyond the steep technical challenges NatCap had to climb, NatCappers also readily acknowledged that their early theory of change was likewise very unseasoned and rudimentary, requiring some years to hammer out. In an interview, one of NatCap's more senior personnel tried to characterize how she recalled the arc of their thinking in an interview:

> When I started, the leaders at NatCap had kind of an overly simplified fairy-tale vision of how we could integrate ecosystem service information into decisions. One of the things that we saw as a key barrier was people didn't know how changes in ecosystems would relate to changes to benefits people cared about—that if only they had the tools that allowed them to do analyses of different kinds of planning scenarios, to see how things they cared about would change in different management scenarios, then people would have this 'Aha!' moment and they would choose better plans.

She acknowledged how they had, at least at first, implicitly allowed themselves to operate with something resembling "the myth of the enlightened decision-maker," which provided a not especially useful nor realistic basis on which to formulate their approaches. "I think for a long time we all were operating under the assumption that we could make a tool like InVEST, lower that barrier, and then people would be able to easily use the tool and feed that into decision-making," she continued. "We've grown up a lot." I will later discuss in more detail these shifting understandings among NatCappers about how they believed their scientific knowledge and expertise actually fit into the "decision contexts" where they worked. While NatCappers may describe themselves as "growing up," what exactly they are maturing into remains a politically ambiguous question. At the very least, as this NatCapper recognized, "there's never any sitting-duck decision-makers saying, 'if only I had a little bit more scientific information I could really make a better decision'." Concluding this thought a little later, she conceded, "we now recognize that science in general is almost never central to any decision. It's like, many rings out from the sun."

Another theme reiterated to me many times by NatCappers involved a considered backing away from what they recognized to be an earlier and somewhat regrettable preoccupation with economic valuations. Indeed, I repeatedly observed this particular story being narrated repeatedly and quite conspicuously to a variety of audiences. As one of NatCap's co-founders acknowledged in an interview, this fixation on monetary values was, in retrospect, ill-advised. "NatCap thought at first that we'd need to express things in monetary terms for things to get taken up in politics and business," this NatCapper explained, adding later, "we have re-assessed that. If we had thought about it a while ago, we might have realized it sooner. […] I was pretty receptive when we went kind of as a group toward saying 'sometimes translation into dollars isn't all that important'." Another NatCap co-founder made similar remarks at a meeting in 2015:

> One of the biggest surprises over 10 years, to me, working with NatCap, is how seldom demonstration projects, users, actually go all the way to economic valuations. I had thought, naively, that 'wow, yes, we've got the dollars!' One of the big things I didn't expect about this whole arc of NatCap's experience is how seldom I see results that are expressed in dollars. And that to me reinforces this point […] that monetary valuation, which I thought was a holy grail, wasn't the holy grail I thought it was.

This shift away from monetary values represents another significant adjustment to their approach which I will revisit in a later section. NatCap's re-evaluations of the place (and political meaning) of economic valuations, and of their reliance on market-environmentalist discourse more generally, have constituted one of their more prominent and politically intriguing about-faces I noted gaining traction among the group. These questions of valuation are also among the slipperiest of NatCap's political evolutions, as they have visibly sought to disavow (or at least carefully distance themselves from) the market-inflected connotations of ecosystem services,

while simultaneously maintaining its usefulness in that register among the subset of its projects involving its corporate and more commercially-oriented partners.

Relatedly, NatCap has endeavoured to disabuse caricatures of ecosystem services as a sort of "block box where you hit 'go' and it gives you the ultimate answer," as one NatCapper remarked to me. Indeed, NatCap has been focused almost since its inception on very direct, in-the-weeds engagements with its partners and stakeholder communities—a commitment which has, in my impressions, deeply influenced how NatCap has learned to relate to the messy socio-ecological realities swirling around their "decision contexts." Over the years, these engagements have prompted a marked shift in emphasis away from getting the numbers right (although seeing to their technical calculations has remained vital). Rather, these engagements have instilled a palpable dedication to relationship-building, collaboration, and brokering as the recognized fulcrum of their craft. These aspects of NatCap's work, and of NatCappers' capabilities, have advanced considerably. Echoing comments from many of her colleagues, Mary Ruckelshaus, NatCap's managing director, stated this point succinctly at their 2014 symposium, explaining how mainstreaming depends on:

> a huge, critical element that, if it's missing, nothing takes off […] and that's the people element. The person-to-person, mentoring, teaching, learning from one another, and co-development approach. […] and everyone in this room embodies that. We all know that in order to get the social change we want to see means all of us working with people in the field, and on the water, to learn from one another.

I consider these comments to be a fairly straightforward portrayal of NatCap's approach. Its personnel have pivoted decisively away from a vision of crunching the numbers, pressing "go," and letting reason do the rest. Over the years, they have brought a clear enthusiasm for learning from, and together with, their many partners in their efforts gain a better handle on what they are facing, which has centrally defined the character of their learning process and what they seem to have taken away from it. The specificities of these engagements have moulded their expertise, strategies, and the lessons they took. Indeed, beyond broadening their specific approaches to stakeholder engagement, many of the other shifts in perspective I highlight in this chapter seem to have arisen in large part through these cumulative engagements and the personal relationships they cultivated while neck-deep in their collaborations. At the same time that NatCap has tried to shape decision-making in those places where they were deployed (with variable results), those contexts have served to reciprocally shape the thinking, forms of expertise, and subjectivities of NatCappers in return.

Thus, NatCap has grown progressively more open about acknowledging some of the baggage they had inadvertently smuggled into their own work. In turn, its personnel have begun to describe, often in great detail, concerted and increasingly systematic efforts to uncover various unexamined assumptions that had been lodged in the theory of change they inherited. As noted above, they explained coming to better appreciate the need for appropriately operational (and properly functioning) tools versus big splashy dollar values; the fraught and often subdued place of scientific knowledge and expertise in changing (and often not changing) messy governance processes; the specific concerns provoked by economic valuations, the polyvocality of valuation in general, and the politics that attend these operations; and the decisive importance of committed, earnest engagement and skill in building and brokering relationships. While I will elaborate on each of these specific shifts, again, they also serve to illustrate the character of how NatCappers have been making sense of those shifts, why they were necessary, and what they implied.

Along these lines, what was especially striking was the extent to which NatCap, by their own accounts—and indeed much of the wider, bustling world of ecosystem services where I had been circulating—had accepted (and persistently continued to take for granted) many of these premises for so long *largely on faith*. I noted multiple instances where NatCappers seemed to recognize what were, in hindsight, some rather astonishing leaps in logic. In these moments, this remarkably unguarded trust in the shot-in-the-dark reasoning that underpinned their longstanding theory of change was acknowledged as increasingly problematic if not somewhat alarming. Taylor Ricketts, another of NatCap's co-founders (now a professor at UVM and former science chief at WWF) expressed particularly strong concerns about this issue during one of NatCap's recent symposia, where he addressed the community as a whole:

> We have done a lot of work trying to make science matter to policy. We're all here, I would say every single one of us, because we are hoping our science has an impact on the world somehow. But we are just shockingly in the dark about whether that's true, whether it actually works, whether providing the kind of science we provide is changing anybody's minds, or changing decisions, or changing a policy. We have demonstration sites—again, NatCap is one of the groups right on the cutting edge of this—but as a general rule […] we don't really understand whether it's working […]. I think that's going to be increasingly a problem and increasingly almost shameful.

Despite NatCap's position at the "cutting edge" of ecosystem services, as Ricketts acknowledges, they were nevertheless continuing to swing vigorously at a piñata with only a vague and—even more worryingly—a potentially misguided sense of where that piñata was actually hanging. Over the last few years, this recognition of the need to re-evaluate their theory of change and assess how (or whether) their work was having meaningful effects has provoked intensive discussions among NatCap's personnel and leadership.[128]

These efforts included a series of workshops I attended in 2015-2016. At one such meeting in 2015, aptly titled "Show Me the Impact!", NatCappers discussed at length what they knew about their impacts and how they could try to assess them: in other words, whether they could find evidence of whether they were meaningfully changing the decisions they had been labouring to influence for a decade, whether that influence was actually manifesting in changed outcomes, and whether they were ultimately making any progress toward their avowed mission of using ecosystem services to "improve the wellbeing of people and ecosystems" (NatCap 2017b). On each score, NatCappers acknowledged major challenges. Indeed, they even triggered a vigorous debate at one point about whether such questions were simply beyond their expertise and if they ought to address them at all. As several NatCappers made clear, this kind of systematic analysis tracing the connections among what they were doing, why they were doing it, and with what kinds of effects, represented a significant departure from how they had ordinarily worked. For many NatCappers, the focus had been primarily on doing good science and on delivering that science to those that wanted it.

These were only several of many such moments I observed where NatCap's growing awareness of the social and political complexities haunting the fringes of their scientific work was coming into visible and uneasy contact with their countervailing (and again, somewhat puzzling)

[128] Similar anecdote from key informant at the 2015 theory of change workshop I attended: "NatCap was founded in 2006 under the premise that this kind of information about where and when nature matters most to people will improve decisions. That's our premise. That's our theory of change. And I strongly believe we need to test that."

compulsion to back away from the implications of this realization. Continually lurking at the margins (and often at the dead center) of NatCap's work are uncomfortable yet unavoidable questions about the nature of what they are trying to do and what they are up against. As I have suggested, making heads or tails of any of these questions, let alone having any chance of successfully 'solving' them, is profoundly contingent upon having an explicit and well-reasoned theory of power, social struggle, and political economy. As much as NatCap may wish to bracket off these questions, so much of their theory of change is ultimately predicated on them. They are inescapable. NatCap's work is utterly incomprehensible outside of these questions.

For its part, NatCap seems to have grown more willing to explore these questions about what it is that they are doing and what, precisely, they have gotten themselves into. Ricketts stressed this point. "I can't imagine a group better positioned to study its home habitat, studying the boundary we're sitting on," he remarked, admonishing NatCap to turn its considerable scientific talents inward on itself. How far up the chain of causation NatCappers are willing to go in this process, and to deviate from earlier, common sense assumptions, remains an open and, as I have suggested, also a politically consequential question. The shifting perspectives of NatCappers as they struggled to adapt to the disorienting conceptual overflow of their science-policy engagements—perched among the various "boundaries" that comprise their "home habitat"—reveal a theory of change with some discernible wiggle room. Across my interactions with them, NatCappers readily admitted that they had changed a lot, owning up to earlier, admittedly regrettable preconceptions as they grasped with increasing determination for (at least somewhat) better ones.

Beyond the specific course-corrections this process yielded, and aside from the reflexive, self-examining impulse that attended it, the glimpses I caught of this learning process were often rather lively and injected with humour. At times, they were also strange in disarming and discomfiting ways (often simultaneously). I still recall, for instance, what I will describe as the 'Callon-graphs' NatCap produced during a workshop they had arranged in 2016 to examine their theory of change, convening practitioners from all four of its organizational partners (Stanford, WWF, TNC, University of Minnesota). Beyond the tasks of general brainstorming and knowledge exchange, their aim was to see if they could develop practical tools for conducting what they called "context diagnostics." Among other activities, the facilitator, a social scientist from France, tried introducing NatCap to Michel Callon's notion of the "obligatory passage point"[129] in what turned out to be a fascinating exercise intended to translate Callon's "sociology of translation" (Callon 1986) into an operational tool NatCappers might be able to deploy in the field. After introducing the exercise, the facilitator divided the participants into breakout groups and proceeded to hand out worksheets which asked NatCappers, "how and for whom do I make ecosystem services valuation an 'obligatory passage point'?" The worksheets invited NatCappers to interpolate their project-level knowledge into the terms provided by Callon's theoretical framework. I got to

[129] According to Michel Callon, an obligatory passage point was where the respective interests of an array of different actors come to depend on and converge around the presence and functioning of some indispensable thing, actor, process, or circumstance, whose continued stability then becomes established as a necessary condition (or at least the best available means) for those actors to realize their interests, enabling the formation of a coherent actor-network (Callon 1986). The facilitator, for instance, framed the exercise by asking, "If there are obstacles in the way, they do their things now, and what you propose creates a useful detour that produces better results for themselves, then you have what can become an obligatory passage." After introducing the basic framework, the facilitator asked "Is ecosystem services an obligatory passage? Why do people adopt it rather than doing what they are doing now?"

observe NatCappers commit to paper their detailed knowledges of the interrelationships among the people, places, and ecosystems where they had been deployed according to Callon's famous theorization (see Figure 21).

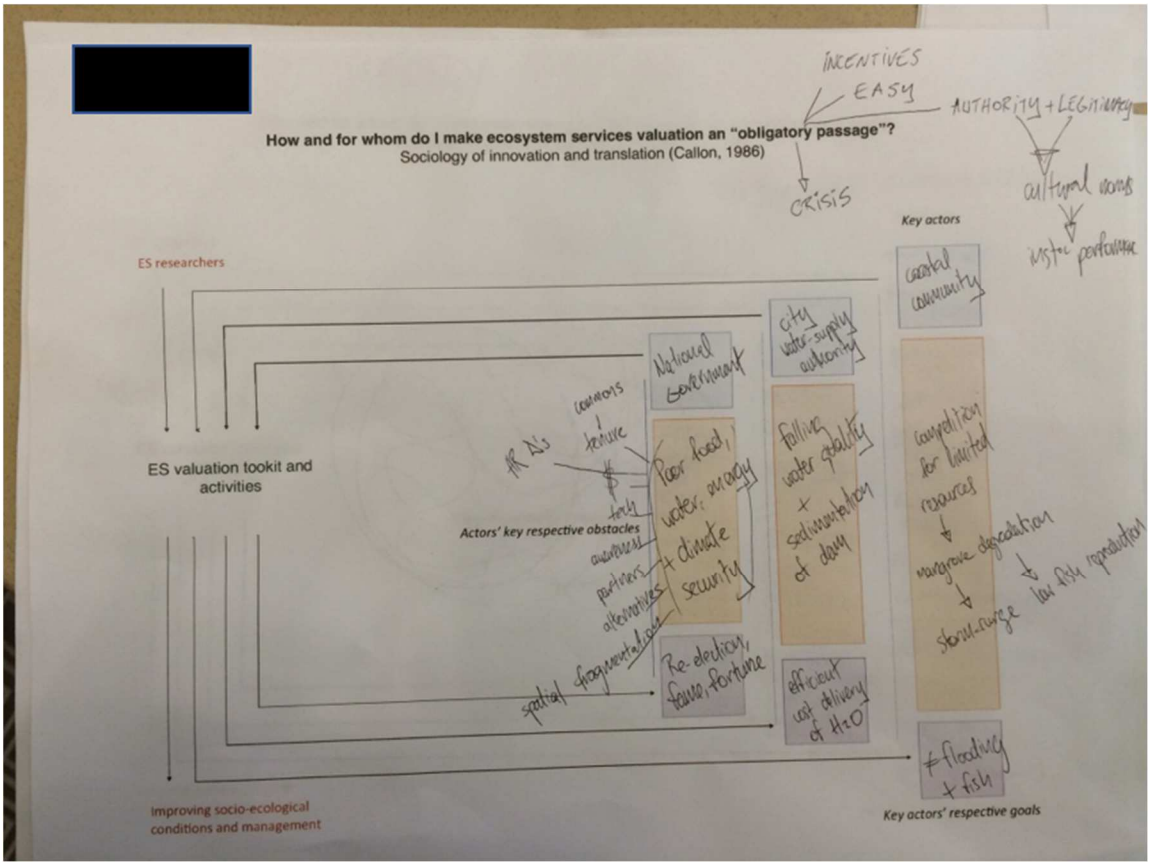

Figure 21 - One of the 'Callon-graphs' produced by NatCap during their social theory workshop.

In the Callon-gram worksheets, each of the columns on the right-hand side represents a key actor (named in the top box), the key challenges faced by that actor (the middle box), and the goal of that actor (bottom box). NatCappers were prompted to consider how each of these boxes could be 'routed' through ecosystem services valuations. The break-out discussions that arose from this exercise were spirited. One NatCapper, for example, noted how the Callon-graphs seemed designed to figure out how to compel groups to use ecosystem services valuation rather than illuminating how ecosystem services valuation could be used to advance the goals of their stakeholders. She wondered aloud—not the first time I saw the question raised, as noted in Chapter 2—whether her colleagues were thinking about ecosystem services as a means to an end or the end in and of itself. Somewhat bemused, another NatCapper concluded that Callon's "sociology of translation" would be "hard to toolify."

These comments provide another small glimpse into NatCap's self-examining impulse: their sense of curiosity, openness to running with new frameworks, their tinkering, and their continuing ambivalence about how to reconcile their conventionally scientific expertise with the decidedly 'non-scientific' dimensions of their practice. These reactions extended to a series of other exercises set up for them over the course of the day, from Elinor Ostrom (1990) to Bruno Latour (2006), each transformed into an operational ecosystem services tool, as their facilitators walked the participants through a sort of social theory tasting palette drawn from various streams

of STS, sociology of scientific knowledge, actor-network theory, ethics, and management sciences. While the substantive outputs from the workshop were themselves noteworthy, so was its very occurrence. This moment provides a brief but textured illustration of the experimentation NatCap has indulged as it has sought to understand itself—in this case, by reaching out to somewhat unanticipated realms of social theory.

I documented many other instances of this reflexive learning process coming into focus. I recall, for instance, accounts of a meeting with noted political ecologist Paul Robbins, whom WWF reportedly summoned to their offices for a talk. There, over the course of a day, they proceeded to discuss political-ecological critiques of their work—much of it revolving around the politics of ecosystem services—as they brought him from floor to floor to visit and take questions with their different departments. I recall the series of animated NatCap workshops, meetings, and symposia ("Show Me the Impact!" being one example) which regularly came to serve as public confessionals (formally, "knowledge exchanges" for swapping practical lessons) for the performance of various mea culpas (e.g. about how decision-making actually works), about-faces (e.g. about the primacy of economic valuations), tales of conversion (e.g. toward committed, flexible stakeholder engagement), and admonishments (e.g. Ricketts' warning about not taking their theory of change for granted). I recall NatCappers hinting that they regularly attended and even enjoyed Annual Meetings of the Association of American Geographers (AAG), which provided useful if somewhat provocative glimpses into what the critical scholarship was saying about them. I recall reviewing growing numbers of publications NatCappers had been producing not only reporting on their work but systematically reflecting on *themselves*, breaking down their approach in increasingly intricate detail, finding patterns, comparing similarities, contrasting differences, and trying to make sense of the unruly, overflowing social messiness that their starting assumptions had been buckling to contain. In one presentation during a symposium discussion in 2015, for instance, a more senior, policy-focused NatCapper began describing what their analytical soul-searching had started to uncover:

> How credible does your analysis actually need to be to influence the decision? How good does that data need to be? […] We did this quantitative analysis of 30 of our cases, and we found that the credibility [i.e. the expertly-defined technical quality of the analysis] of the information didn't really matter! It was the *legitimacy*: it had to be perceived as trustworthy—where all stakeholders had been consulted—to be seen as legitimate, rather than the best analysis of the best data.

NatCap has started to amass a considerable body of such findings conveying what appeared to be similar surprises. While reviewing the findings themselves was revealing, their efforts to interpret these findings are again just as informative. As I discuss later, I observed the NatCappers who had undertaken these studies having to carefully manage the reactions their analyses seemed to provoke among some of their peers. The implications of several findings regarding the actual uses of their science evidently constituted somewhat bitter pills to segments of their audience, which required diplomatic caveating from NatCappers. These glimpses into NatCap's introspections reflect the tip of an iceberg of much more extensive discussions among its network. And again, this process has to an extent opened them up to a generative second-guessing about whether and why they were (or were not) on the right track.

My point in depicting these science-policy confessions (whether shared in interviews or performed in public) is not to cast aspersions or to denigrate NatCap's performance. Rather, I seek to convey where they started and how they changed but also the character of their capacity (and

willingness) to re-evaluate who they are, what they were doing, and how and why they believe in it. The character of this discursive, affectively-laden, and intersubjective dynamic underlying that questioning is what comprises the wiggle room explored in this chapter, providing further glimpses into its political scope and fluidity.

I must admit to feeling, at times, disarmed by NatCap's growing self-awareness, their talents, and the relatable aspirations articulated by many of its personnel. Recall the sprawling, kaleidoscopic diversity of the epistemic and policy networks congregating around ecosystem services. The practitioners now crowding into (or being crowded into) its framework have come to include intergovernmental bureaucrats and entrepreneurs, state agency officials, activists of varying stripes, and of course, technical analysts, conservation biologists, and life scientists—a background that has conditioned many of the sensibilities of NatCap's personnel. In my circulations among the varied spaces where these practitioners convene to preach, practice, and otherwise position themselves in some relation with ecosystem services, I found no shortage of objectionable political visions being articulated through it. Indeed, I did in fact encounter avowedly neoliberal, doctrinaire proponents of ecosystem services who embodied (and indeed explicitly embraced) the most lamentably imperious, narrowly techno-scientific, and market-fundamentalist connotations that have been ascribed to the concept.

Yet, these were in my experience only a part (albeit a powerful one) of a wider, more cacophonous and contested policy discourse. Much more frequently, the visions refracted through the concepts, tools, and vocabularies of ecosystem services expressed significant ambivalences and even varying degrees of hostility toward the frameworks' more market-oriented and epistemologically narrow articulations (see Chapter 5 and 6). As Dempsey (2016, 17) points out, "while certainly not anti-capitalists by any stretch of the imagination," the interests and intentions of practitioners comprising outfits like NatCap cannot be conflated with the CEOs of extractive corporations or investment banks with whom they share the policy discourse. While I also the stress the salience of these (and other) distinctions cutting across the sprawling, kaleidoscopic discourse of ecosystem services, as I conclude later, in what ways and to what extent those distinctions come to actually matter remains opaque.

In their moments of reflexivity and self-questioning, I found myself growing encouraged by NatCap's prospects and imagining what might be possible if their vision for ecosystem services continued to slide further along something resembling the "chains of explanation" championed by first-wave political ecologists (as discussed in Blaikie and Brookfield 1987; reviewed in Robbins 2011; also Rocheleau 2008). At times, it seemed that NatCap's trajectory was leading its personnel, through experience, toward finally embracing the necessity of directly confronting the wider political-economic context and potentially more radical uses of their work. And yet, their conspicuous silences, puzzling diffidence, and habitual shying away from the scope of the critically-oriented questions I brought with me, as well as their apparent reluctance to widen the more narrowly-focused 'scientific' tunnel-vision insulating the technical aspects of their work from their political context, have continued to weigh on this enthusiasm.

As professional scientists, NatCappers often seemed somewhat saddled by the burdensome assumptions which they described accompanying their field. Yet, their abiding curiosity and nascent willingness to follow where their experiments led them—displayed in their relish in finding things out, trial testing, self-questioning, and intellectual growth, perhaps also attributable in part to their sensibilities as trained scientists—may also pose an important means of expanding problematically narrow visions of ecosystem services and the theory of change articulated in it.

While NatCappers may wish simply to trace with greater clarity how, in specific ways, people depend on nature to live—an aspiration that seems on its surface difficult to dispute—their persistent agnosticism with respect to what kinds of political forms this tracing is meant to assume has its own kind of politics. Whether acknowledged or not, their work *does* find political expression in ways NatCap is finding difficult to evade.

BY THE SEAT OF THEIR PANTS: LIVELY ENGAGEMENTS

This section examines the progressive elaboration of NatCap's engagement strategies in relation to its various partners, stakeholders, and its continually elusive quarry, The Decision Maker. Here, I contrast abstracted, top-down, and calculative characterizations of ecosystem services with the messy, lively, personally-engaged, and contextually-improvised nature of how NatCap personnel actually seemed to have approached their projects.

As discussed, NatCap marshalled its scientific talents around an initial theory of change aimed at providing the right information for decision-makers in order to help them make better, more informed choices. This theory of change was then promptly contradicted in various ways by the deep histories and swirling, refractory politics attendant to their many "decision contexts." The result was a challenging and often disorienting set of entanglements which prompted NatCappers to have to adapt, get creative, and learn to roll with the punches as they re-constituted their relationship to their work, their expertise, and their strategic approach. These entanglements produced encounters that regularly diverged from staid depictions of ecosystem services occasionally offered both by its proponents (i.e. as a kind of logical rectification of an unfortunate accounting error) and by its critics (i.e. as the enactment of a unitary calculative logic serving to facilitate the commodification of everything). As I will show, NatCap's personnel appear to fall rather short of either expectation.

In contrast to depictions of ecosystem services as a powerful, steamroller of a discourse—an unstoppable idea whose spread heralded a transformational, global-scale reduction of complex socio-ecological realities to a totalizing set of economic calculations—my experiences with NatCappers apprehended a much more fragile and politically complex reality. Over the years, NatCap has poured substantial organizational resources into developing its many partnerships, dozens of them by now, spread across a wide array of geographical and institutional settings around the world (see Table 1 in Chapter 1). Through these partnerships and collaborative projects—their "use cases"—NatCap has struggled to institute, and to learn what it means to institute, the tenets of natural capital. These engagements quickly forced NatCappers off-script. Recall the analyst deployed to Myanmar, for instance, whom I discussed in Chapter 2. Drawing on years of experiences working on such projects, he had come to conclude that InVEST—NatCap's painstakingly developed flagship analytical modeling platform—was often most useful when serving simply as a kind of "foot in the door": a tool for *starting* discussions rather than ending them. The Myanmar analyst, echoing similar comments from many of his colleagues, described having to hone a range of critical 'non-technical' trade skills while on the job, explaining, "this is what we do in this field. You put on your geek hat. And then, you put on your non-geek hat."[130]

[130] His description of learning non-scientist skills on the job: "I've observed how my colleagues talk to stakeholders. They often start by telling a story about their lives, or something they saw, and how certain activities impacted said something. So, I spoke about growing up [in a developing country] on the edge of a wetland. It was a beautiful area. A big road was constructed going through it, a two-lane highway, which brought pollution, and destroyed local

He emphasized how NatCap's project-level work seldom, if ever, followed a carefully constructed master plan, calculated in advance and meticulously executed step by step. Instead, out of necessity, their projects were more haphazard and situationally improvised through the practices of institutional bricolage characterized in the previous chapter, selecting from a (preferably wide) wardrobe of "hats" as appropriate to the occasion. Indeed, as I discussed in Chapter 2, their engagements often required switching rapidly between multiple hats in the same moment. "Many of our projects start out agnostic," he explained. "Then, the goals become clearer, seat of our pants, as we develop it." This keenness to conforming their work, and goals, to their partners' expressed desires in the projects I examined is worth noting. He suggested that "this is where the power of a tool like InVEST really shows up." In his experience, "most projects, you don't have to be paralyzed by a lack of information. They might not be so precise, but it provides a conversation. A way forward. Sort of…putting the cart before the horse. It's setting the stage for a conversation, and you can get clarity as you dive in further." Scholars have observed this sort of dynamic in a range of other contexts. Transposing this discussion to the politics of expertise operating through the World Bank, for instance, Michael Watts (2001, 291; see also Goldman 2005), notes in similar terms how "governments seek out authoritative advisors," plucked from epistemic communities, who themselves become "more important to the political solution than is the content of the ideas per se."

In this case, instantiating a recurrent theme in the literature, NatCap's local significance often seemed to depend not so much on their function as a delivery system for whatever number or tool or notion where the group claimed expertise, but in the embodied, living relationships and embedded interactions in which its personnel became implicated. The NatCapper described above—one of the group's more seasoned practitioners—serves as a characteristic illustration of institutional entrepreneurship (Hardy and Maguire 2008) and specifically the institutional bricoleur whose practices I have place at the center of my analysis (Christiansen and Lounsbury 2013; Cleaver and Koning 2015). The specific tools, calculations, valuations, and other representations, he emphasized, were simply instruments. To be of any consequence, they needed to be skillfully played through contextual improvisations—a kind of ecological-economic jazz artistry—according to the intuitions of their wielders. They were merely the starting points for opening up the really substantive work, which depended more on the character of the relationships they were able to build and on the sorts of coalitions they were able to convene around their projects. NatCap seems to have nurtured a cohort of such practitioners who have displayed this kind of embodied expertise.[131] This 'seat of their pants' approach has, out of necessity, become a mainstay of NatCap's project-level engagements and, in turn, its personnel have grown increasingly adept at going 'off-script' in various ways from their theory of change to be able to do their jobs.

These qualities are reflected in the increasingly elaborate stakeholder engagement techniques NatCappers have worked out over the years (see Figure 22). NatCappers have mapped out the steps and encompassing framework guiding their approach. When visually diagrammed, the more conventionally technical components of their work, namely, those directly involving

fishing livelihoods. This is why we care about roads in these ecosystems. It's about livelihoods and communities and so forth."

[131] i.e. that unique capacity for boundary-maneuvering, that facility for code-switching, that cross-institutional strategic acuity, held together by that earnest, disarming charisma that NatCap has relied on to perform its work.

InVEST, are overshadowed (and indeed interpenetrated) by the expanding place of the other, more markedly "social" elements.

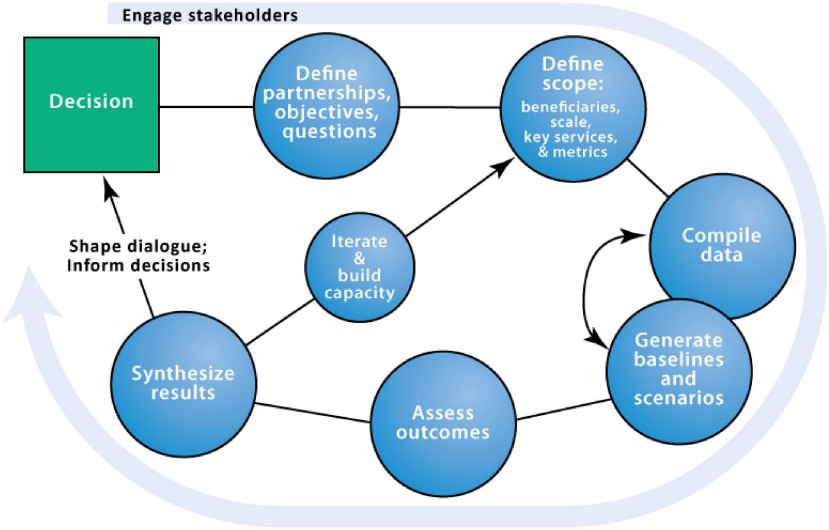

Figure 22 - NatCap's stakeholder engagement model, highlighting typical steps in an ecosystem services assessment. Much of the technical modeling work undertaken through InVEST is clustered around the two right-hand steps/bubbles. The diagram was often discussed as a means of highlighting how iterative stakeholder engagement suffuses each and every stage of their project level work (including in its more technical aspects).

The diagram depicts continuous, iterative engagement with project stakeholders and emphasizes (in their words) the "co-creation" and "co-production" of knowledge, conformed to the perspectives and expressed needs defined by their partners, whether they are considering a shifted infrastructure proposal (e.g. the placement of a road constructed in Myanmar), the design of a payment for ecosystem services scheme (e.g. the establishment of water funds in Colombia), or a national development plan (e.g. spatial planning in Sumatra or coastal management zoning in Belize), to name a few examples.

NatCap's stakeholder engagement has come to encompass a range of activities whose patterns NatCappers have over the years tried to break down in detail. NatCappers often made it clear that cracking this nut, that is, deciphering and coming to know The Decision Maker (and thereby gradually learning to 'un-know' this abstracted vision of The Decision Maker) was perceived as critically important. As one of NatCap's co-founders explained to me when reflecting on NatCap's widening expertise, "water flows downhill everywhere, but culture is way more idiosyncratic. I think that's something that NatCap has done well from the beginning—insisting on working with the community of interest and not dictating to it, figuring out with the community what are your levers, what can you change, what is important with you, and then linking up with impacts they care about."

As NatCappers (and especially its field operatives) would explain their projects and the various setbacks, occasional breakthroughs, frequent disorientations, and myriad lessons derived from these experiences, they would reveal traces of the kind of wiggle room examined by this

chapter. These narratives almost uniformly underscored how getting their work to actually 'work' (i.e. seeing outcomes beyond simply producing an assessment and calling it a day) could be enormously demanding. Their work involved continuous on-the-job learning; considerable commitments of time and energy (and often emotional investment); weathering the turbulences attendant to close, personal relationships with their partners and stakeholder communities; and, not only pushing their technical expertise to its limits but almost necessarily needing to go beyond those limits and then re-interpreting where those limits even were (i.e. having to become experts in community engagement in *addition* to the technical specificities of ecological-economic modeling and analysis). As, one of NatCap's lead scientists commented, "we can't be the academics who parachute in and say 'hey, we did some cool modeling and wrote this cool report and it will be really useful to you all'."

Their stories would often take a consistent narrative structure depicting a scientist or technical specialist starting their job with 'standard-issue' preconceptions of how ecosystem services valuations were supposed to influence decision-making, having those assumptions rapidly dismantled, and then progressively wisening to how their work actually worked, how it frequently did not work, and how it could work better. I heard variations of this story repeated in relation to many different locales, from Cambodia and Hawaii to China, Colombia, Mozambique, the Bahamas, and many others (see Table 1 in Chapter 1 for an enumeration of their projects), each easily as rich in their own ways as the set of experiences which I narrated in Chapter 2 from Myanmar. While expressing radically diverse contexts, the common denominator across these places, and the projects aiming to intervene in them, were the NatCappers themselves, flitting constantly from one site to the next and progressively distilling focused lessons and recurring themes for making sense of what they had been through.

In one characteristic collaboration involving marine spatial planning on the west coast of Vancouver Island—NatCap's first project involving its newly developed marine InVEST models—NatCappers described years of messy engagements among diverse constituencies related through long, freighted histories and a complex socio-ecological context. As one reporter notes of the project, the "possibilities for conflict here could keep an environmental reporter going for months" (Voosen 2013). In the project, NatCappers explain, "multiple, often competing interest groups came together to envision the future of their coast and how myriad human uses could coexist without undermining each other or the marine ecosystem on which they depend" (Bernhardt et al. 2012, 1). Their partner (or "local champion") was the West Coast Aquatic Management Board (WCA), a consensus-based public-private partnership established in 2001 with representatives from government, industry, and First Nations, which had been tasked with convening these constituencies around a marine spatial planning process. For this, they sought out NatCap's analytical expertise. The participants in this process (listed in Figure 1 in Chapter 3) ranged widely, encompassing nine First Nations, commercial fisheries, aquaculture, and tourism concerns, local municipalities, various government agencies, and others, requiring continuous "community meetings, car rides, and ferry trips," as one NatCapper recalled. In turn, each of these groups brought with them distinct claims on and about the area whose ecosystem services NatCap was charged with helping to map, assess, value, and frame for use in deliberative marine spatial planning.

As in other InVEST projects, NatCap was charged with collaboratively developing, based on stakeholder input, different sets of management scenarios for the area's various localities, as well as for the region, depicting different possible futures for the area. Working with WCA, which

led much of the legwork of convening these constituencies, NatCap gathered what biophysical data they could (which was broadly dispersed and involved a year of interviewing), and, through a range of participatory methods, sought out the various uses, meanings, and visions for the area's ecosystems across the different groups involved in the process. These visions, and the scenarios in which they were gradually reflected, incorporated a broad range of priorities, and different kinds of priorities, from clamming, shellfish harvesting, and kayaking opportunities to forestry practices, water quality, aquaculture, the placement of houseboats, renewable energy, and whale-watching.

While several groups, and especially some of the First Nations representatives whose participation was a central part of the process, were apprehensive about the very notion of ecosystem services (whose conceptual framework and vocabulary, one NatCapper said, she would "not to touch with a ten-foot pole" in this context), NatCappers improvised myriad adaptations to their approach and learned (and un-learned as appropriate) what it meant to work across these and other groups and to try to broker agreements among them. One NatCapper described how the team deployed to that project had to embroil themselves in an intensive and wide-ranging set of deliberations engaging each of these groups about "visioning and values, talking to stakeholders about 'what do you value about being on the west coast of Vancouver Island? What is your vision? What should your place look like in 20 years?'" Over the years, she continued, WCA and their team "spent a lot of time learning what matters to their community, and figuring out how to achieve shared outcomes together." After downplaying what she referred to as the "traditional corner where the 'sausage-making' happens in terms of crunching the models, compiling data, generating baselines and scenarios, assessing outcomes," she stressed how:

> there's stakeholder engagements all throughout this process. There's important work in defining partnerships, objectives, and questions. Defining who are your beneficiaries, the scale, the key services that matter, and then, once you've got some model outputs, you've got to synthesize results in ways that resonate with people; you've also got to iterate, and do this over and over again. […] Ultimately, this is the way we're going to influence decisions: by recognizing that science is only one very small piece of this whole process.

She concluded later, "we need to be relevant with this kind of information, and we *have* to co-produce information—we can't just parachute in." Another NatCapper who had spent years working on that project reiterated each of these themes, emphasizing "this is only ever effective when the scientists work back and forth with the stakeholders." When asked how they negotiated the concerns of so many divergent groups, the NatCapper remarked, "there's like a 400-pronged approach." He confessed, "we learned a ton and we failed a ton. It was a lot of back-and-forth with West Coast Aquatic, bringing products in response to their needs, and we were told what was really total rubbish, and going back and re-creating it." The process, over four years, gradually came to "define common goals that apply across the region," reflecting values like "vibrant communities and culture, including securing food, social, and ceremonial marine harvesting areas for First Nations; economic development, including promoting renewable energy sources; and maintaining safe and efficient waterways" (McKenzie et al. 2014, 327). The project, one of dozens more, required considerable engagement across each step, driven by logics of deliberation and negotiation more than calculative optimization.

As their InVEST summary report for the project notes, "[m]apping scenarios (particularly at local scales) from individuals' and communities' perspectives can be challenging because planning becomes personal. An individual's livelihood as well as that of his or her family and neighbors is at stake. This is very different from developing scenarios with a government official

who may be more removed from the issues at hand" (Bernhardt et al. 2012, 8). This project is illustrative of NatCap's on-the-ground work but also the kinds of social processes where it has subjected its scientists: closely embedded with their "local champion," demanding of a diverse, translational skillset, and often very personal. As I discuss later, it yielded outcomes that seemed to NatCap to diverge from, and to call into question, key elements of their theory of change. Interestingly, it also required backing away from what had been core concepts and vocabulary that had defined their approach at the outset. For instance, as one NatCapper explained to a reporter in 2015 with respect to this project, "[w]hen we're talking about what the future will look like, most of the estimates that interest decision-makers have nothing to do with dollar values" (Goldfarb 2015). Indeed, as the reporter notes, although "ecosystem services have become synonymous with money in the popular imagination," it appeared, much to NatCap's surprise, that when it came down to it many of their partners "usually aren't interested in currency" after all (Ibid).[132]

During an interview, another of NatCap's more seasoned analysts echoed many of these lessons while trying to summarize his reflections, explaining how oftentimes NatCap "won't have a fleshed-out plan," quickly adding, "and that's okay! It's kind of risky, but time and time again the project evolves. It's kind of unnerving, but it's *okay*. Iteration is key. That itself is part of the process of making these projects stick." He added later that these interactions, "going back and forth" with stakeholders, was decisive to shaping whether their impacts would endure and what they would leave behind, "regardless of the direction the project takes."

While the implicit politics articulated through ecosystem services do remain vulnerable to critique, it is worth mentioning that in a context where "a majority of [ecosystem service] analyses lack *any* form of stakeholder involvement," NatCap's apparent dedication to bottom-up, deliberative participation signals a marked contrast with much more prevalent and much more top-down approaches to conducting such assessments (Tadaki, Allen, and Sinner 2015, 170, emphasis added). As much as their projects are perhaps not advancing a radical, emancipatory politics or toppling entrenched power structures, in this case at least, they seem to be playing a rather benign role in the lives of those they were working with—a role that would likely be rather uninteresting, even disappointing, from the perspective of both proponents and critics of ecosystem services expecting table-flipping impacts. It is also worth recognizing that these sorts of practices and approaches are, of course, not especially novel. Indeed, they reflect classic themes arising from much longer-standing development discourses and substantial literatures surrounding community-based conservation and natural resource management which stretch back decades (Adams 2004). One NatCapper who was working on several Latin American projects pointed out these resemblances in an interview, noting, for instance, how "these quote-un-quote 'payment for ecosystem services' programs? Oftentimes just community-based conservation programs. They're not that much different." In many respects, NatCap's experiences progressively elaborating their stakeholder engagement approaches follows a long tradition among practitioners working in the international development community wrestling with and making sense of their own analogously messy interventions. It was not lost on this NatCapper that such realizations among the ecosystem services community had a certain quality of re-inventing the wheel.

In any case, the precision of NatCap's calculations have been eclipsed as its personnel found their science-policy sea-legs by the apparent decisiveness of other, distinctly social and

[132] I will return to discuss NatCap's evolving relationship to economic valuations in a following section.

political dynamics among themselves, their partners, and project stakeholders.[133] "I think about the 'social capital' of natural capital, if you will," one NatCapper quipped, "because so much of this is predicated on personal relationships. You have to develop that trust, and the bonds—that goes so far. […] That's the secret sauce, I feel." Another colleague, when I inquired about the essence of their approach, tried to explain, "there is no one answer. There are these multiple things. The way I behave. The way you show respect. The way you offer opinions. The way you ask questions. The way you show support. The way you dress. The way you are patient and wait. And the way you are in the right place, at the right time, at the right moment, with the right person." And, as another of NatCap's particularly well-respected field operatives explained, "tools and models and analysis don't make decisions. Those things I almost think about as a method, a boundary object, for bringing stakeholders to the table, and for stakeholders and scientists to talk." This lively, seat-of-their-pants, and nearly gregarious character of NatCap's approach—their willingness to shape (and re-shape) their work according to the goals, desires, and perspectives of their partners and project stakeholders—has come to define much of what they do and how they have changed. And it was prevalent throughout my time with them.

This closely embedded, actively engaged, and somewhat animated quality of their work is perhaps most vividly captured in their efforts to "game-ify" ecosystem services (Verutes and Rosenthal 2014). As part of its engagement efforts, NatCap now frequently deploys an interactive, in-person game: a group simulation they developed, titled "*Tradeoff!*", where NatCappers engage various audiences, workshop participants, or project partners (depending on the context) in an imagined land-use planning exercise, which, over the course of the game, comes to be re-framed as an ecosystem services decision-making problem. The game was designed around "clear objectives, sensory stimuli (especially visual and auditory), challenges, mystery, control, and both fantasy and authenticity into different game models" (Ibid, 2). The exercise was designed by NatCappers as a means of introducing themselves and their approach using a "serious game to teach natural capital and valuation concepts" but in a way that would also be "fun and easy to understand" (Ibid).

To play *Tradeoff*! the audience is divided up into different groups, which are each provided with the same set of maps (derived from actual data of a given landscape), showing the magnitude of returns on different sets of "benefits," including conventional economic metrics (like agricultural production, ranching, timber harvest, fisheries catches, etc.) but later also measures of various ecosystem services (such as recreation and tourism, habitat conservation, coastal vulnerability, carbon storage, water quality, etc.). The groups are prompted to make different kinds of decisions—for instance, where to place a hotel, where they should gazette a protected area, or where they might want to lease the land for ranching or agriculture. Based on what the maps indicate about gains and losses under different development choices, groups compete to best optimize the overall benefits arising from that landscape.

The game unfolds over two stages. First, groups try to optimize their landscapes through their development planning choices according to conventional economic metrics, which led groups

[133] Their stories seem to construct a consistent image: NatCappers, laptops at the ready, huddled around maps with groups of stakeholders; collecting information about each group thought about "what mattered" in the landscape; trying to reflect those concerns in those maps generated through InVEST (as well as in other visual representations); developing scenarios that depict desirable and, for contrast, undesirable futures as envisioned by these groups; facilitating discussions and deliberations around those futures; and repeating this process over and over and over again, all the while talking, listening, and learning.

to choose more 'status-quo' development choices. The groups' respective results are then tallied and displayed, a winner is announced, and a reflective discussion takes place. In the second stage, a broader mix of measures is then revealed, which now includes the returns from various ecosystem services—and in turn, different sets of trade-offs (or, *Tradeoffs!*). In turn, accounting for this wider range of measures, groups start to make different kinds of development choices to optimize their score, arriving at the culminating lesson of the whole exercise: the deliberative selection, facilitated through InVEST maps, of more rational options as informed by better knowledge of ecosystem services values.

Figure 23 - Participants playing "Tradeoff!", the in-person interactive game developed by NatCap. The left and top-right photographs show participants playing "Tradeoff! Agriculture Edition" at a side event hosted by NatCap during the 2016 World Conservation Congress in Honolulu (Sep. 2016). The bottom right photograph shows participants at the 2014 Natural Capital Symposium playing the same simulation.

Thus, over the course of about an hour, *Tradeoff!* prompts its participants to perform a NatCap project in miniature, and to discover for themselves the underlying theory of change embedded in ecosystem services—a vision to which they are invited to enlist. Since 2011, when it was developed, NatCappers have deployed this game around the world and have reportedly gotten over a thousand people to play it. They now have a selection of themed modules including "*Best Coast Belize*" (examining marine spatial planning and coastal zone management), *"Ranchland: Farm or Fallow"* (examining agricultural landscapes and terrestrial and freshwater services), "*Northland: Arctic Choices*" (examining spatial development planning in the arctic), and "*Roads to a Resilient Future*" (examining infrastructure planning and development) (Natural Capital Project 2017b).

The game again illustrates the creativity and literal playfulness which NatCappers have brought to their engagements over the years (and gotten plenty of mileage out of) as they have sought to educate but also charm and hopefully enroll the diverse constituencies they have sought to influence. It also underscores just how closely embroiled NatCappers need to get to operate in

their engagements. As much as NatCappers have equipped themselves with a considerable arsenal of PowerPoint presentations and an increasingly sophisticated 18-model (and counting) InVEST software platform, they have come to rely heavily on ways of relating to their partners and project stakeholders that are thickly complex (rather than linear), participatory (rather than imposed), deliberative (rather than calculative), and intensively interactive (rather than abstracted). *Tradeoff!* illustrates one of many creative engagement techniques they regularly deploy. Again, this seat-of-their-pants quality of NatCap's engagements evinces a certain willingness to be taken along by their partners and stakeholders and to tailor NatCap's approach to the purposes, the concerns, and sense of what mattered to their partners—as opposed to preconceptions of what 'The Decision Maker' demands, such as big numbers attached to dollar signs. Such moments signal openness: the possibility of wiggle room whose tendencies this chapter will continue to ponder.

STEP TWO, DRAW THE DAMN OWL: THE SCIENCE-POLICY INTERFACE

At a meeting in 2015, one of NatCap's more policy-focused analysts projected a diagram for his colleagues depicting a linear series of boxes and arrows which went from "Science," to "Knowledge," to "Policy Decision," to "Ecosystem." The diagram was a distillation of NatCap's theory of change, whose steps he proceeded to narrate. "So, we've got science that produces knowledge, which is used in policy decisions, which affect ecosystems," he began. "This is a really simple, ordinary, and very wrong model for how science turns into policy." His comments affirmed those of other NatCappers whom I observed leading increasingly systematic efforts to re-consider elements of NatCap's theory of change. In this section, I elaborate on several ways that NatCappers expanded their conceptions of the so-called 'science-policy interface' and, more broadly, how they thought about their knowledge in relation to the governance processes they were seeking to influence (and indeed, "revolutionize") through that knowledge.

As discussed, NatCappers have expressed an acceptance of the practical limitations of their analytical work, what their models can and cannot do, and indeed, what they recognize as a perhaps ill-advised overemphasis on getting the numbers right. As one NatCapper mused, "[t]hinking about the models we use, InVEST, and other models from the Natural Capital Project, you must check your ego and be really open and honest and transparent about what the models can do and what their limitations are. […] I mean, be real. The tools can give you insights but our models are imperfect as a representation of the real world." Even where their analytical work *had* grown more sophisticated and robust, as one senior NatCapper remarked, "a bunch of academics writing papers on ecosystem services and natural capital doesn't get us anywhere."

This sentiment was commonly repeated by NatCappers. At a meeting in 2016, another NatCapper introduced the community to the notion of the "Valley of Death," referring to the translational divide where "science" fails to make its way into "policy." Showing a diagram of the science-policy interface (the interstitial space where NatCap was understood to operate), he tried to pinpoint where exactly their work breaks down (Figure 24), explaining, "lots of science happened, and gets published, and quietly dies. Right there. Somewhere between the knowledge getting generated and the knowledge getting used." The diagram seemed to visualize the defining challenge of NatCap's work. And it seemed to contain a puzzle that many ecosystem services practitioners continue to find intractable and perplexing. As one audience member remarked with some exasperation during a 2014 NatCap meeting, "there are things that keep us from taking that information about biting the hand that feeds us [i.e. nature] and putting it in the mainstream. And I don't understand what that gap is. Is it a lack of information? Is it a lack of tools? Is it a lack of education?"

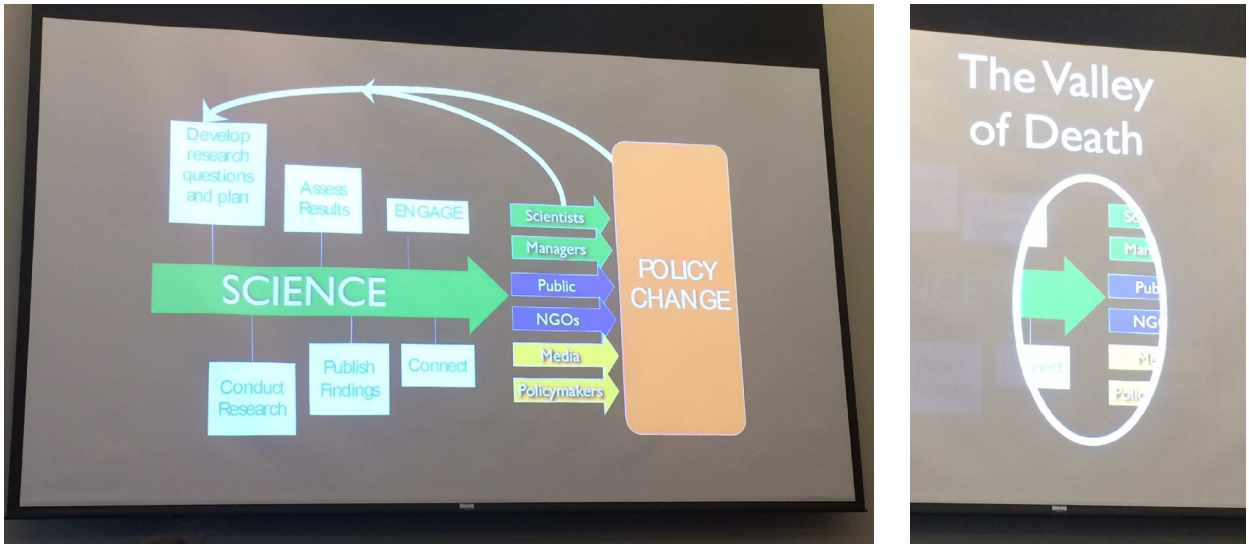

Figure 24 - A presentation slide projected by a NatCapper at the 2016 Symposium showing a diagram of the science-policy interface, and where the so-called "Valley of Death" occurs, dividing the production of scientific knowledge and the use of scientific knowledge

As noted, findings, as well as stories, abound of ecosystem service analyses not doing very much in the way of changing decisions. Indeed, at the keynote speech during NatCap's own 2014 symposium, Steve McCormick, the former CEO of TNC and former President of the Gordon and Betty Moore Foundation, laid out one such story. He described a meeting between executives of one of the largest auditing firms and one of the largest consumer product companies. He described how the auditor, a "believer" in natural capital accounting, was "sobered by the fact that it turns out that this [consumer product] company had information, particularly on their supply chain issues, on externalities in natural capital and ecosystem services. And it had *no* change whatsoever on their decision-maker." By now, such stories have punctured many holes, and many different kinds of holes, in the prevailing theory of change articulated through ecosystem services. As one recent guidance document produced in conjunction with NatCap acknowledges, "[v]aluing nature initiatives often assume that recognising the social and economic values of nature to people will lead to changes in policy and decision-making which, in turn, will lead to increased investments in conservation. But such logic is often over-simplistic and unrealistic" (Gallagher et al. 2017, 4)

NatCappers have invested growing efforts into trying to re-examine and wrestle with this reasoning. One of the clearest reflections of these efforts are the growing body of 'process'-oriented publications being produced by NatCap, which pick apart, often in great detail, what they have done in their projects, how they did it (or how *to* do it), and with what sorts of effects (Bremer et al. 2016; Feger et al. 2017; Gallagher et al. 2017; A. D. Guerry et al. 2015; Mckenzie et al. 2014; S. Posner et al. 2016; S. Posner, Getz, and Ricketts 2016; S. M. Posner, McKenzie, and Ricketts 2016; Rosenthal et al. 2015; Ruckelshaus et al. 2013; Verutes et al. 2017; Vogl et al. 2017). Augmenting these articles are a sizeable array of other papers, reports, guides, and other grey

literature discussing similar issues (see NatCap's online resource library).[134] Taken together, these texts provide a fairly candid and revealing account of what NatCap does, how they conceive of their approach, and the lessons they seem to have taken away from these experiences. (Note: because I intertwine comments made by NatCappers in interviews in this section, I deliberately refrain from citing specific NatCap publications in this part of my discussion in order to obscure the identities of quotations drawn from interviews.)

Here, I will focus on efforts to analyze whether and in what ways NatCap's "ecosystem service knowledge" (ESK) was actually being used in those places where they had been trying to have an impact. NatCap's explorations of these questions were among the closest I saw them come to explicitly confronting the wider operations of power, the dynamics of social struggle, and the questions of political economy concealed in their work—focal themes in this dissertation which were consistently and carefully sidestepped by NatCappers. In this context, I spent extended time with one of NatCap's more senior, policy-focused personnel (an environmental economist and key informant in my research) who I learned was one of the more enthusiastic advocates within the group for carrying out these self-examining analyses. Across multiple events, and through her interactions in various meetings, presentations, and other contexts, I was able to observe how these topics—and NatCap's findings about them—were being interpreted among her wider community of practice.

I will specifically elaborate on distinctions NatCappers drew between what they called "conceptual use," "strategic use," and "instrumental use," referring to different ways in which their stakeholders utilized the "ESK" provided by NatCap during their engagements.[135] While the distinctions themselves are easy enough define (see footnote), the ways in which NatCappers talked about them in group discussions are worth unpacking. Take "instrumental use," for instance, which refers to knowledge that "flows from scientists to rational decision-makers who make observable decisions based on technical grounds." This "use" of ESK corresponds straightforwardly to NatCap's starting theory of change: provide better information to The Decision Maker and he/she/it will make a different and better-informed choice. At a 2015 meeting, my key informant explained this 'use' in a very particular way, commenting:

> It is a very commonly held belief not just in ecosystem services but in all kinds of other types of research, that knowledge will flow in a linear fashion from scientists, like a baton in a race, to the decision-makers, and they're going to clunk it into place. It's come up a lot already today. Cost-benefit analysis. Systems of indicators. Establishing payment schemes. There's really clear, agreed goals and a clear policy mechanism. You know what science you need and you hand it off.

She delivered this preamble to "instrumental use" again at another meeting in 2016, where she explained, "this is very commonly what people are expecting. Where this kind of information is going to flow like some kind of amazing Jamaican handoff in the Olympics relay where you're handing off that report and then they take it and they run."

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[134] https://www.naturalcapitalproject.org/library/

[135] In their phrasing, Instrumental Use refers to knowledge that "flows from scientists to rational decision makers who make observable decisions on technical grounds." Conceptual Use refers to knowledge that "broadens and deepens understanding, shapes thinking, and enables people to develop new beliefs and values." Strategic Use refers to knowledge used "to support and promote a specific intervention or policy option, or justify previously held beliefs and values."

She then gradually talked the audience down from this notional logic, explaining, "it doesn't work like that. Our evidence, when we look, shows it's rare to find that. Very rare."[136] Indeed, somewhat conveying the reflexive self-awareness I have been emphasizing, one of NatCap's papers explicitly acknowledges that "there is extensive theoretical critique of the 'technical-rational' model on which instrumental use is based and empirical evidence that knowledge is rarely used instrumentally." It proceeds to speculate how this apparent "focus on instrumental use in the ES literature may owe to the field's early intellectual foundations in ecology and economics, with weaker links to political science." Indeed, this tendency seems to be reflected in their curious omission of fields explicitly focused on the study of politics in their list of social sciences needed by the ecosystem services research agenda (Guerry et al. 2015).

With these expectations of "instrumental use" laid to rest, this NatCapper then moved onto the other two uses of their ESK. She arrived at "conceptual use," which refers to knowledge that "broadens and deepens understanding, shapes thinking, and enables people to develop new beliefs and values." They found that this use of ESK was much more pervasive across their projects. This key informant (as well as other NatCappers) again leveraged these findings regarding "conceptual use" to pointedly undermine the widespread preoccupation with "instrumental use" among her peers—in other words, disabusing the focus on getting the numbers right as the primary or even a consequential lever for changing decisions. Instead, these findings helped NatCappers underscore the disproportionate centrality of "conceptual use" of ESK. In other words, they underscored the crucial *intersubjective* dimensions of what ecosystem services is 'doing'—how it manifests in the dynamic relationships, normativities, and personal, in-the-moment negotiations and deliberations that attended their projects. Here, ESK was influential not in re-calculating, or 'flipping', a given decision but in subtly shaping the social process of convening stakeholders, in patterning the ways they associated in and with that process, and in anchoring generative, interactive discussions articulating interests, values, and positions around various representations (e.g. maps, scenarios, other ecosystem services boundary objects).

I interpret this finding regarding the prevalence of "conceptual use" as emphasized by NatCappers to be an acknowledgment of one of this dissertation's key arguments: that one of the main effects of ecosystem services is *intersubjective*. In other words, one of the most powerful things that ecosystem services 'does' is not directly related to how it changes discrete, observable decisions but instead to how it conditions the meanings, interpretive processes, and political subjectivities by which groups find (or do not find) common cause: in defining the patterns in which political constituencies align themselves, identify and coordinate their positions, and coalesce in coalitions. This finding converges with and helps to explain the forms of embodied expertise required of ecosystem services practitioners which I examined in the previous chapter: in their projects, NatCappers' work quickly exceeded conventionally technical expertise and came to rely on the range of translational skills I discussed in the previous chapter. As my key informant commented in a presentation at the 2016 World Conservation Congress (WCC), this "conceptual use" of ecosystem services, which she reiterated had "strong evidence," may "sound amorphous

[136] She qualified these comments further, and in relation to the other types of ESK usage, explaining how instrumental use does occur but that it "happens late in the process. What we found in our analysis is there's this interplay between conceptual use (this understanding) and strategic use (this political dynamic) that plays out over years, and *then* you move toward that beautiful policy or implementation that people are hoping for. So, this does exist but it takes time to get there and it's a complicated process."

and for certain types of people it's too squishy. But I've come to believe that it's actually really, really powerful."

While this "conceptual use" of ecosystem services was interpreted here as "powerful" in a normatively positive sense, I suggest that this line of reasoning can easily converge with the more ambivalent interpretation advanced in this dissertation. While ecosystem services may largely fail to manifest materially in most of the ways it was initially envisioned (e.g. in an across-the-board rationalist transformation of global environmental decision-making; in wide-scale commodification and market-based management of ecosystem services; in new torrents of financial resources pouring into conservation; in widespread protection of biodiversity, etc.), what it *does* do is produce certain kinds of political subjectivities. In other words, "instrumental use" might not be occurring to a meaningful extent, but "conceptual use" certainly is.

I have highlighted the worrying consequences of this dynamic. Through a social process resembling NatCap's "conceptual use" of ESK—referring to how it shifts "understanding," "shapes thinking," and "enables people to develop new beliefs and values"—ecosystem services coproduces certain kinds of conservation and certain kinds of conservation subjectivities. Note that I am not singling out a worldview that might be more inclined to recognize that nature is important or that people depend on nature in specific ways to live. Indeed, I consider that general acknowledgement at least benign and in most cases fairly welcome. Rather, I point specifically to the widespread normalization of the implicit theory of change articulated in prevailing forms of ecosystem services discourse—an anti-political, conflict-averse political rationality that ultimately depends on leveraging the enlightened benevolence and existing privileges of powerful decision-makers in order to function.

As they are currently unfolding, these intersubjective processes crystallize a political imagination and set of sensibilities no longer prepared or willing to challenge hegemonic power relations. In trying to change and enable wiser "decisions of people who have the future of the planet in their hands," as the NatCap co-founder phrased it, without asking *why* certain decision-makers have the future of the planet in their hands, or questioning the discursive, institutional, and political-economic logics that *put* the planet in their hands, takes much for granted. It isolates decision-making from the structural power that defines its parameters, instantiating what Swyngedouw (2010, 225; 227) has characterized as a "post-political" condition in which "ideological or dissensual contestation and struggles are replaced by techno-managerial planning, expert management and administration," and where "radical dissent, critique and fundamental conflict [are] evacuated from the political arena." As Swyngedouw points out, such a condition:

> eludes choice and freedom (other than those tolerated by the consensus) and effaces the properly political from the spaces of public encounter […]. [T]his disavowal of the political and the staging of politics as a form of consensual management of the givens of the situation is one of the tactics through which spaces of conflict and antagonisms are smoothed over and displaced. (Ibid, 226)

In effect, within a broader context of ongoing political struggles to configure, and potentially re-make, those hegemonic power relations—struggles to contest the arrangement where the "future of the planet" rests in certain sets of "hands"—the choice of how NatCap chooses to align itself, even insofar as they may frame it as declining to choose, nevertheless remains a political choice with implications for what the idea of ecosystem services does (or does not do) and what it may or may not become. While I do not *necessarily* believe that this theory of change

is characteristic of all, or even most, ecosystem services work—NatCap being an ambiguous case—I do consider the extent of their apparent fusion *unnecessary*, which motivates much of my interest in exploring the extent to which NatCap has pried apart, or is interested in prying apart, their tools, knowledge, and expertise from this post-political form of common sense.

For their part, while NatCappers might grant that "conceptual use" of ESK does serve to align (in their words "convene" and "bring together") various political subjects and institutions further into the fold of dominant logics, they seem to interpret this alignment favourably because they suspect it will yield more conservation and better outcomes for all involved. However, as I have discussed, and as NatCappers and other ecosystem services practitioners themselves seem to recognize, neither of these developments has been readily forthcoming. In a way, what ecosystem services has produced may be marked less by the discrete, observable decisions that *are* made because of its calculations (which are rare) but rather the political decisions that are *not* made, never pursued, and rarely imagined because of the narrowed political imagination ecosystem services threatens to consolidate. As Ferguson (1994, 180) writes, "it may be that what is most important" about a technically circumscribed intervention when it comes into contact with messy political realities "is not so much what it fails to do but what it achieves through its 'side effects'." He draws into focus how such projects can

> effectively squash political challenges to the system not only through enhancing administrative power, but also by casting political questions of land, resources, jobs, or wages as technical 'problems' responsive to the technical 'development' intervention. […] [I]t is a kind of 'anti-politics' machine, which, on the model of the 'anti-gravity' machine of science fiction stories, seems to suspend 'politics' from even the most sensitive political operations at the flick of a switch. (Ibid)

If the implicit bargain struck by conservationists to tolerate existing status quo power relations in exchange for these promises has fallen flat—and, again, as NatCappers acknowledge, these promises have yet to be meaningfully delivered—then the kinds of intersubjective dynamics emphasized here begin to take on a more worrying register. Conservationists, and the rest of us, are not simply left with a disappointing 'non-outcome' but must contend with the residual intersubjective effects it produces: a thoroughly disciplined politics conditioned by the elite-focused, highly professionalized, and avowedly anti-political theory of change articulated in prevailing forms of ecosystem services discourse—an anti-politics machine. Here, the ways in which ecosystem services "shapes thinking" and "develops new beliefs and values" begins to appear as the trading of consent to entrenched power structures in exchange for some substantive accommodations when in fact no such accommodations are meaningfully given: a bargain which, once recognized, might be re-considered. NatCap's own findings seem to make this dynamic transparent, and constitutes a provocation to consider re-hitching ecosystem services to a different kind of theory of change. To an extent, NatCap (or at least certain NatCappers) seem to be warming up to this acknowledgment. For instance, one guidance document published by NatCap several weeks prior to this writing, continues to creep down this path, acknowledging that the deployment of ecosystem services valuations as a means of influencing environmental governance necessarily involves "engag[ing] in essentially political discussions with decision-makers and stakeholders." They are at least starting to look.

This point connects to earlier observations (discussed at the end of Chapter 2) regarding the slipperiness of attributing concrete impacts to ecosystem services. As my key informant notes with respect to this intersubjective "conceptual use" aspect of ecosystem services, "for certain

types of people it's too squishy" and "sounds amorphous." Thus, when evaluating the legacy of what ecosystem services 'does', it begins to appear that the straightforward answer is 'not much' (i.e. when viewed specifically from the perspective of 'instrumental use'). Indeed, as NatCappers later explained, this was precisely the kind of measure that the Global Environment Facility official had in mind when he publicly took NatCap and the broader ecosystem services community to task at the 2016 WCC for having so little to show for the time and resources spent on natural capital mainstreaming (as discussed in Chapter 2). However, when expanded to include "conceptual use" (i.e. intersubjective effects), for which NatCap had found much stronger evidence, the more consequential and generative, subject-making effects of ecosystem services come into stark focus. Intriguingly, one of NatCap's papers on this topic comments on this point explicitly, suggesting:

> These findings provide both a warning and encouragement for the ES community. A narrow focus on instrumental use is likely to cause frustration. But ES science is, in subtle ways [i.e. intersubjective effects], an important factor informing and influencing decisions—often by altering beliefs and understanding, building support for solutions that balance conservation and development goals, and helping negotiate compromise.

While again, this comment seems to ascribe mostly positive associations to these intersubjective effects—here, by helping broker local agreement—I contend that how and toward what ends, precisely, ESK "helps negotiate compromise" and "informs and influences" political subjects can take on more worrying connotations when considered in the context of broader power relations.

How NatCappers interpreted the third category of "strategic use," which refers to knowledge used "to support and promote a specific intervention or policy option, or justify previously held beliefs and values," was especially intriguing. Here, presenters were exceptionally careful when introducing their findings. One NatCapper, for instance, prefaced her comments about this use of ESK at a 2014 meeting by acknowledging how "we in this field, I think, have thought of [this use] as a negative use of science." She proceeded to characterize "strategic use" as "advocating for something you previously believed. This is what I want. We must fight climate change. So here is some ecosystem service information that will make you agree with me." What she is trying to anticipate, and defuse, when talking about this "negative use of science" is precisely the stubborn agnosticism and lingering pretentions to neutrality which I have been alluding to throughout this chapter. She is referring to the perception that the "political" deployment of scientific knowledge, and "ESK" specifically, would be inappropriate as it would prevent its producers from being able to stay outside the bounds of 'politics' and therefore remain 'above the fray'. That this NatCapper felt she had to anticipate and soothe these reactions before even introducing the substance of their findings is worth noting.

Similarly, in a presentation by my key informant at the 2016 WCC, she acknowledged, "this one really pickles people's minds." Here, echoing the explanation provided above, she posited some examples: "you've got a lobby group, you've got a community, they already care about something, they already know local knowledge, indigenous knowledge, their own understanding of the situation as an issue, then they use this information, this different way of producing knowledge [i.e. ESK], to support what they are already pushing for and give credibility to it." Once again, she takes what seemed like extraordinary precautions to defuse reactions to this way of approaching ecosystem services. "It's not necessarily a bad thing at all," she emphasized, "it's just using different types of evidence to justify what they've been saying all along."

She also commented on "strategic use" at NatCap's 2015 symposium, noting, "it's quite common for scientists to feel uncomfortable with the idea of strategic use. We're *not* saying 'distorting' information—but rather using good, credible information to make the case." Here too, somewhat remarkably, she felt it was necessary to overcome the impression that deviating from a logic of impartial optimization—the discomforting prospect that ecosystem services could be wielded as a political tool in broader political struggles—would represent a vulgarization of their science. This interaction makes visible both (a) NatCap's growing acknowledgment of the definitively political context of "ESK" and the necessarily political ways in which it gets used, and (b) the apparently ingrained compulsion among their community of practice to back away from this acknowledgment. As one of NatCap's own papers notes, "very few studies acknowledge strategic use" of ESK. Reflecting on the sensibilities prevailing among the ecosystem services research community, they suggest that this "striking" inattentiveness to these "strategic" dimensions of ecosystem services may arise from the "circumspection that strategic use is political and therefore inappropriate for application of research." However, they also note that "strategic use" of ESK, again in contrast to "instrumental use" was in their observations "common" in their projects.

At a 2014 meeting, one NatCapper elaborated on where this "strategic" use of ecosystem services could be most useful. After dispensing with the careful caveats about its appropriateness, she explained, "We find, especially working with indigenous groups and local communities where there's an imbalance of power, it's a fundamental and very important use of what we bring." She elaborated how their ESK work had helped indigenous communities translate "their values and visions" into forms that would be "accepted" and have "the same value proposition as those in the business and government sectors." She continued, "So bringing them to the table and giving them the tools they need to be able to advocate on par can enhance the equity of decisions that are made overall."

On the one hand, this specific strategy is, in many ways, deeply lamentable on many counts (i.e. to be recognized, "the values and visions" of these groups had to be translated into "the same value proposition as those in the business and government"). Yet, it does evince the kernel of an acknowledgement: that ecosystem services can, and perhaps should, be mobilized as a political tool in a political struggle. However modest, and however buried among the other parts of their analyses, these comments reveal seeds of political wiggle room. From a certain angle, her phrasing of "enhancing the equity decisions that are made overall" provides an absurdly clinical yet nevertheless discernible glimmer of a latent politicization, here gently introduced to ecosystem services scientists and directed toward re-working existing power relations "overall."

In this admittedly very modest example, NatCap had explicitly recognized—albeit with extraordinary caution and with the impression that they were swimming against prevailing currents in their field—that ecosystem services could be used as a strategic tool turned by marginal groups against dominant ones. As much as they have bent over backwards not to pick a side as a general orientation, here, they seem to have accepted its necessity. However modest, these comments signal a departure from a theory of change predicated on the elite anti-politics of 'win-wins' or the rational benevolence of a powerful actor. They gesture at something else: the possibility of a different, perhaps embryonic theory of change explicitly in solidarity with and seeking to empower subordinate groups in emphatically *non*-'win-win' struggles *against* the privileges of those powerful actors: not merely asking those actors politely for change by presenting them with a

notionally good idea but rather compelling them to change through strategic deployments of ecosystem services expertise to assert a claim.

It inches, perhaps, toward an ecosystem service science that consciously chooses to join broader efforts to contest, rather than take as given, the precipitating conditions of unfolding environmental injustices. In reviewing NatCap's documents detailing their work on Vancouver Island, for instance, this seems to have been what its personnel ended up doing. For example, they describe helping one of their First Nation partners mobilize ESK to bring concerns about water quality to the fore, "measured by concentrations of fecal coliform bacteria, a standard unit used by regulatory agencies," during negotiations over marine spatial planning where they would have otherwise been at a marked disadvantage. In the words of my key informant:

> a First Nation group told us they had been saying for a long time that local aquaculture was polluting their waterways and nobody was listening. And then they ran our models which showed aquaculture was really reducing the quality of their water. And they got the rules they wanted in place in the coastal management plan. So, it's a game, there's politics, there's pushing, there's lobby groups. But arm people with good credible information and let that negotiation take place.

As one of NatCap's papers analyzing this experience notes, "[b]y coproducing knowledge with scientists, the Nations increased their capacity and empowered themselves to convene meetings with government authorities and advocate for their preferred planning options." Later in the document, in a table, they note (somewhat dryly) one outcome of their Vancouver Island work: "Groups with limited voice empowered to articulate alternative visions." Again, despite the somewhat clinical phrasing, I posit that this statement could represent the kernel of a vision for ecosystem services, already nascent among many of its scientists, that could conceivably align with political-ecological projects and counter-hegemonic alliances seeking to *contest* rather than stabilize the structurally produced injustices attending contemporary environmental transformations—injustices whose dispossessions and exclusions, as well as the demands for redress, reparation, and redistribution, seem as though they could be usefully expressed (as they were in this case) in terms of ecosystem services. Notably, as NatCap's paper concludes, "[a]lthough our analysis did not address political factors in depth, other research indicates that the distribution of power between and within groups, especially when mediated by scientific knowledge, can be critical in defining outcomes." They suggest, "[w]e encourage future research to explore power distribution as a factor affecting how and by whom knowledge is used." In a way, this dissertation tries to respond to exactly this call.

Before concluding this section, I should acknowledge some of the likely hesitations preventing NatCappers from wanting to latch onto the political dimensions of ecosystem services as spelled out in their findings. I already noted a desire to 'remain above the fray' and discomfort about muddying the waters of scientific 'objectivity': how using ecosystem services to rationalize a pre-given 'political' end (rather than abiding by a sense of following the numbers) would conflict with their sense of professional norms and sources of epistemic authority. However, it did seem that some NatCappers accepted the importance of deploying their tools toward explicitly political ends (as they recognized trying to do on Vancouver Island) while also believing that this should not necessarily define NatCap's role. Indeed, I can recall several comments which referenced the notion of a 'diversity of tactics'—a kind of good cop / bad cop arrangement—whereby NatCap and its more mainstream, establishment-oriented partners could conduct the more technically-based and conciliatory bridge-building work of convening coalitions, while they would count on

other groups to do the more avowedly political advocacy work that directly and confrontationally challenges problematic actors. Within this reasoning, they are working synergistically as part of the same movement. 'We do the science, you do the politics'.

To an extent, I can understand this reasoning. However, given the wildly lopsided share of funding concentrated with the 'good cops' in comparison to the 'bad cops', given the lack of a clear explanation for why there must necessarily *be* 'good cops' and why they should not all be 'bad cops', and given the questionable integrity of the 'bargain' implicit in ecosystem services whereby conservation accommodates the powerful in exchange for the powerful meaningfully accommodating conservation (which, to date, seems like a grossly unequal exchange as argued in the previous chapter)—these justifications did not seem obviously compelling on their face and have remained largely and perhaps intentionally left to the imagination. Another important hesitation, which was never actually expressed to me by NatCappers, likely arises from the preferences of their donors (Voosen 2013). Many of these large foundations, and the epistemic, policy and class networks where they are enmeshed, as Igoe et al. (2010) point out, not only share many of the values of "ruling elites" (i.e. the powerful decision-makers whom NatCap tries to engage with "the future of the planet in their hands"), they *are* ruling elites: they are directly participating members of those communities (see also Holmes 2011; MacDonald 2010). Indeed, large foundations have been instrumental to funding applied ecosystem services work, including NatCap's. It is unclear how much of an appetite Moore, MacArthur, Rockefeller, Packard and other large foundations would have for funding ecosystem services projects that explicitly advance more radical forms of political struggle, reconstitutions of dominant power relations, and systemic political-economic transformation.

To begin to conclude this section, in NatCap's increasingly systematic efforts to pry apart and re-examine the nature of their work (in increasingly elaborate detail), they have found several surprises which their community is still clearly struggling to interpret. They found that their theory of change, which had been concertedly focused on influencing decisions through the "instrumental use" of their calculations, was in several major respects ill-advised. While NatCap's impacts may have fallen far short of its ambitions in this regard, this 'failure' is at least partly attributable to the slipperiness of what ecosystem services really 'does'. As NatCappers have come to understand, the impacts of ecosystem services might materialize in ways they did not really intend nor anticipate. Specifically, NatCap found that the intersubjective effects (i.e. "conceptual use") and political deployment (i.e. "strategic use") of ecosystem services were much more "pervasive" and "powerful" than the kinds of change they had initially envisioned and sought to enact.

NatCap recognized ecosystem services as a political tool deployed in political struggles and negotiations, as opposed to some sort of neutral, wellbeing optimization process. One NatCap paper, for instance, begins to envision a rather different decision-making model, instead portraying a process of "strategic interaction between different interest groups as they bargain, negotiate, or alter power relationships." In such struggles, NatCap noted that they could pick a side and that this side did not necessarily need to depend on the benevolence of a powerful, elite decision-maker voluntarily seeing the light (as shined by NatCap) for the benefit of one and all. Instead, they displayed a willingness to explicitly align their expertise to the cause of a recognizably marginalized group, equipping them to negotiate their interest and force a recognition of their claim. Despite the violent colonial-capitalist legacies prefiguring these negotiations and giving logic to the strategy taken by NatCap and their First Nations partner, this moment, together with several others I noted peppering their work, represent the seeds of an important recognition that

power relations, social struggles, and fundamental political-economic questions saturate ecosystem services, presenting them with inescapably political *choices*. While certainly not prevalent, traces of these recognitions, like the ones discussed, were nevertheless discernible when reviewing their collective introspections and during my time with NatCap's personnel.

These reflexive explorations have yielded a range of other findings[137] highlighting shifts in how NatCappers interpret the effects of their science. They have required reconstitutions of their theory of change and reveal modest but recognizable traces of alternative political possibilities. As I will discuss in the next chapter, while NatCap's coy and rather ambiguous flirtations with these considerations seem to have arisen largely from their project-level experiences, I present far less hesitant and more explicitly determined groups of experts endeavoring to 'mainstream' this acknowledgment of power, social struggle, and political economy in ecosystem services through the IPBES process.

In any case, NatCappers have been discovering for themselves how much more complex their 'science-policy interface' seems in comparison to what they had initially envisioned. To try to depict these complexities, the NatCapper whom I described near the beginning of this section (i.e. the NatCapper who presented the "Valley of Death" in 2015), had another diagram to present the following year at the 2016 symposium (Figure 25). Drawing an analogy between how to bridge the social worlds of "science" and "policy," with the process of "how to draw an owl," he explained, "Start with two circles. Then, you draw an owl." The metaphor was well-received and incisive. Just as the two-step owl-drawing instructions were patently and absurdly insufficient (e.g. step two was "draw the rest of the damn owl"), so too were the steps laid out for NatCap in the theory of change they inherited from ecosystem services for bridging the science-policy interface (e.g. step two, change the damn decisions). For much of his audience, the community of practice convening around NatCap's annual meetings, this analogy was immediately recognizable.

[137] For instance, I discussed their surprise at the disproportionate importance of the "legitimacy" of their research output (i.e. its fairness, inclusiveness, and the trustworthiness of the process) over its "credibility" (i.e. its expertly-defined technical quality). As my key informant explained, "[o]ne of our most important findings is that the perceived legitimacy of the information locally is really crucial. And that means you have to take process really seriously. *How* you do the work, not just the type of results." I also noted the elaboration of their stakeholder engagement approaches, emphasizing many of the issues identified earlier.

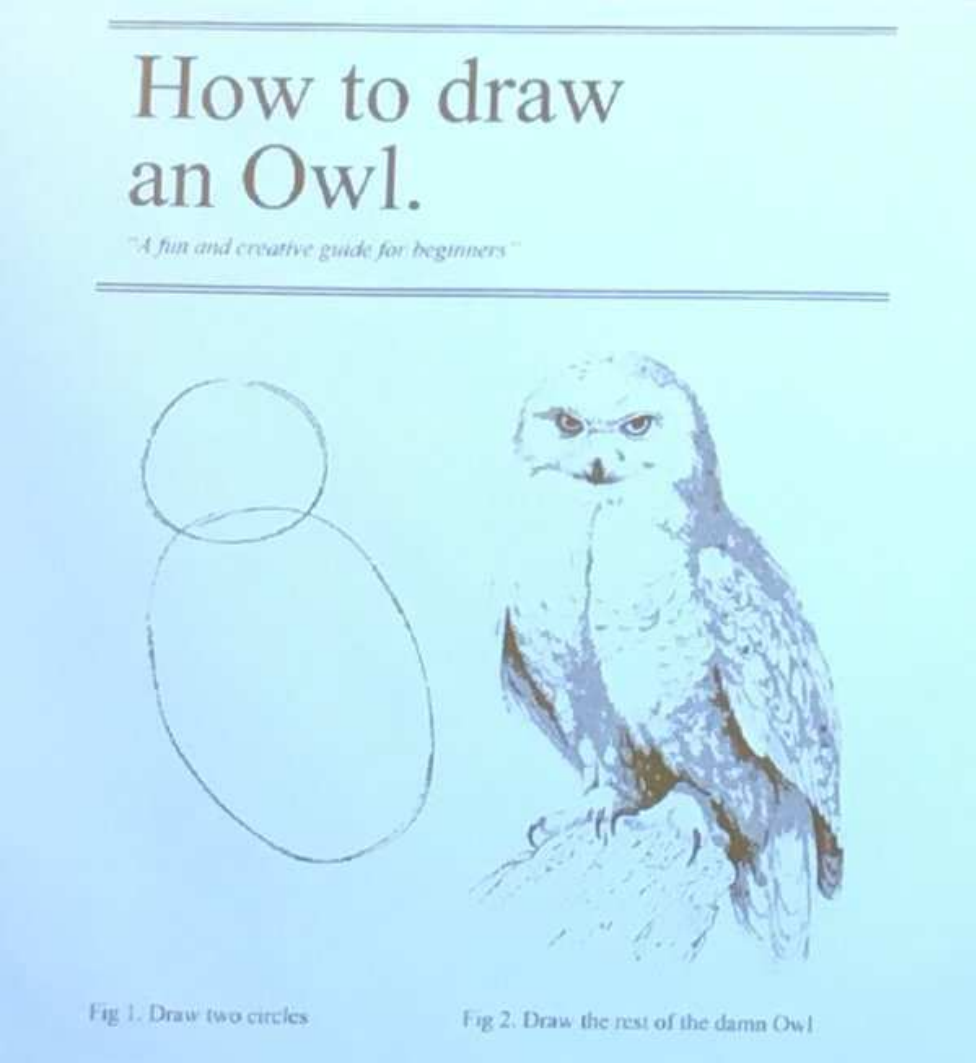

Figure 25 - Slide indicating a two-step process of drawing an owl, consisting of first drawing two circles, then drawing the rest of the damn owl. The image was intended to 'draw' an analogy with the similarly unspecified difficulties of bridging the social worlds of "science" and "policy."

VALUATION 2.0: RECONSIDERING MONETARY MEASURES

On its website, NatCap maintains a Frequently Asked Questions (FAQ) page which asks, "Are you putting a price tag on nature?" to which it responds brusquely, "No. We are not." This miniature dialogue disguises a much bigger, more slippery, and rather contentious conversation both among NatCap's community of practice and far beyond it. In this final section, I turn to how NatCap has wrestled with this "FAQ." The question, of course, has deep histories which have manifested in new and multifarious ways across the sprawling, transnational circuits of global environmental governance—circuits where the turn toward market norms and logics has grown increasingly pronounced (O'Neill 2017). In turn, the political struggles that revolve around this question have been proportionately sprawling, articulating diverse interpretations regarding what this turn means, what is at stake in it, and whether it must be accommodated or resisted (as discussed in Chapter 1). Many conservationists have come to pin their strategies on answering NatCap's FAQ of putting a price tag on nature in the affirmative, reflecting a growing political

consensus in mainstream conservation constituted by policy-makers, bureaucrats, business leaders, scientists, NGOs, and a widening host of other institutions.

My experiences with NatCap in Myanmar are one of countless reflections of how this thinking has manifested in conservation. There, I observed WWF, working alongside government officials and other international environmental organizations, focused on re-framing the country's ecosystems as economically legible, valuable, and indispensable entities (i.e. as natural capital). As I discussed in Chapter 2, NatCap's expertise, mobilized as a key element in these efforts, was focused squarely on quantitatively demonstrating how conservation could, for instance, protect communities from extreme weather events, provide clean water to its population, support important commercial sectors, attract multilateral donors, and overall serve to safeguard the beneficiaries of the country's rapid development and economic growth. Rearticulated in this way, nature as natural capital can, it is hoped, better engender 'societal' support for conservation (recall the ecosystem services art show); sway consequential decisions across public, private, and non-profit sectors (for instance, in targeting conservation interventions or compelling changes to infrastructure plans); incorporate ecosystem service values into new policy instruments and management arrangements (PES schemes were one such proposal); and attract investment (such as from multilateral development banks or through international climate change mitigation efforts compensating forest carbon storage).

Already, in this one operation, the slippery versatility displayed by this idea should be fairly clear. What natural capital valuation means, what it does, and how it might be used ranges widely: as a metaphorical language for communicating across diverse constituencies; as a quantitative input meant to tip the cost-benefit scales of rational decision-making; as a way of operationalizing new governance mechanisms; as a means of garnering international funding; and perhaps as a new commodity (i.e. forest carbon offsets) traded in emerging environmental markets. As I will show, NatCap have found themselves mired in precisely these ambiguities. While debates surrounding the neoliberal, market-oriented politics materializing among the tangled realms of governance extend well beyond the work of NatCap, the nature of NatCap's work has thrust the group into an uncomfortably bright spotlight.

Observers can be forgiven for so frequently asking NatCap this question (and critics for readily associating them with it). Within the field of 'natural capital', NatCap seems surrounded on all sides by organizations and initiatives far less hesitant about their embrace of at least the rhetoric and often the material practices associated with NatCap's FAQ. For instance, NatCap shares two thirds of their name with the finance-led Natural Capital Declaration (NCD 2013), which seeks to mainstream natural capital into financial products and accounting and with the business-led Natural Capital Coalition (NCC, formerly the TEEB for Business Coalition). In turn, the NCC recently launched their Natural Capital Protocol which promises "a framework designed to help generate trusted, credible, and actionable information for business managers to inform decisions" (NCP 2017).[138] Since 2013, Edinburgh has hosted an annual World Forum on Natural Capital which touts itself as the premier global gathering in the field of natural capital for "[f]orward-looking CEOs, CFOs, management level business operatives, economists, and 'other influencers' from around the world."[139] Indeed, while shadowing NatCap's delegation to the 2016 WCC, I noted multiple instances where participants in events hosted by NatCap were either

[138] http://naturalcapitalcoalition.org/protocol/

[139] As quoted from the World Forum on Natural Capital's website's "Who Should Attend" page in Matulis & Moyer (2017)

mistaking these initiatives for one another or simply comfortable referring to them interchangeably. And in many respects, NatCap's self-described aims themselves read like a quintessential articulation of this vision, making the economic valuation aspects of their work, as one of NatCap's co-founders acknowledged, into a "lightning rod" for controversy. NatCap is, after all, a project overtly structured (and named) around making nature into something called natural capital. Positioned at the "cutting edge" of ecosystem services, NatCap has come to occupy a central place, albeit somewhat uneasily, in continuing clashes over whether, how, and in what ways nature must (or must not) be "priced."

In this context, NatCap's plainly stated disavowal of this FAQ is rather significant. Indeed, NatCappers now speak openly about the need to distance themselves from an acknowledged overreliance on monetary valuations. This disavowal, I found, was not limited only to their publicly facing communications but resonated consistently across my observations and various formal and informal interactions. NatCappers shared various ambivalences and sometimes significant apprehensions concerning this aspect of their work. Others described their frustrations with what they considered to be, in many cases, gross misinterpretations of what they were "really" doing. In any case, the group has been deliberate about trying to disassociate themselves from many (although not all) of the connotations implied by this FAQ. Natural capital, it seemed, had only a little bit to do with the functions of capitalism after all.

NatCappers are not alone among proponents of ecosystem services in expressing misgivings about the way that dollar signs have come to define their field. Alongside (and in contrast to) identifiable efforts that *have* been focused overtly on "putting a price tag on nature" through the development of literal profit-driven biodiversity conservation ventures (Dempsey & Suarez 2016), there has been a florescence of other notable disavowals by key players in the field. While still supportive of the concept's promise, these disavowals have taken careful, conspicuous steps to distinguish various strands of ecosystem services from one another and especially from their more avowedly neoliberal, market-championing counterparts. The political and epistemic clashes within IPBES, which I analyze in the next two chapters, provide a particularly salient and abundant source of examples. And at the 2016 WCC, for instance, where I shadowed NatCap's delegation, I noted the Director of UNEP-WCMC[140]—formerly the founding Interim Executive Secretary of IPBES—commenting pointedly at a side-event that "natural capital does *not* equal monetary valuation. Indeed, monetary valuation is a very poor measure of most of the assets of natural capital."

For many ecosystem services proponents, much of this debate revolves around failures to distinguish between what it means to "price" and what it means to "value" ecosystem services. As such, assertions of the boundary between these two operations have grown ubiquitous. In many dialogues, including with NatCap, this 'confusion' has become a clear preoccupation and repeated point of contention. In some respects, this distinction between "value" and "price" is conceptually straightforward to disentangle. "Valuation," in this usage, refers to a wider, more plural sense of recognizing the worth of something (encompassing various use- and non-use-values provided by ecosystems), whereas "pricing" refers to the specific extension of monetary exchange values, which in turn, can serve various functions including, potentially, facilitating commercial trade in markets (TEEB 2010; Gomez-Baggethun & Ruiz-Perez 2011).

[140] The United Nations Environment Programme's World Conservation and Monitoring Consortium

Thus, *measures* of ecosystem services that do not quantify them in monetary metrics and *applications* of ecosystem services that do not directly subject them to market mechanisms would seem to not be "putting a price tag" on nature. Within this framing, a large proportion of NatCap's work would indeed fall short of both these criteria. Accordingly, they express finding themselves somewhat perplexed when facing the accusation in their FAQ interpreting their work literally as "putting a price tag on nature." While these are important distinctions to recognize, as I discuss later, they remain conceptually and politically slippery. Moreover, irrespective of where these distinctions get drawn, they somewhat skirt other and arguably more consequential issues at stake in ecosystem services.

Beyond NatCap, some of the clearest illustrations of this boundary-drawing in my observations involved The Economics of Ecosystems and Biodiversity (TEEB) project (e.g. Sukhdev et al. 2014). As I elaborate in the next chapter, TEEB represents, like IPBES, another prominent multilateral science-policy initiative in the field of ecosystem services with which I have had many encounters. Like both NatCap and IPBES, TEEB has been mired in the same types of controversies entangling NatCap in its own FAQ. At a 2016 NatCap meeting, for example, I noted a representative from TEEB reporting on progress on the various country-level studies TEEB had been conducting. Repeatedly, the presentation kept returning to the task of drawing this price/value distinction. Commenting on a projected slide with the statement, "Price ≠ Value," he asserted, "it is very important to mention, and it may look very logical, but within the community it's often a mistake that's made, and that's about putting a price on nature. So, very important: price does *not* equal value. I can value you as a presenter, or as a colleague I work with, or as a friend, but not put a price on you. It's the same thing with nature." He moved onto the next point in his slide show, stating, "TEEB is more than economic valuation," driving the idea further along and describing "many cases" where this method was inappropriate. In TEEB's arctic study, for instance, he suggested that "putting a price" on the ways that indigenous people relate to nature would be "undesirable and impossible."[141] That he was setting aside so much of his presentation to drawing these distinctions—trying to install a clear boundary untangling what TEEB was *really* doing from what TEEB's critics were accusing them of doing—was instructive.

Beyond the considerable broadside of methodological, theoretical, political, strategic, and various other critiques that have been heaped on ecosystem services valuation over the years—several of which TEEB's presentation anticipates and tries to assuage—there is by now also a growing literature in ecosystem services scholarship exploring so-called "cultural services" (Chan et al. 2012a; 2012b) and "relational values" of nature (Chan et al. 2016). Indeed, these sorts of values, which can be incongruent with dominant economic and techno-scientific epistemologies, were acknowledged as one of the four main categories of ecosystem services as classified in the Millennium Ecosystem Assessment (MA 2005). In short, none of these statements are particularly new. What is new is the frequency with which these statements are now being visibly deployed by key actors in the field.[142] As I elaborate in the following chapter, the marked focus on and repetition

[141] His presentation elaborated on further, related topics: "It's not about putting a price on nature!"; "Valuation is an instrument, rather than a goal"; "Plurality of ethical and cultural worldviews"; "Incommensurability"; and so on.
[142] Indeed, that he (and others) felt the need to stress these points in *this* setting, among one of the premier communities of practice and leading research centers in the field, was itself also somewhat intriguing. The disavowal, let alone its frequent repetition, would seem rather redundant considering how ubiquitously NatCappers stressed this point to me. His careful emphasis on drawing these distinctions may have been partly a reflection of the wide diversity of constituencies that TEEB, as a kind of institutional entrepreneur, must maneuver between: business and finance, governmental and intergovernmental bureaucracies, policy-makers from a range of countries, large

of these boundaries is in part a reflection of significant political pushback TEEB and related initiatives have faced from critical scholars and academics but also activists, elements of the mainstream conservation movement itself, and within international negotiations: clashes that are potentially generative of political possibilities and, perhaps, of a kind of wiggle room.

Alongside TEEB, NatCappers have been taking part, if not playing a leading role, in this growing boundary-drawing trend. As Steve Polasky, another of NatCap's co-founders and an economist at the University of Minnesota acknowledged at a 2016 meeting, "economic valuation really attracts attention. Both positive and negative. It is a lightning rod." He projected a slide of a lightning bolt. "Oftentimes it distracts from the story we're trying to tell about how nature contributes to human wellbeing. Sometimes, we don't need to put things into dollar terms." He proceeded to enumerate a range of non-monetary metrics, such as water quality, various biophysical measures, and health-related measures like avoided sicknesses: metrics which might serve a range of purposes that did not have to serve a market-defined goal.

Most NatCappers cited practical reasons for explaining why they had been backing away from monetary valuations, which, counter to expectations, they said were often of limited usefulness in their engagements. What this backing away usually entailed was switching, as Polasky indicates in his presentation, from metrics expressed with dollar signs to a range of other metrics that did not necessarily rely on or result in dollar signs. NatCap's managing director, Mary Ruckelshaus, for instance, narrated this shift in their approach at a 2015 meeting:

> one thing that's been wonderful about working with the decision-makers who take up this information is to find out, even though academic scientists think that we have to monetize nature, that ecosystem services means putting a dollar value on nature—and people have been toiling for years trying to figure out how to do that—in many, many cases where we've worked with decision-makers that's not their first question and that's not what they need to change their decisions.

Like Polasky, she then proceeded to emphasize the importance of biophysical and other types of measures, such as numbers of tourists, fish catches, water quality thresholds, and so on.[143] These two comments illustrate the main thrust of NatCap's pivot away from their FAQ. Essentially, they describe a shift in emphasis from one set of metrical representations—which they found to be not only limited in their usefulness but needlessly "hackles-raising" as one NatCapper explained—to another set of metrical representations (albeit put to work in the much the same way as a part of their engagement approaches as sketched out earlier). In reviewing NatCap's many publications, this kind of operational distancing from economic valuations becomes a recurring theme across many of their project-level experiences. They describe having to develop a host of non-monetary measures in their participatory mapping, scenario development, and modeling,

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environmental organizations, development institutions, and activists from indigenous, peasant, women's, and other social movements, all actively participating in unique ways across the varied realms of global biodiversity politics where TEEB operates. These reiterations could, for some audiences, represent a controversial notion (i.e. that ecosystem services was in fact *not* actually about trying to price nature). For others, these reiterations could perhaps serve to display conformity with an already important and established norm (for instance, with more critical, movement-aligned constituencies as noted above, which might be hostile to "pricing nature," and apparently, NatCap as well). In short, better to be safe than sorry.

[143] She remarked, "many times the metrics that really will change people's decisions are not dollars. We calculate a monetary value in many of our use cases. And that does help decision makers in many places. So it's not to say that monetization isn't a useful metric. But there are a lot of other metrics that really resonate with people."

including various welfare metrics, proxies for cultural values, and indicators for poverty, food security, health and nutrition, employment, vulnerability, and more.

Another of NatCap's field operatives offered similar comments elaborating on these preconceptions regarding the power of monetary valuations and NatCap's growing understanding of their limitations at a meeting in 2014. He explained, "often I get a first request from, say, somebody at WWF for such a project. They'll be all about value, like, 'show me the value of a forest', or 'help me do a project that shows that this forest left standing is worth more than the sum total of its wood'. Or, 'if I were to raze it for palm oil, whatever I'd get is less than the total economic value of the forest'." He proceeded to identify significant drawbacks which, in his experience, tended to accompany this strategy, suggesting, "it *is* in a big sense [i.e. the forest yields more benefits than the plantation], but it's really challenging to defensibly show this in a narrow economic sense of short term values." At this point, an audience member interjected and emphasized that the assessment might end up showing the opposite result to the one desired by WWF. Continuing with his comments, the NatCapper acknowledged, "yeah, it might very well show the opposite." Another audience member again interjected, this time saying, "it *will* show them the opposite!" to which the NatCapper responded in more detail:

> That's where the discussion gets more nuanced, and as our discussions evolve, even our political clients we work with, they see the value of making a more holistic argument that takes into account different aspects of the ecosystem, splitting up beneficiaries into who gains and who loses, who is privileged, and so on. And then they get into the framework and our workshops revolve around that framework.

There are many themes to unpack in this exchange, each connecting to points made earlier in this chapter. First, he points out with a knowing resignation how he continues to receive misguidedly narrow requests that do not consider the political complexities with which he had become familiar, through experience, concerning the intricacies, serious limitations, and potential risks of economic valuations. Indeed, the sort of peanut gallery call-and-response interjections offered from audience members affirming that this was indeed a bad idea reflects a growing awareness among NatCap's community of practice, and among the field of ecosystem services more broadly, about these shortcomings and a willingness to openly name them as such.

He also invokes in his response the stakeholder engagement process where their ecosystem services work actually takes expression, which, as I have described, involves continuous, iterative consultation and unfolds over multiple rounds of deliberative and unambiguously *political* negotiations. In such a context, as NatCappers emphasized to me many times, the numbers sank further and further into the background as the dynamic, highly interactive, and situated character of negotiation, perhaps facilitated through the boundary objects of maps, scenarios, and other visual representations, took the foreground. In other words, in practice, it was rarely, if ever, their specific calculations, valuations, or optimizations (economic or otherwise) that were driving the outcome. In NatCap's typology of ESK uptake, this expectation presumes what they found in practice to be a highly unrealistic model of "instrumental use" of ecosystem services. Rather, in NatCappers' experience, outcomes arose from settlements generated through the embodied, contextually improvised, and often lively, idiosyncratic ebbing and flowing of organic, personal discussions (what they called "conceptual" and "strategic" use), wherein the role of monetary values was far subtler and less decisive.

Finally, his answer culminates in an emphasis on the distributive clarity that ecosystem services makes possible concerning "beneficiaries," "who gains and who loses," and "who is privileged" in the intervention. This feature of ecosystem services is, in my assessment, one of its main strengths. And, it is one of the likeliest connecting points where it can articulate with political-ecological projects which can depend on information precisely of this kind, enabling efforts to more clearly and rigorously identify, critique, and contest the various exclusions and dispossessions that attend struggles over nature and processes of socio-environmental change. However, as I argue, such tools, attached to such analyses, must *also* be attached to a specific and coherent politics. In NatCap's case, these politics have remained largely opaque: a slipperiness reflected in their amorphously (and perhaps deliberately) non-specific theory of change that leaves the political deployment of its "ESK" largely up to the imagination.

I offer these observations not to argue that the tools, expertise, and practices constitutive of ecosystem services are necessarily benign or worth endorsing. However, I do maintain that they signal the prospect of constructive engagement. This shifting perspective on economic valuations, while modest in many ways, does again serve to foreground reflexive ambivalences, and perhaps unanticipated political points of articulation, in ecosystem services. When nudged, NatCap seems capable of translating ecosystem services into a broad range of situationally cobbled-together material practices, forms of politics, and theories of change through the practices of bricolage described in previous chapters.

These observations provide a divergent portrait of ecosystem services than the one NatCap themselves started with. Indeed, they diverge from impressions *still* held by many of its supporters (i.e. the advocate asking this NatCapper to "show me the value of the forest"), not to mention several important lines of critique raised by activists and scholars (i.e. ecosystem services as reductive economic calculations in service to commodification). While again, these distinctions are not intended to elide critique, their work does in fact seem more sharply defined by the situated contingencies of political negotiation, distinctive to the "decision context" where they are embedded—processes which tend not to connect linearly, when they even do at all, to the granularities of their calculations, whether monetarily expressed or not. As multiple NatCappers tried to suggest to me, the practical challenges associated with trying to bring monetary valuations to their partners, many of whom were not especially interested in having them, accounted for a large part of why they had come to consciously ratchet down this aspect of their work. They explained how their initial fervor for economic valuations, while perhaps still handy to have available, had been worn down over the years by compounding observations of how such calculations were usually eclipsed by other considerations, by complex social dynamics, and by often more effective and alternative ways of employing their expertise.

Aside from 'practical' lessons drawn from its projects and partnerships, NatCap's considered step back from economic valuations has also been conditioned through years of encounters with their various critics and critiques. Curiously, I noted that some NatCappers sought to downplay how seriously they took their critics while others emphasized their importance to NatCap's evolution. A common critique NatCappers were up front about wrestling with was methodological. At a NatCap meeting in 2014, for instance, one of NatCap's more senior personnel responded to a frequent question about how it was possible to "deal with intangible values, qualitative values, that are hard to put on a map or quantify." She commented, "That is honestly something that keeps me awake at night." She described several techniques NatCap had tried to develop along these lines but acknowledged no obvious technical solution. Aside from persistent

methodological issues, NatCappers also expressed ambivalences regarding the broader political import of their work. I interviewed one NatCapper, for instance, who described apprehensions on the "pricing" issue, explaining, "it is really important for people to understand that ecosystems are really valuable—that we need them, that we need them in order to survive and thrive and have a great life. But putting those dollar values on them makes me really uncomfortable."

This was a commonly shared sentiment: the desire to rigorously demonstrate critically important ecological dependencies without (necessarily) contributing to the hegemonic processes of neoliberalization and expanding market rule their critics were accusing them of championing. One of NatCap's lead scientists whom I interviewed acknowledged "there's definitely some valid critiques and concerns and red flags that people have raised that NatCappers, like myself, think about a lot. For me, the biggest among those is monetary valuation of ecosystem services." Like many of her colleagues, she elaborated on the limited practicality and often dubious appropriateness of monetary measures in many of NatCap's projects and especially given the closely engaged deliberations and negotiations that defined the "decision contexts" where they worked. When it came to these concerns, most NatCappers seemed to focus our discussions squarely on the effectiveness of their specific project interventions. However, with some nudging, they were also typically willing to acknowledge the broader political context to their work: a context where debates about "nature's price tag" were not only affecting their work but implicating them in its unfolding.

The lead scientist introduced what became a ubiquitous "but" repeated in most conversations I had with NatCappers on this subject, usually following comments affirming NatCap's disassociation from their FAQ. As with most of the NatCappers I spoke to, this ratcheting down from economic valuations—the disavowal of "putting a price tag nature"—was definitely not absolute. "But," she continued, "there *is* a large group that really wants those numbers. They really want things in dollar values. That's something that has some problems, but I think there are some defensible ways to do it." She noted that alongside their acceptance that many partners "don't *want* monetary valuation and don't request it," NatCap has also held on to a belief in "the impact providing things in dollar terms can have in decisions, especially for certain kinds of decision makers in certain contexts." Although, she quickly added, "there's some risks involved with it, too, and it can be problematic." She reiterates an exceedingly common refrain among practitioners, framing ecosystem services simply as one more tool in the 'toolbox': certainly not a silver bullet but nevertheless an important part of a broader arsenal of approaches.

While I wish to be careful not to ascribe too much significance to these equivocations, they are worth noting. Although NatCap draws a bright line between itself and "putting a price tag on nature," they also acknowledge that the power of the tools, practices, and rhetoric associated with price tags simply could not be left idle. As an organization defined by its uniquely translational, cross-constituency, and boundary-bridging capabilities and positioning, the boundaries they had drawn, bright as they were, perhaps did not need to be so impermeable. Some of those institutional settings where they operated, for instance, with their corporate partners, development banks, and others, seemed most responsive when engaged at these registers: are they supposed to not oblige them if that is what they wanted? And so, their response to their FAQ comes with an important asterisk.

In certain respects, I am sympathetic with elements of this lead scientist's 'toolbox' position. In principle, many of the tools, practices, and representations constitutive of ecosystem services, while certainly never neutral and carrying all manner of epistemological baggage, could

be (and have been) mobilized to serve a range of different political purposes, often hegemonic but perhaps also—even in circumscribed ways—potentially subversive. Indeed, rigorous analyses detailing the distributional dimensions of how ecosystem services are accessed and controlled—which have become an increasingly important part of NatCap's work—could imaginably be *very* helpful, whether expressed in monetary terms or not (Berbés-Blázquez, González, and Pascual 2016; Ribot and Peluso 2003). It is not the tools or even (necessarily) the monetary metrics that seem most problematic here. As I have been emphasizing throughout this chapter, major questions arise from the absence of both: (a) a *specified* theory of change that directly addresses the power relations, social struggles, and political-economic processes that necessarily implicate and give expression to NatCap's analytical work, one way or another; and (b) a *specific* theory of change whose response to these questions connects that analytical work to a broader political programme that is coherently and plausibly positioned to deliver the "revolutionary" and "radical" change NatCap aspires to as it strives to safeguard the "wellbeing of people and nature" (NatCap 2017b).[144]

Beyond the specific ambivalences NatCappers expressed about various lines of critique, they also described notable interactions with their critics. They acknowledged that their approach had "raised hackles," referring to acute tensions among their academic and conservation colleagues including, as several NatCappers noted, within their NGO partner organizations, erupting at times in confrontational arguments and broken friendships. Curiously, when I asked how their critics may have actually affected or impeded their work, many NatCappers asserted that they did not pose a hindrance. Rather, when explaining what had prompted them to de-emphasize monetary valuations, these NatCappers again pointed to the practicalities of their projects. While NatCappers acknowledged that they had indeed provoked many critics, many conveyed a sense that they perceived this opposition as perhaps disheartening but not as an important obstacle to what they were actually doing.[145]

In any case, the disavowal by NatCap of their FAQ represents a marked departure from where NatCap started. At a meeting in 2016, Heather Tallis, NatCap's very first staff member (and formerly Acting Chief Scientist of TNC), tried to recount the contrast between where NatCap began and where they had ended up ten years later. "When I was hired, I was going to make models that worked with dollar signs at the end," she began. "Our eye was really on the economic prize, to get monetary values out the door." Indeed, as Gretchen Daily herself stated during an interview

[144] It was on this issue that I found the most variation among NatCappers during interviews. A number of NatCap's personnel seemed to recognize the conspicuous lack of a clear answer to these questions of power, social struggle, and political economy and the need to have one. As I have discussed, NatCap's self-examining analyses in recent years have begun to point in this direction. Many others, however, persisted in their determination to remain neutral or politically "plural."

[145] This observation that the main source of critique NatCap was encountering was among conservation organizations, conservation scientists, and conservation practitioners is worth noting. While sprawling, the debates that have defined these critiques have often revolved around debates over the intrinsic versus instrumental value of nature—in other words, 'nature for its own sake' versus 'nature for our own sake'. While I acknowledge this concern, the primary thrust of my analysis is targeted at the environmental justice and distributive political-ecological implications at stake here. NatCap seemed to be far less used to encountering this critique: here, our discussions seemed to be covering less trodden ground. I got the impression that they had grown used to having to assert that human wellbeing had to be incorporated into the fundamental vision guiding conservation (a view to which I subscribe). But the specific *ways* in which ecosystem services was defined *within* that vision, and its implications—again, according to power relations, social struggle, and political economy—remained much less formed. As such, this vision struck me as still somewhat inchoate and contingent.

with a reporter in 1997, the ostensible 'blast-off' year of ecosystem services, "We have to completely rethink how we deal with the environment and we should put a price on it" (Daily, quoted in Petit 1997). This language contrasts noticeably from Daily's much more subdued language at NatCap's 2016 symposium, highlighted at the beginning of Chapter 2, of "shining a light on all the intimate but hidden connections between people and nature"—a visual metaphor in place of a monetary one.

At the outset, however, the urgency of making nature's value more than "zero" (Tallis and Kareiva 2007, 746) took clear priority. Nuances could come later. Continuing her story, Tallis described the considerable pushback they received from the academic community, the difficulties of getting the production-function models in InVEST to actually work, and the intense pressure they were under to quickly deliver credible valuations ultimately capable of bringing nature more safely into the frame of natural capital. Then, converging with comments from many other NatCap personnel, she described discovering, "rarely did people want the monetary valuations. They wanted to make sure we *could* do it, and wanted to know the ecology was right so they could use their own valuation methods, but we haven't used monetary valuation in *any* of the contexts. It was shocking." She concluded later, "if I go back to that beginning, in terms of what science was needed, and what science was critical to do, it makes total sense, of course, knowing what we did then." She suggests that their theory of change and its reliance on economic valuations was a reasonable presumption at the time, and one they had to test, but one that was also ultimately flawed and rightly placed on a bottom (or perhaps middle) shelf.

Although at one time they had championed this notion—and sometimes still do "for certain kinds of decision makers in certain contexts" as noted above—NatCap's FAQ makes clear they have also grown somewhat impatient with being associated with it. One senior NatCapper explained to me how these controversies had become increasingly tiresome, arguing that "they're missing the point and a giant distraction." Echoing a sentiment I elicited many times in interviews and observed related to various audiences, she continued to elaborate:

> I think they tend to oversimplify the concept of ecosystem services. I completely agree that if you take some small piece of an ecosystem services argument out of context, that there would be a lot to throw tomatoes at. A lot of times, people oversimplify to say that ecosystem services thinking is putting a price on nature. No matter how many times I talk to reporters and say, 'we're not putting a price tag on nature', the headline is always 'Putting a Price Tag on Nature!'

Curiously, an article written by one such reporter, in this case writing for the Smithsonian under the bolded, all-caps headline, EMBRACING THE MONETARY VALUE OF NATURE, has been featured on the front page of NatCap's website for several months prior to this writing (Morrison 2017).[146] These observations, and the comments of NatCappers presented in this section more broadly, add up to a somewhat more slippery relationship between NatCap and its FAQ than its brusque answer would seem to imply. They are not putting a price tag on nature, although they did once, but not now, except when they do, but not always, and in very specific ways. To be fair, the extended response to the FAQ is upfront about the significant asterisking required to qualify the "No. We are not":

[146] This reporter also ran a feature article on NatCap in 2016 under the title, "Can You Put a Price Tag on Nature? Actually, Yes" (Morrison 2016)

> We are finding ways to portray the value of nature to society in a variety of metrics that matter to people. Most of the time, decision-makers do not request monetary value metrics, but are most interested in the supply of an ecosystem service in biophysical metrics, such as tons of carbon stored, or the amount of sediment or nutrient retained in a watershed. When we do use monetary value, we are not putting a price tag on nature, rather we are demonstrating the value of just one of many services nature provides to society. (Natural Capital Project 2017b)

I consider this a fairly straightforward characterization of their approach to the issue. Note, for instance, that the overwhelming majority of NatCap's partnerships (Table 1, Chapter 1) are with public bodies, many of them calling on NatCap's analytical expertise to support spatial planning, which can take a range of forms. Certainly, monetary measures are implicated in various ways throughout these processes. But to call what NatCap was doing in Myanmar (discussed in Chapter 2) or Vancouver Island (briefly illustrated in this chapter) as "putting a price tag on nature" in the literal sense of buying and selling ecosystem services would lose a great deal of precision. Indeed, even where monetary measures and economic modeling approaches were incorporated into NatCap's analyses, as I have emphasized, the dynamic, situational deployment of these valuations and the highly interactive, boundary-bridging translations in which they were enrolled constituted a decidedly 'more-than-economic' process.

The other major category of NatCap's project-level work involves supporting the design of PES programs which may seem to draw them closer to the accusation articulated in their FAQ. However, here too, as many analysts of PES have pointed out, the "vast majority of PES activity as of today is run by states under public policy regulation frameworks," indicating "a PES reality that has little to do with the market mechanism" (Gomez-Baggethun & Muradian 2015, 220). This observation similarly extends to NatCap's PES work. Analogously to the modeling and scenario development which defines NatCap's spatial planning partnerships, those PES programs with which I became familiar involving NatCap did not include setting their expertise toward the task of enabling the actual buying or selling of ecosystem services in a market. Indeed, to the extent that payments are made for an ostensible service, these are typically drawn from public funds and raised through taxes, where the level of payment is set politically (Ibid). Considering these points, one NatCapper explained her frustrations:

> There are ways in which we can put monetary values with services provided by ecosystems. In some decision contexts it makes a heck of a lot of sense to do that, if you can get the attention of Finance Ministers. But it's *one tool* in a huge toolbox. One way of measuring things that is not even remotely the primary one that we use. I get pretty annoyed with that one.

Here, she highlights functional distinctions between NatCap's use of ecosystem services in communication (recognizing value), analyzing choices (demonstrating value), and in operationalizing actual mechanisms or management arrangements (capturing value), of which there are many kinds, one of which might be (but probably isn't) market-based. These are important distinctions: most of NatCap's practices and partnerships do not presently involve buying or selling ecosystem services commodities in markets and in fact, their expertise typically revolves around the first two of those functions (recognizing and demonstrating value) and occasionally a subset of the third (capturing value) that typically fall well short of actual commodification and market-making.

These distinctions draw attention to what begins to seem like an inordinate preoccupation with the specific mechanisms and processes of commodification, marketization, and financialization as the most important set of consequences associated with ecosystem services. The specter of environmental markets in ecosystem services may certainly loom larger in the future, and the work of groups like NatCap could plausibly be interpreted as setting the conditions: building legitimacy, developing the technical apparatus, and experimenting with various institutional arrangements. However, as things stand, despite two decades of concerted efforts trying to make these schemes functional and profitable (Dempsey & Suarez 2016), the emergence of these markets (here interpreted literally) remains largely promissory. Moreover, as I have been illustrating, NatCappers themselves, however vague about the broader political programme they envisioned for their work, have mostly seemed to express a lack of interest, various ambivalences, or even suspicion of such market-making efforts. They acknowledged that these kinds of efforts were occurring under the broad tent of ecosystem services but also seemed to feel that such efforts had little to do with NatCap.

To begin to conclude this chapter, I should note NatCap's most recent effort to erect boundaries insulating their work from their FAQ, both in terms of their past over-eagerness toward monetary valuations and what they felt were inaccurate caricatures continually associating them with "price tags on nature." In their recently formulated Strategic Plan (NatCap 2016, 25), NatCap announced what they have called "Valuation 2.0," which, they suggest, will involve developing "alternative ways to summarize and communicate ecosystem service values and connect them to well-being (monetary and non-monetary)."

These valuation 'upgrades' arise, as I have discussed, from various lessons NatCap has been actively drawing from its many projects which demonstrated the limited usefulness of economic valuations and undermined earlier assumptions about their power in influencing decision-making. The launch of "Valuation 2.0" also, perhaps, reflects the latest in a series of fig leaves extended by NatCap trying to assuage what its personnel perceive as the core concerns of many of their critics. The strategy document, which was produced concurrently with when I was conducting this research, reflects many of the themes and 'course-corrections' that were emphasized to me in interviews. At moments, the document almost seems to provide a series of extended versions of the perfunctory "No" offered in its FAQ, except on a range of other issues where NatCappers felt they had long since moved on: no, they are not involved in schemes for buying and selling ecosystem services, they are simply trying to clarify choices and ensure ecosystem services are considered in them; no, they are not solely or even especially preoccupied with monetary measures, they are often more focused on a range of values encompassing biophysical metrics and various wellbeing indicators; no, they are not trying to impose abstracted, techno-scientific truths from on high but working closely and collaboratively with their partners and stakeholders to co-produce knowledge in context.

While each of these points remains debatable, the steps I saw NatCappers trying to take to address them did serve to render their work somewhat less menacing, especially given the seriousness of some of the concerns initially raised in critical scholarship regarding what in many respects appeared to be an archetypally and unprecedentedly radical neoliberal project. This was a movement promoted by some (though certainly not all) of its own advocates as being about the economic quantification of any and all potentially valuable ecological processes for the purposes of direct incorporation into profit-making market mechanisms. That NatCap's work fits uneasily and indeed actively breaks with significant parts of this vision is, to an extent, heartening to note.

Along these lines, a reporter investigating NatCap's work described a similar experience getting to know how its personnel actually approached their projects. He attended one of NatCap's symposia where he engaged the ecosystem services community, and the NatCap team, in dialogue. He remarked on how most non-specialists indeed regarded ecosystem services as "synonymous with pricing nature." He continued, "for a lot of people that's a frightening and volatile idea, that there's a monetary value being affixed to species and landscapes they love on a spiritual level." With this framing in mind, he described his sense of surprise when speaking with NatCap's personnel and digging further into their work, where he found that in practical terms (and despite their name) they were typically not relying on or especially interested in economic valuations.

Similarly, I met another journalist who had been publicly critical of NatCap and the politics of ecosystem services, especially as discernible in debates around so-called New Conservation (Kareiva, Marvier, and Lalasz 2012; Soulé 2014). In that context, he described growing hostile to what he believed their project represented. "And then," he remarked, "I actually went to the Natural Capital Project and talked to people." The experience, he said, allowed him to "appreciate how, for people who are actually doing this work on the ground, people who are not just talking heads"—i.e. many of the much more numerous "middling technocrats" charged with practically enacting ecosystem services—"they have a much more tempered and nuanced appreciation of it." He described eliciting the same "one more tool in a toolbox" theme, which, while he still had reservations, seemed much more benign than he at first suspected when taking the sometimes-hyperbolic public commentary around ecosystem services, including by its promoters, at face value. I heard many similar 'conversion' stories of this kind, involving de-escalated hackles and transitioned assessments from 'highly dangerous' to 'mostly benign'. Their testimonials again recount specific steps NatCappers have taken in distancing themselves from their FAQ but also illustrate the sort of reflexivity and disarming earnestness that has come to characterize NatCap's team. They evince a drive to discard bad assumptions to improve the effectiveness of their interventions but also a degree of willingness to acknowledge the broader political context where their work is implicated and to ameliorate at least *some* of the controversies swirling around their work.

Of course, the substantive shifts NatCap appears to have been focusing on—which again, do seem like genuine improvements for the most part—capture only fragments of what is at stake in ecosystem services, both in terms of what it reflects and what it serves to constitute. Despite the wiggle room these changes seem to imply, the larger question of NatCap's specific articulation with wider political struggles and power relations remains to a remarkable degree unaddressed. The political work of NatCap's 'natural capital project', persistently demure on fundamentally central questions which this dissertation has pondered in relation to their work, remains very slippery.

Moreover, while they are prominent leaders in the field of ecosystem services, NatCap are not the only game in town. When confined to the scope of their specific project interventions, NatCap does maintain a relatively thoughtful and carefully calibrated in-house vision parsing what they are doing (and not doing), distancing themselves from what they consider to be the more obviously problematic elements of their nascent paradigm. When asked, they acknowledged the ongoing ideological tug-of-war over how to define the vision guiding their movement. Yet on this point, I found NatCappers had surprisingly little to add other than to acknowledge it and to reiterate that they were simply doing what they were doing. As one NatCapper remarked in an interview:

> We have seen that overreliance and economic valuation isn't particularly helpful. There are a lot of groups out there that do, in my opinion, some pretty shoddy work coming up with total economic valuation of geography x or system x, and I question both the science that they use and the utility of those kinds of numbers to inform any kinds of decisions. I don't know. There's a risk that those things will win the day, ultimately, that they will usurp the phrase 'ecosystem services'—not that anybody loves it in the first place—so when you say ecosystem services and natural capital, people will only think of those sorts of things. But I'm hoping we can grow our influence and tell success stories and inspire others to show that there's a better, more practical, and more credible way of doing things.

Among this broader field of variously unrealistic, overly simplified, and occasionally somewhat frightening visions for ecosystem services, NatCap has thus tried to nuance and to distinguish its *own* approach to valuation—signaled most recently by the launch of Valuation 2.0.

CHOICES

What kind of a response does NatCap's vision of Valuation 2.0 offer to the multiple layers of critique expressed by their FAQ—to the charge that they are "putting a price tag on nature"? [147] Monikers aside, I acknowledge, first, that it *does* offer substantive improvements over elements of what they seem to have cast as 'Valuation 1.0'. Most immediately, NatCap has distanced themselves from an admittedly ill-advised preoccupation with monetary metrics as a mainstay of their strategy. Relatedly, they have embraced approaches that consider plural values and a wider array of non-monetary metrics. As noted in previous sections, they seem sincerely dedicated to co-producing knowledge about those values through participatory engagement and a range of locally-defined, deliberative processes.[148] Significantly, they also appear uninterested in the commodification of ecosystem services. Indeed, they tended to find this critique confusing.[149]

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[147] Note that I do not even consider the use of monetary valuations, provided they do not fall prey to the easy dollar signs (and which NatCappers have justifiably been frustrated with, seeing other organizations working in their field 'abusing' the technique), as being inherently and necessarily problematic. Indeed, measurement can be instrumental to political-ecological analyses highlighting the systemic production of winners and losers, exclusions and dispossessions, that accompany socio-natural change—analyses which may involve 'economic' representations.

[148] These course-corrections do not address accusations of anthropocentrism that they described many of their colleagues—the main critics with whom they interact—levelling at them. Of course, they are mostly unapologetic about asserting the need to integrate the fact of people into conservation's priorities, especially in the context of conservation's checkered history, a point to which I am sympathetic (although, on what terms this "integration" is addressed remains the real question).

[149] I suspect this confusion has a few likely sources. At least according to their own characterizations, NatCap's everyday run-ins with critics have mostly *not* involved clashes over the implications of having underspecified theories of power, political struggle, and political economy. Rather, the most readily apparent critiques within NatCap's field of vision seem to have been those from other conservation biologists: a field where many NatCappers are themselves situated. Indeed, in these contexts, NatCappers had the sense that *they* were often the ones having to assert themes of social justice. Thus, their somewhat less well-rehearsed reflections on this line of critique may arise not only from the simple fact that their work is not (at least directly) focused on creating literal markets or profit-making ventures, but also from a relative lack of exposure to and engagement with critical scholars analyzing how their work is implicated in wider power relations, with broader political struggles, and in aligning conservation with dominant discursive, macro-institutional, and political-economic logics. Certainly, their work does not endeavour to challenge capital accumulation. And, the 'decision-making' NatCap strives to improve could through an assortment of indirect means serve to reinforce broader regimes of capital accumulation, as I have suggested. But in a practical sense, while they are certainly not explicitly challenging the political-economic form of capitalism, and while their activities may indirectly bolster a given regime of accumulation, they are not turning their ecosystem services work toward producing markets or buying and selling ecosystem services.

These course-corrections, alongside others noted in this chapter, all seem like genuine improvements to how NatCap conducts its project-level interventions. While perhaps welcome on their own terms, and while displaying an intriguing degree of openness to abandoning old assumptions and to re-thinking various aspects of their approach, these moves nevertheless stop short of constituting unambiguous responses to the main questions which this chapter tries to relate to NatCap's work. What NatCap is ultimately trying to do and what they are ultimately confronting is fundamentally and inescapably political in nature. Moreover, their work is already and necessarily implicated—whether or not they like it, irrespective of if they acknowledge it, and in one way or another—in broader political struggles, in the operations of hegemonic power asymmetries, and in the 'functioning' of existing political-economic relations. The tools, practices, representations, and experts constitutive of ecosystem services have much to contribute, and indeed much *is* being contributed, for better or for worse, in consequential ways to these relations.

Yet, until the end, in NatCappers' continuing struggles with their own theory of change I discerned a strong reticence to actually name what they were up against. Despite frequent brushes with the (often detailed) realization of the politics saturating virtually every facet of their practice, they remained remarkably cagey about acknowledging let alone actively envisioning their own politics. In the case of NatCap, the prospect of trying to define a coherent political programme for their analytical work—a vision proportionate to the "radical" and "revolutionary" change NatCappers themselves aspire to and seem to recognize as necessary given the dire socio-ecological trajectories that define the present moment—in my experiences with them, such questions remained largely unanswered.

Which, in itself, represents a certain kind of answer. As NatCap's managing director, speaking at the 2016 WCC, emphasized, "we are agnostic about which values are the right or best ones. Decision-makers, companies, governments, others can then weigh those social values." While this statement is perhaps a marked improvement on the assertion that monetary values must rule the roost, this shoulder-shrugging about how their tools ultimately ought to be used in the face of massive and socio-ecologically pernicious power asymmetries starts to seem less like agnosticism and more like tacit consent. However, as I have argued throughout this chapter, NatCappers repeatedly displayed an observant shrewdness that led me to believe that this consent was not immovable. Our understanding of what kinds of politics ecosystem services expresses remains contingent on how much wiggle room we, and especially they, end up finding in their theory of change and the inescapably political choices it forces them to make.

CHAPTER 5 – UNMAINSTREAMING NATURAL CAPITAL

> There is a lot of confusion in some countries in Latin America as to what TEEB[150] is about. There are some who think that it's some kind of capitalist plot to take over Mother Nature and tear it up and sell her or do stuff like that. Nothing of that is true. […] In English, we have just one word, called 'love', which covers all kinds of love, like the love of a friend for a friend. I think in Spanish it's called *te quiero*. And for a family member it's called *te adoro*; and for your partner it's called *te amo*. But in English it's just love. Now, just as English is insufficient to explain the concept of love, I put it to you that Spanish is insufficient to explain the difference between price and value. Because for you, *valorar* is price, and *precio* is also price. The confusion I think is partly a linguistic confusion. To me, there is an ocean of difference between *valuing* ecosystem services and *pricing* nature. It's completely different. And yet time and time and time again one NGO after the other keeps telling me that 'No, but you are selling Mother Nature, you are pricing nature'. I'm saying, 'Hello, valuing ecosystem services to integrate these values into systems of national planning for public goods, to be better maintained because they are better recognized as valuable, and because they are better considered within government planning machineries—how is *that* pricing Mother Nature?
>
> - Pavan Sukhdev, study leader of The Economics of Ecosystems and Biodiversity (TEEB)

GETTING STUCK IN

In previous chapters, I examined one of the most emblematic organizations working to "mainstream" ecosystem services, the Natural Capital Project (NatCap), and the experiences of its personnel as they struggled to make sense of ecosystem services and how to make it work in practice. In a very different context, this chapter also considers efforts to make sense of ecosystem services. Here, I begin to present organizational-ethnographic research conducted inside "the largest global effort in establishing a synthesis of ecosystem services and biodiversity" (Costanza et al. 2017, 11): the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES, otherwise referred to as "the Platform").

As discussed in Chapter 1, the work of both NatCap and IPBES 'happens' across widely dispersed sites, trans-local processes, and far-reaching epistemic and policy networks. While their entanglements in their respective "fields" are both characteristically 'wide' insofar as their activities (by design) involve their experts in cross-scalar, multi-context dynamics, the nature of either organization's field-level entanglements differs significantly. NatCap's mode of operation has entailed sending small teams of ecosystem services experts out across the transnational policy networks that span the apparatus of biodiversity conservation. Maneuvering its circuitry, these circulating experts have endeavoured to mainstream natural capital approaches, context-by-

[150] The Economics of Ecosystems and Biodiversity (TEEB). This initiative was discussed in Chapter 1.

context, into the situated forms and functions of conservation, "work[ing] with partners on the ground to provide solutions to real-world problems in 50 places in 24 countries" (Natural Capital Project 2016, 3). In contrast, rather than casting such experts *out* across these broadly distributed networks, IPBES has instead gathers them together *into* its constitutive process. The Platform has by now assembled over a thousand experts in biodiversity and ecosystem services and tasked them with formally defining and institutionalizing the meaning of these notions. In this chapter and the next, I analyze the many contestations that unfolded during this process, how and in what forms these struggles took shape, and what it has come to produce.

First, however, as a means of introduction, I will begin by drawing a contrast with one of the Platform's most prominent organizational counterparts. In June of 2012, in Rio de Janeiro, I saw Pavan Sukhdev deliver the remarks highlighted in the epigraph above to a small audience gathered at the Hotel Sofitel Copacabana for an "International Workshop on Business and Biodiversity." The all-day workshop was one among hundreds of side events, often strikingly similar in message, planned to run in parallel with the United Nations Conference on Sustainable Development (better known as "Rio+20"). As study leader of The Economics of Ecosystems and Biodiversity (TEEB) project, Sukhdev represents another influential standard-bearer in the wider, transnational campaign seeking to "mainstream" ecosystem services approaches in global environmental governance. Sukhdev was prolific over the two-week mega-conference, touted as the largest international summit ever held. Delivering speeches, providing commentary on the negotiations, and commanding the attention of the many audiences gathered before him, he had become, in the words of his panel's moderator, a man who "requires no introduction."

The fanfare orchestrated around "natural capital" that summer was palpable. Rio+20 built on previous and similarly-themed international spectacles constituted by the 2002 World Summit on Sustainable Development in Johannesburg, again at the 2008 World Conservation Congress in Barcelona, and surrounding meetings of the Convention on Biological Diversity in Bonn (CBD/COP-9 in 2008) and Nagoya (CBD/COP-10 in 2010) (Corson et al. 2014; Goldman 2007; MacDonald 2010a, 2010b; MacDonald and Corson 2012; Suarez and Corson 2013). In Rio, at event after event, I watched corporate CEOs, senior UNEP officials, celebrity conservationists, development bank technocrats, eminent biologists, a series of Prime Ministers, several monarchs, Edward Norton, and a host of other speakers announce in succession that they had joined together around the idea. I saw TEEB's slogan of "Making Nature's Values Visible" emblazoned on banners raised at sites throughout the city. There was, according to the World Bank's VP for Sustainable Development, "no going back." That June, I spent two weeks immersed in side events, workshops, speeches, presentations, declarations and dialogues asserting the necessity of ecosystem services thinking, the ascendancy of the green economy, and the arrival of the age of natural capital. Rio+20 represents a high-water mark in this twenty-year campaign to propagate and hardwire ecosystem services concepts into biodiversity conservation. Sukhdev and TEEB are emblematic of this project but, as noted in previous chapters, hardly alone.

Amidst these affirmations, the sense of exasperation in Sukhdev's comments seem rather dissonant: they signal cracks in the performative consensus these affirmations were meant to produce. His remarks begin to convey a central theme which I will continue to unpack in this and the next chapter. Throughout my fieldwork, I was continually encountering practitioners who were both conflicted about ecosystem services yet increasingly coming to rely on its tools, concepts, and approaches. Indeed, they would often express hostile stances toward certain (and occasionally all) aspects of the concept at the same time that they were selectively engaging it through their

work. I met ardent proponents of the idea, certainly, and an assortment of critics, but far more commonly I encountered these ambivalent practitioners unsure of what to make of the cacophonous discourse in which they had been enrolled. As underscored in Sukhdev's commentary, they have constituted a policy discourse riven with tensions over what kinds of politics ecosystem services expresses, what the concept is supposed to do (and not do), and toward what ends it may be used (or be misused).

This chapter continues to unpack this ambivalence and ponders its significance. How important is it that many self-styled practitioners of ecosystem services do not believe that they are furthering the marketization, commodification, or financialization of nature? Or that they are in many instances not only ambivalent about but actively opposed to such an outcome? What sorts of possibilities might such a recognition open up for critical scholars, for conservation scientists, and for the prospect of coalition-building across contemporary political and epistemic struggles to shape the meanings, and imaginable futures, of living nature? Reflecting on Naomi Klein's (2014) hope for the international scientific community as potential "fifth columnists" in struggles against capitalism, Noel Castree (2015, 2017a, 2017b) notes a growing acknowledgment—and what he perceives as a nascent radicalization—among global change scientists concerning the momentous political-economic implications of their findings. Reviewing recent global change literatures, he wonders "whether, and in what ways, geoscience[151] can both invigorate and be energized by a renascent anti-capitalist movement" (Castree 2017b, 53). In this chapter, I tackle these questions, and especially Castree's speculations about a "more deeply radicalized" environmental science, once again from the intimate vantage of experts now practically having to navigate them.

IPBES represents one of the clearest, most literal illustrations of ecosystem services as an ongoing site of political and epistemic struggle. Indeed, the process serves not also as a vivid reflection of these tensions but has come to represent an important discursive arena where they are being actively deliberated on, contested, and stabilized through negotiated settlements and dynamic expert agreement. IPBES has posed a dilemma for critics of ecosystem services pondering how to orient themselves in relation to the process—and, more specifically, whether to involve themselves in its formation. As I learned, many traditional critics (of multiple varieties) ultimately did decide to join the fray and are now actively contributing to the process. Despite its many frustrations, IPBES has, to their surprise, proven itself more responsive to their ideas than initially anticipated. This chapter examines the sometimes-successful efforts of these experts to bring a range of subaltern, heterodox, and critically-aligned knowledges into the Platform and reclaim the meaning of ecosystem services.

Beyond the question of *whether* to constructively engage this organizational embodiment of ecosystem services discourse—a prospect which, despite its limitations, Castree speculates is at least in principle both possible and worthwhile[152]—this chapter begins to explore *how* such engagements actually unfolded in IPBES and with what sorts of effects. While acknowledging

[151] When Castree (2017b, 70) refers to "international geoscience," he is referring specifically to "a large and wider field of research and teaching that covers a number of disciplines and which encompasses the study of Earth surface phenomena (e.g. rivers, ecosystems) and, to a lesser extent, sub-surface phenomena (the focus of geology)." In these respects, the epistemic networks intersecting around ecosystem services in general and IPBES specifically represent clear (if not central) examples of this field.

[152] Castree (2017b, 70) concludes his essay by remarking that "[w]e might hope that a concerted attempt to infuse geoscience's formal radicalism with something more substantive can, in time, challenge a capitalist system it will otherwise leave intact."

myriad hegemonic complicities among the scientific establishment, Castree (2017b, 61) rebukes detached criticism and admonishes "active engagement across disciplinary lines so that geoscience can be thoroughly 'socialized' in both an analytical and political sense." In precisely these terms, I will illustrate efforts by critical scholars of varying stripes to pry ecosystem services from its more problematic political registers and salvage others from it: to 'unmainstream' ecosystem services from its own mainstream.

These struggles within the Platform provide important clues about the scope of political possibility surrounding ecosystem services but also the broader prospects of Castree's (2017b, 69) admonition for critical scholars to "get stuck in" (possibilities which I suggest are significant) as well as its limitations (which I suggest are also significant). Critical scholars have begun to take new strides in this direction (Castree et al. 2014; Lave et al. 2014; Tadaki et al. 2015), and calls for much more robust engagement with the social sciences (including critical scholarship) have also grown increasingly vocal and commonplace among global change scientists, who are recognizing the need for centrally incorporating—rather than bracketing out—the workings of power, institutions, political economy, and representational politics in their analysis (Hackmann, Moser, and St. Clair 2014; Reid et al. 2010). Indeed, as I discuss in the next chapter, IPBES has become especially open to the suggestion (Berbés-Blázquez, González, and Pascual 2016; Larigauderie, Stenseke, and Watson 2016; Stenseke and Larigauderie 2017).

While dominant conceptions of ecosystem services have remained a tenacious challenge for the dissenters trying to steer the Platform away from these ideological pitfalls, the process has nevertheless taken some unexpectedly interesting turns as a result of their engagements. As one of these dissenting experts who had become centrally embedded in the process remarked, the shaping of ecosystem services through the Platform represented a terrain "worth struggling for." My argument in this chapter largely echoes this sentiment and empirically explores the broad hope articulated by Castree (2017b, 67):

> the Left of environmental social science and the environmental humanities possess a repertoire of extraordinary insights and arguments that stand to change the way many geoscientists might think about their claims and aims. The practical question is: how might that repertoire be broadcast to geoscientists, especially when many have a stunted sense of what non-positivist non-scientists do? The intellectual question is: what sort of "interdisciplinary" inquiry might follow and what ends would it aim to serve?

IPBES is both a reflection of the rise of ecosystem services and a performative site for reproducing and potentially re-making its discourse. It has created a space where these questions regarding what ecosystem services means, what it does, and what it may become, have remained politically contingent and amenable to struggle. For the critical scholars whom I encountered in the Platform, the tools, knowledges, and concepts now bound to dominant formulations of ecosystem services seemed ripe for re-negotiation and even appropriation. The discourse, ever-slippery and polyvocal, could perhaps be re-fashioned into something at least benign and potentially useful in constructing more just, more egalitarian, and more radically transformative and counter-hegemonic political-ecological projects. Despite their hesitations, a critical mass of critical experts tried to make these speculations a reality.

UNHAPPY INTERACTIONS: THE BOLIVIANS

While Sukhdev was delivering his remarks, on the other side of the city negotiators were hammering out a worldwide endorsement of the "green economy," which was to be one of the

flagship agreements to come out of the summit. However, after encountering "fierce resistance" from the negotiating bloc of G77/China—actions that included simply walking out of the negotiations at one point—this new vision for sustainable development was left in tatters (or, in this instance, left in brackets), resulting in "the creation of a very defensive and highly qualified text" (IISD 2012, 23). The careful parsing and back-footed tenor apparent in Sukhdev's comments seems to express this same "very defensive and highly qualified" character.

His comments refer specifically to another somewhat larger-than-life personality who has, like Sukhdev, also figured centrally in my research, while serving as an interesting foil and frequent antagonist to Sukhdev himself. Indeed, as Sukhdev later explained in the workshop, he would soon be boarding a plane to confront this critic in person:

> When I go to Bolivia, hopefully at the end of this month, I will have to sit down and explain this again and again. And I'm very happy to do it. Twenty times, fifty times, a hundred times, as many times as it needs and for as many days as I have to. I hope that it doesn't mean that I have to learn Spanish as well because I'm not good at languages I have to confess [audience laughter]. But I'm willing to go the distance to get this message across.

When Sukhdev mentions "some countries in Latin America" and "Mother Earth," he is making a not-so-oblique reference to a set of vocal detractors, foremost among them, Diego Pacheco, an influential vice minister and international environmental negotiator for the Plurinational State of Bolivia, as well as an outspoken critic of TEEB and of ecosystem services more broadly across multiple prominent intergovernmental fora. That Sukhdev has to dedicate this amount of energy and has ascribed this much importance to neutralizing these criticisms is worth noting. Indeed, as Bolivia's forest negotiator at Rio+20, Pacheco and his delegation had played a leading role in waylaying efforts to establish formal consensus around UNEP's vision of a "green economy." As ENB (IISD 2012, 21; 18) reports, "Bolivia summed up the opposition" from G77/China, expressing "reservations regarding all references to the green economy and any interpretations that may be construed as commodification of the functions and cycles of nature."[153]

Among those familiar with TEEB, encounters between Pacheco and Sukhdev have achieved a level of notoriety. For instance, the two of them were scheduled to appear together, among other speakers, in a panel discussion in 2013 at the 7th Trondheim Conference on Biodiversity. Once again, ENB provides a concise summary of Pacheco's interventions:

> [Pacheco] drew attention to two distinct visions on ecology and economy: the western, anthropocentric, and market-oriented one that sees nature as capital; and the cosmocentric one, based on an indigenous peoples' mindset, which sees Mother Earth as a living being that is influenced by, but not centered on, markets. He noted that the second vision implies the non-commodification of natural functions and promotes the rights of peoples and of Mother Earth, adding that the ideas of natural capital and ecosystem valuation will not move ecology forward.

As one of TEEB's lead coordinators explained to me, Sukhdev had "a very unhappy interaction with Diego." Seeing the danger, the coordinator quickly "walked up to Diego afterwards and tried to explain that I found this utterly unhelpful and that we all agree that's not

[153] In his interventions, the ENB adds, he also "upheld food sovereignty as the right of peoples to determine their own policies for distribution of food" and "interpreted the strengthening of capacities in science and technology as including indigenous knowledge" (IISD 2012, 18).

the way to go [i.e the commodification of ecosystem services]. And, by the way, that's not TEEB's position." Apart from Trondheim and Rio+20, Pacheco and Bolivia's delegation had also brought this critique to negotiations in the Convention on Biological Diversity (CBD). In 2012, for example, the year of CBD/COP-11 in Hyderabad, he remarked to a reporter:

> We are totally against mainstreaming biodiversity and ecosystems with a profit-oriented, pro-market approach. […] We believe it is not right to move conservation and its sustainable use into plain economic terms […]. Through the present mode of mainstreaming biodiversity, CBD gives leverage and power to the private sector and the market forces for utilizing the natural resources only for their profits. Everything connected with nature is being commodified, putting at risk the livelihoods of indigenous and local people, and of the common goods. (Fatheuer 2016, 15)

The beleaguered tenor of Sukhdev's comments at Rio+20 begin to make much more sense when placed in this broader context. His comments contrast markedly with those I observed two years earlier at the launch of TEEB's synthesis report in Japan at CBD/COP-10 where Sukhdev had declared in triumph that ecosystem services was "an idea whose time has come" (Suarez and Corson 2013). I had attended that conference with a group of researchers (Campbell et al. 2014) which observed virtually no dissent—especially when compared to the interventions noted above—as "[s]ide event titles changed, corridor conversations shifted, and high-level politicians struggled to reformulate their speeches in the language of ecosystem services and more specifically TEEB" (MacDonald & Corson 2012, 171).

In Rio, despite the fanfare that surrounded him, Sukhdev conveys visible frustration, his hands full in the intervening years struggling to maintain a perhaps not-so-hegemonic consensus around its ideas. For instance, in 2012, several months prior to Rio+20, Sukhdev attended a "Global Dialogue on Scaling up Biodiversity Finance" in Quito which had been convened by several governments and the CBD Secretariat (Farooqui and Schultz 2012). There, an activist from the Global Forest Coalition read aloud an open letter signed by 170 social movement groups and civil society organizations which denounced the notion of the green economy as "promot[ing] the implementation of neoliberal measures to address the climate problem, biodiversity management, and protection of forests" (Accion Ecologica 2012). The letter specifically identified the "false solutions" advanced by "the so-called TEEB," which it accused of advancing "a tangled web of proposals that essentially seek control over land, forests, water and biodiversity as a means to compensate for the loss of biodiversity or as raw materials for new technology" (Ibid). The letter urged governments to "stop the commodification of nature, prevent the advance of the so-called green economy" and to "act in line with models of society that differ from the capitalist system" (Ibid). Sukhdev, it seemed, was growing used to mixed welcomes.

When I met Pacheco the following year, he was open about the need for these interventions. "Bolivia was very active in the Rio+20 negotiations," he explained, adding that "the fight at Rio+20 was to stop this very heavy process that was coming to have a recipe for all the world, that all should move into the green economy." He said that his government had been observing how UNEP was strategically steering discussions "toward the green economy as the new paradigm for sustainable development." From the UNFCCC,[154] to the CBD, to Rio+20, and beyond, he sought to contest these "connections between the TEEB study, the green economy, and trying to create a

[154] As his delegation's forest negotiator, Pacheco noted that Bolivia was "the only country criticizing the approach," referring to proposals being advanced around REDD+ at the time.

new paradigm. For Bolivia, this paradigm is very much a move toward markets into nature, this idea of internalizing the costs, making visible the value of nature, just to move markets into nature, moving markets into the public sector, into common goods."

These remarks are especially fascinating because of where he shared them with me. I met Pacheco in December of 2013, the year after Rio+20, in Turkey for a meeting of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), where he was leading the Bolivian delegation to the second plenary of the newly-established body. Comparisons between IPBES and TEEB are impossible to resist: both are large-scale and roughly contemporaneous multilateral science-policy initiatives structured around themes of nature and its valuation; both seek to induce improved environmental decision-making across all scales of governance through the production of authoritative, knowledge-synthesizing assessments; and both enroll hundreds of technical experts with competencies in the study of biodiversity and ecosystem services (interestingly, sometimes the same experts).

Pacheco's contributions and central role in the Platform set up a central puzzle which I explore in this chapter. Given his deeply critical stance regarding what he has described as a problematic and market-saturated discourse surrounding ecosystem services—which, he has claimed repeatedly, advances the "commodification of nature"—his decision to participate in IPBES at all is somewhat striking. The organization has a big prominent "ES" inscribed in capital letters in its name and, unsurprisingly, the notion was a central element in the broader vision that motivated the Platform's inception. What was Pacheco doing here? Why had he decided to contribute to the process and what precisely *was* he contributing?

DISSENTERS IN IPBES: LOOSE IN THE SCIENCE-POLICY HENHOUSE

Pacheco demonstrated a regular capacity, seemingly against the odds, to successfully wrestle his opponents in the Platform down to the proverbial mat. Since its establishment, Pacheco has been busily widening out, watering down, countervailing, and re-prioritizing key elements of IPBES in an effort not only to blunt what he considered to be its more dangerous tendencies but to redirect them. As I came to learn, and partly as a result of Pacheco's efforts (combined with other important dynamics which I will discuss), IPBES has come to diverge from TEEB, as well as from many other comparable initiatives, in several important respects. These divergences include, most obviously, IPBES's relatively subdued emphasis on economics but have also shaped the broader character of its aims, its formal conceptual framework, and, I argue, its ideological orientation, the political valence of its outputs, and its effects on the many hundreds of experts brought into the process.

Throughout this chapter, I return to Pacheco's prolific interventions wrestling with the hegemonic and market-oriented tendencies of ecosystem services and their manifestations in IPBES. However, as I proceed, I show that these actions were themselves made possible by the broader efforts of a wider and less visible assortment of other participants operating from various roles throughout the still-forming bureaucratic terrain of the Platform. Despite being heavily outnumbered (although not alone), despite various setbacks and reversals over the course of the Platform's unending negotiations, and despite the institutional inertia of a generally apprehensive, cautious organization crystallized out of such a fraught neologism, Pacheco and a variety of other dissenting scientists, experts, and ecosystem services specialists have persevered to make the Platform different than it otherwise could have been. They have re-negotiated mainstream positions, profaned established categories, and created openings for subaltern, heterodox, and

critical perspectives, stretching the Platform and the very idea of ecosystem services itself, however provisionally, and however incongruently, to encompass a range of unexpected political purposes and significations.

These dissenting experts have interpreted IPBES and the epistemic formations it aims to consolidate, despite all their imperfections, as not yet beyond redemption. They have, in short, chosen to engage. The decision was for many of these experts freighted with dilemmas. To my surprise, I repeatedly encountered prominent academics who had been actively contributing to the critical scholarship on ecosystem services—indeed, sometimes leading it—who had somehow found themselves, despite their objections, also actively contributing to the work of the Platform. For instance, one such expert had penned several very well-known critiques of ecosystem services and IPBES. This expert recalled colleagues' reactions to her publications:

> I started getting comments from people at my university. They said, "Yes, this is nice and interesting, but what are *you* going to do? Are you going to engage? Or is it just a remote and distant criticism?" Actually…I was thinking it was just a remote criticism at that point because I had no intention of joining. At that point I thought the whole thing was ridiculous, it would never work, it would only repeat the problems in SBSTTA[155] […]. I thought we would have been better off without an IPBES. I'm still not sure. But then I also started thinking, okay. Why not engage? So, I made an effort.

She described submitting her name through IPBES's byzantine expert nomination process and to her "enormous surprise," she was selected. Variations of this sentiment were expressed to me by many other experts, often the social scientists and ecological economists, together with a few key natural scientists, who had under similar terms found themselves deeply engaged in the process. Echoing another commonly expressed sentiment, this expert noted her sense of surprise at what the process seems to have yielded so far. "This is not what I expected," she began. "If you look at the deliverables, they are heterodox." She noted multiple examples—its conceptual framework, its approaches to indigenous knowledge, values and valuation, and even the assessments themselves—where the Platform "so far has resisted that kind of appropriation," referring to what she characterized as prevailing and "really flawed, really problematic visions of economy and markets." She remarked, "So far, IPBES has been distinctive in this respect."

She also highlighted a defining tension in the Platform which had been tugging IPBES "back and forth between really high ambitions and equally strong forces that want to narrow IPBES down." Much of this chapter, and the next, revolves around this tension. While her expectation had been that these nascent expressions of heterodox conceptualizations of ecosystem services emerging in the Platform "would be the first thing to go over overboard," she also added that "the fact that there's still this struggle […] could be a reason to be optimistic." While she believed its vision of a panoptic compound knowledge was ultimately "impossible," she had also concluded that "the institution is fundamentally torn—and that is a source of hope." Another expert admitted she thought she "would be the only leftist trying to fight alone against ecosystem services. That was not the case at all." And again, as an indigenous expert remarked, "I didn't have a lot of faith in the process at first with IPBES, but now that I see the outcome, I'm happy," referring specifically

[155] SBSTTA stands for "The Subsidary Body on Scientific, Technical and Technological Advice," an "open-ended intergovernmental scientific advisory body" that reports to the Conference of the Parties to the CBD. Many IPBES participants criticized the process as having grown overly "political" (e.g. Koetz et al. 2008), although this claim is fiercely contested for reasons I will elaborate on later in this chapter.

to the work of the Platform's expert group on valuation. Another prominent critical scholar who had been enlisted to IPBES explained, "I don't like the perspective of the critical outsider. It's your involvement in the process which gives you your legitimacy to criticize it." This expert, who had also been involved in TEEB, recalled what had happened there and why neoclassical economists were able to dominate the process:

> [T]here were so few of us. The problem is that, as it often happens, most critical scientists decided not to be part of the process. So, in the end we were a very small minority. It's a very characteristic phenomenon of our time, that the self-proclaimed radical critics have crept away from the mode of real-world politics and policy. […] [They] have decided to shelter themselves in abstracted moral positions where you do not really have to get your hands very dirty and you can just criticize stuff. This is an attitude where in the end you just give away power. […] You just retreat in your academic silos where you can be as radical as you want, but you don't usually make a difference in political processes. This is why I engaged in TEEB, critically, even if it was not the place where I could feel the most comfortable. Someone has to *be* there.

Pacheco agreed that he had also been "very critical" of TEEB and recalled specific interactions that had made Sukhev "very upset." Paraphrasing an exchange of theirs, he remembered Sukhdev telling him that he had been "distorting the whole issue," which prompted Pacheco to invite him to Bolivia—a proposal which Sukhdev accepted. According to Pacheco, they met over three days. Pacheco distinctly recalled being told repeatedly, "you have to read Chapter 4! Chapter 4 is very much about the whole range of valuation," although Pacheco said he remained skeptical. Pacheco continued to make his case for why he believed TEEB was "the instrument of the commodification of nature," a premise which Sukhdev consistently denied. Eventually, the Bolivians agreed to review TEEB's work, submit comments, and see how TEEB would respond. By the end, Pacheco recognized that Sukhdev "was very convinced, and very concerned with the critiques of Bolivia to TEEB that he was an instrument for the green economy." And, in turn, Sukhdev remained insistent until the end that "it's not true" to which Pacheco concluded, "let's see."

Pacheco expressed similar concnerns about IPBES. He acknowledged that the "paradigm of the green economy" had become the "main issue in the CBD," which in turn, had "moved into IPBES." He also noted that "at the beginning we were very much against the idea of ecosystem services. We discussed this in the CBD. Finally, we decided to get into the discussion in order to effectively put more of an understanding of the different dimensions," referring to his prolific efforts in the Platform aimed at widening out (or supplanting) prevailing conceptualizations of ecosystem services. Pacheco explained that "the decision was at a high level to participate, to give some influence—a *positive* influence to the discussion" in IPBES. When I asked him whether he was worried about legitimizing a notion which he had characterized as fundamentally dangerous, he laughed. "Good question." While he recognized the usefulness of having data from the scientific assessments, he also acknowledged the implicit threat these ideas represented. "We're trying to mitigate the danger," he explained. "It is more dangerous not to participate," he added, characterizing the approach as a kind of "harm reduction" strategy. Yet beyond merely containing the potential damage IPBES might cause, I also sensed a discernible (albeit guarded) optimism in his remarks about the prospect of "trying to integrate new knowledges into the Platform." He was not the only critic who had come to develop such a sentiment.

One way or another, a cast of dissenting experts, the Bolivian delegation, and an eclectic array of other practitioners have chosen to "get stuck in" (Castree 2017b, 70) to the work of IPBES, a sprawling bureaucratic process which now comprises UN officials, academics, politicians, conservationists, indigenous experts and advocates, state bureaucrats, and so on, hundreds of them, performing various roles among a variety of structured activities. Through the regimented procedures prescribed by the Platform, these practitioners have been tasked not only with assessing current knowledge on the state and trends of ecosystem services. They confront the challenge of defining what ecosystem services means, what it should come to represent, what kinds of politics it should express.

Analogously to previous chapters, I will explore the struggles that erupted out of these challenges through the experiences and perspectives of those participating in them. I complement these perspectives with my own observations of how these contestations unfolded across the Platform's bureaucratic terrain during my fieldwork. I highlight the specific efforts of 'dissenting' experts and the effects they have had on the process. Operating from various positions within the Platform, they have endeavored to steer the process away from what they perceived to be its more egregiously problematic tendencies and toward other, alternative possibilities whose forms remain unclear. Another critical scientist laid out the stakes for radical scholars in this way:

> I wouldn't push the message as far as saying critical scholarship should *endorse* the ecosystem services concept. I'm saying they have to engage […] If they believe that ecosystem services is totally wrong and so on, that's fine. Maybe they are right. I believe there's a theoretical core in the concept that is worth struggling for and that it's an important tool not to give away, or to give up. Because by engaging with the concept you can influence the direction of the policies that arise from it. In the end, whether you call it ecosystem services or not is not the big issue. The important thing is not to lose sight that our dependence on ecosystem services are not really an option. It's the very material foundation of life. You might call it services, or if you don't like it, you can call it functions, or whatever. But this is a very important problem. The ecological basis for life on Earth and for long-term prosperity is being destroyed. And that is why I think we have a battle to fight here.

As I will show, this battle has been unfolding across the Platform's rules and procedures, its first work programme, the instructions given to its expert groups and task forces, the parsing of its Plenary decisions, nominations for its subsidiary bodies, the definitions in its formal conceptual framework, its methods for modeling and scenario-building, its protocols for incorporating diverse value systems and indigenous and local knowledge, its thematic and methodological prioritizations, its process for selecting assessment authors, its aims, its scope, its mandate, its outputs. Each element has been subject to dissent and sometimes fierce negotiation from within its own bureaucratic machinery. The narrative offered in this chapter depicts the Platform's formation as a site of discursive struggle where broader tensions over the political meaning and political implications of ecosystem services (i.e. the ones exasperating Sukhdev) are literally being negotiated.

In contrast to the "mainstreaming" epitomized by Sukhdev and the Natural Capital Project, I portray a kind of "mainstreaming-in-reverse" aiming to dislodge ecosystem services from its own mainstream. In this context, I illustrate efforts to steer the Platform away from the more narrowly economistic, market-based, and neoliberal expressions of ecosystem services toward the production of knowledges less bound to these logics and more amenable to the envisioning of

alternatives. As I conclude later, these dissensions signal the prospect of 'judo-flipping' ecosystem services discourse (or elements of it) toward a more robustly counter-hegemonic politics. Moreover, they provide a modest affirmation of Castree's (2017b, 70) hope for the plausibility of "infusing" the global environmental change research community "with something more substantive": the stirrings, perhaps, of a radicalism proportionate to the ruinous socio-ecological change predicted in their findings.

MAKING FELLOWS: BUILDING FIELDS BY BUILDING SUBJECTS

By most accounts, the most crucial thread in the story of IPBES traces back to the Millennium Ecosystem Assessment (MA), which was conducted from 2001-2005. As the chair of one IPBES assessment stated, it was "very much the inspiration for IPBES. It's Point A to Point B." The MA was, like IPBES, a large-scale international scientific knowledge platform structured around ecosystem services. Indeed, it was arguably the first. Crucially, the MA adopted as its main focus "the linkages between ecosystems and human well-being and, in particular, *ecosystem services*" (MA 2005, v; emphasis added). As noted earlier, the MA is widely regarded as a foundational moment in the rise of ecosystem services discourse: it established the concept—at that point still a mostly esoteric neologism—as a globally recognized field of research and practice. It was instrumental to building the epistemic communities that now sustain it and the discourse coalitions that began to form around it.

To produce its assessment reports, the MA mobilized over 1,300 biodiversity experts from around the world, including some of the key players who would later agitate for the creation of IPBES, lead the Platform's fledgling subsidiary bodies, and populate many of its expert groups. Almost every MA participant I encountered who had ended up in IPBES described the MA as not only an influential scientific intervention but a professionally and personally pivotal moment in their lives.[156] One IPBES expert, for instance, explained that for herself and for many other participants the MA had been an "amazing experience," emphasizing especially the power of its Young Fellows program which effectively launched the academic careers of many junior scientists who would later lead the emergent field of ecosystem services.[157] Aside from its final reports, she stressed how the MA process had produced "a totally different generation who are in their late 30s and early 40s who have a completely different socio-ecological vision of things."

Similarly, the co-chair of one ongoing IPBES assessment—himself a seasoned veteran of multiple past international assessment processes (including the MA)—explained how processes like IPBES could be "profoundly influential in defining research agendas and identifying gaps that lead to CFPs [call for proposals]." He especially emphasized that these are deeply "social processes," which only function through substantial, voluntary investments of time, energy, and resources from its participating experts. This dedication arises, in turn, from a strong sense of "team cohesion" across each of the assessment's chapter groups and an internalized feeling of "not wanting to let down your peers." These, he argued, not the science, were the "glue that keeps the whole thing together." Beyond the production of the assessment itself, he especially emphasized that by "putting a bunch of leaders in the field together, they form relationships and collaborations." In this way, IPBES was being positioned not only as the source of reports but, as

[156] Three of the four NatCap co-founders participated in the MA and described their subsequent work as having arisen in part from that experience.

[157] Herself an ecologist, she emphasized the growing prevalence of proficiencies among these scientists with "completely different" mixed methods approaches, with aptitudes for "switching back and forth in two seconds!"

this expert explained, the source of a new generation of scientific subjects produced through the Platform's "social process." Following this precedent, IPBES has instituted its own Young Fellows program and has integrated junior scientists into each of its assessments. I noted this expert, an old hand at these processes, taking special care to impart these lessons to the newly arrived Young Fellows: of using IPBES as a professional springboard, fostering collaborations, and forging relationships that would grow whatever new fields of knowledge arose out of IPBES.

Many veterans of the MA, now in IPBES, characterized the assessment process as an affectively potent experience. Particularly for the junior scientists, the MA constituted a kind of liminal space forcing them to find common ground among what was for many an abnormally interdisciplinary group. Over its four years, the MA prompted them to extend themselves beyond their disciplines and to learn from one another in order to get the job done: to struggle together through challenging questions, to try out new professional identities, and to form what would become enduring personal friendships and professional relationships that would continue to advance the MA's vision into the future. As I conclude later, acknowledging this subject-making dimension of the process is crucial. Irrespective of the specific shape of the formal outputs arising from IPBES's first work programme, these intersubjective effects on its participating experts, as in the MA, may end up constituting one of its more enduring legacies. Further to this point, much of the following discussion will focus more on these social processes underlying the production of the Platform's various documents than on the careful parsing of the text of the products themselves. Indeed, the technical language of these documents quite effectively filters out these social processes from view. The following discussion endeavours to reach beneath their surface to narrate the rich social worlds submerged there.

Figure 26 - Plenary negotiations at IPBES-3 in Bonn, January 2015

THE TERRAIN OF THE PLATFORM

The MA was only a 'one-off' initiative and concluded in 2005.[158] However, its template would inspire what followed. After seven years and many rounds of intergovernmental

[158] Moreover, it was also *non*-governmental (as opposed to "intergovernmental" like the IPCC). Many advocates of IPBES argued that because the MA did not proceed with the explicit guidance and consent of governments, it was limited in its ability to address their decision-making needs, priorities, and concerns. In other words, because they had not asked for it and because its products were not catered to them, it would be easy to ignore. Nevertheless, the MA's conceptual framework (again, organized around ecosystem services), elements of its institutional design, and the epistemic community it catalyzed, led directly to the formation of IPBES and inspired its expert group processes.

negotiations, IPBES—the spiritual successor to the MA, the biodiversity equivalent to the IPCC, and the less-economically-dominated counterpart to TEEB—was formally established in April of 2012 in Panama.[159] At present, the Platform is comprised of 127 member states. Analogously to other intergovernmental scientific bodies, IPBES is constituted by its Plenary, the decision-making body of IPBES which is comprised of national governments; a 10-person Bureau which oversees and administers IPBES on behalf of the Plenary; a 25-person Multidisciplinary Expert Panel (MEP) responsible for overseeing and carrying out the Platform's scientific and technical functions; and a small Secretariat based in Bonn, Germany (where IPBES is officially headquartered) which coordinates the globally dispersed activities of the Platform, supports the Platform's considerable logistical requirements, and provides a range of behind-the-scenes 'stage management' functions to its overall performance.[160] Figure 26 shows a diagram prepared by NeFo and ValuES (2017) that depicts each of these structures and their functions. The Platform is funded by its member states which have collectively contributed around US $28 million since its establishment up to the time of this writing. This funding is further augmented by "in-kind" contributions, often in the form of paid personnel, facilities, and technical support, from member governments, strategic partners (such as UNEP, UNDP, UNESCO, and FAO), and NGOs (such as IUCN, ICSU, and Future Earth).[161]

[159] While the MA was widely recognized as the main precursor to the Platform, there was another set of developments that also contributed to its formation. Before ending his term as President of France, Jacque Chirac attended a biodiversity themed conference in 2005 hosted by UNESCO in Paris where he called for an 'IPCC for biodiversity" (Vadrot 2014). This event kicked off a French-led process, with important support from DIVERSITAS (an organization that was later folded into Future Earth), called the International Mechanism of Scientific Expertise on Biodiversity (IMoSEB). Eventually, this process merged with nascent efforts to produce a follow-up to the MA and, under the auspices of UNEP, negotiations around the establishment of IPBES finally got underway.

[160] The Bureau and MEP are each divided evenly between the five recognized UN regions of (1) Africa, (2) Asia-Pacific, (3) Latin America and the Caribbean, (4) Eastern Europe, and (5) Western Europe and others Group (WEOG), which includes the United States.

[161] Interestingly, apart from the Secretariat, IPBES personnel are not paid for any of their work with the exception of travel reimbursements to defray costs related to attending meetings (although only those from developing countries are eligible to claim travel expenses).

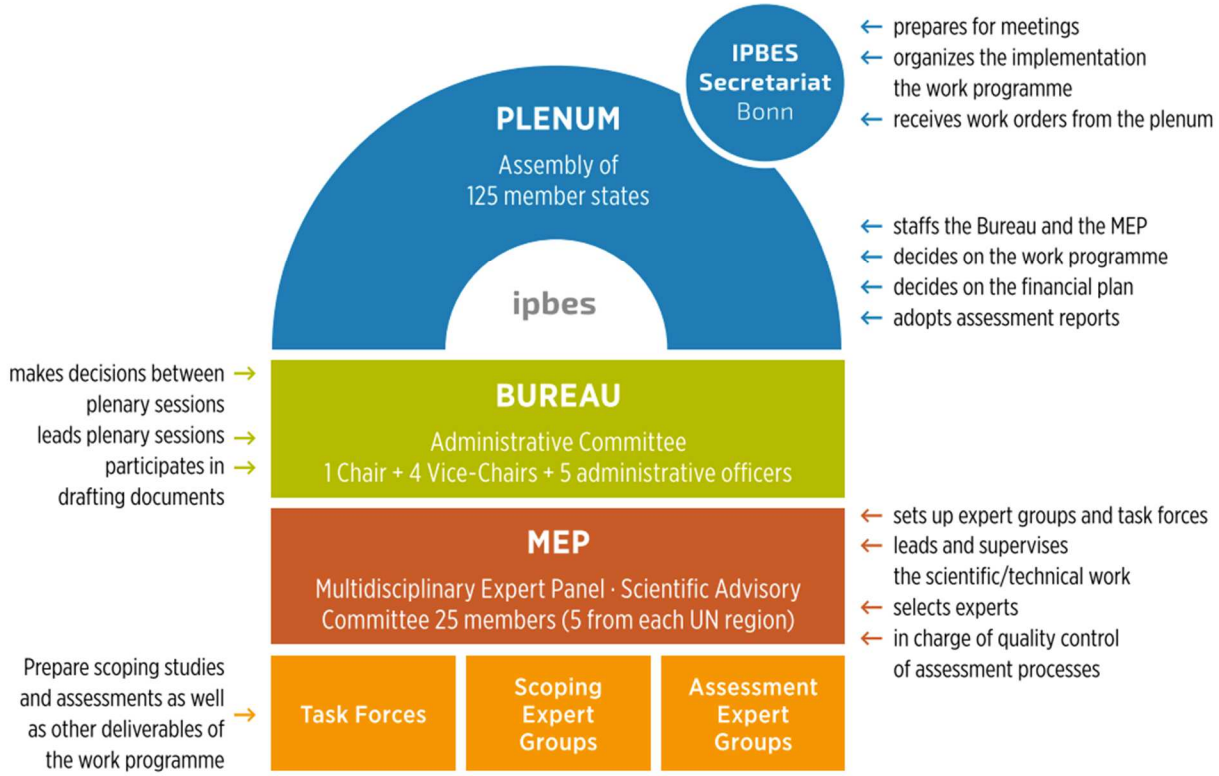

Figure 27 - Diagram prepared by NeFo and ValuES depicting the various bodies that constitute IPBES and their main tasks (NeFo and ValuES 2017)

IPBES was given an official mandate to "strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being, and sustainable development" (IPBES 2012). To achieve this mandate, IPBES performs four overarching functions, chief among them, (a) the production of "regular and timely assessments on biodiversity and ecosystem services" across various spatial, temporal, and management scales, and on various thematic and methodological topics as decided by the Plenary. This function is complemented by three further functions related to (b) capacity building to support participation in the work of the Platform, (c) policy support tools and methodologies for translating assessment results into policy, and (d) identifying knowledge gaps and catalyzing further research (IPBES is not supposed to conduct original research but instead synthesize current knowledge). Since 2012, IPBES has been prolific. Its first work programme for the period 2014-2018, which was agreed at the second plenary of IPBES in Turkey (IPBES-2, where I met Pacheco), encompasses an expansive volume and breadth of work (see Figure 27).

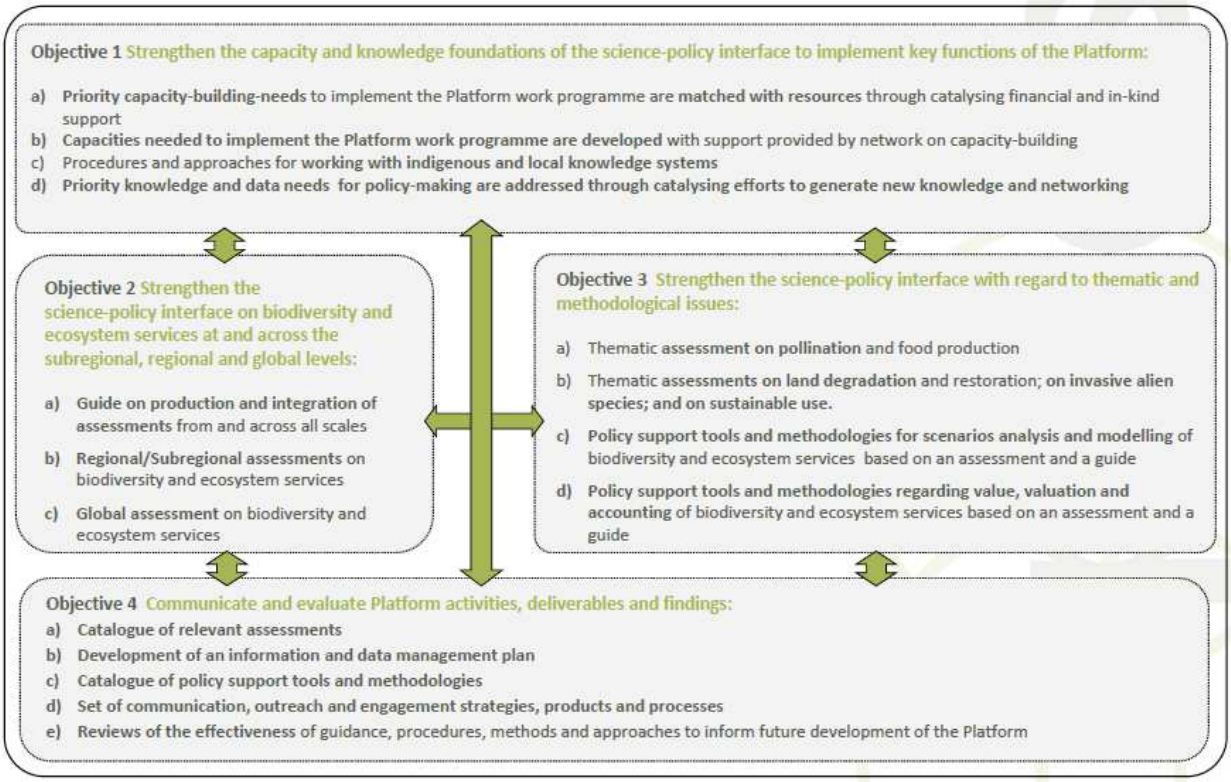

Figure 28 – A diagram prepared by the IPBES Secretariat showing the four objectives and 18 deliverables in the Work Programme (2014-2018 as agreed in Antalya, Turkey, at the Platform's second plenary meeting.

The current work programme includes 18 deliverables divided across four main objectives. Leaving aside the operational documents that had to be crafted during its establishment outlining the Platform's governance (e.g. its mandate, institutional design, operating principles, roles and responsibilities, rules and procedures, relationships to existing organizations and agreements, etc.), IPBES has, among other outputs, involved itself in the production of: a full "thematic" assessment on pollinators, pollination and food production; a full "methodological" assessment on scenarios and modeling; four ongoing regional assessments and a recently-initiated global-scale assessment; an ongoing thematic assessment on land degradation and restoration; scoping processes for two further thematic assessments on sustainable use of biodiversity and invasive alien species; and a handful of dedicated task forces undertaking activities related to capacity building, policy support, access to data, and inclusion of indigenous and local knowledge. Finally, as noted earlier, two other important sets of outputs, which I will discuss in the next chapter, arose from the work of two expert groups tasked with developing the Platform's formal Conceptual Framework and its approach to questions of valuation.

Each of these outputs gets "delivered" through a structured step-by-step process outlined in detail in the Platform's governing documentation. Rankovic et al. (2016) presents a schematic diagram tracing the typical steps in an IPBES assessment process from a decision in plenary to its final approval and release (see Figure 28). This process typically entails: (1) assembling a small group to 'scope' the parameters of the given output (for instance, the aims, rationale, topical coverage, chapter structure and other attributes of a prospective assessment process); (2) recruiting a larger group of experts to actually perform the work, which requires nominating them (mostly by governments) and selecting them (by the MEP) in a way that ensures both quality of expertise

and regional, gender, and disciplinary balance; (3) coordinating their work (by the Secretariat, MEP, and chapter leads) over the agreed timeframe, across a regimented series of expert group meetings, and through various rounds of drafting, review, and finalization; and (4) seeking formal approval for that output from Plenary (which, in the case of assessments, requires line-by-line negotiation of the assessment's Summary for Policy Makers (SPM) and formal adoption of its individual chapters). Crucially, embedded within each expert group and shepherding them through the process are a handful of dedicated personnel from the MEP and Bureau who oversee the expert group's work and ensure that the group sticks to its agreed scope and conforms to the Platform's rules, principles, and overall vision. As I will show, dissenting experts in the MEP, alongside Pacheco, have played a vital role in preventing the Platform from ideologically backsliding into more mainstream, economically-dominated positions regarding ecosystem services.

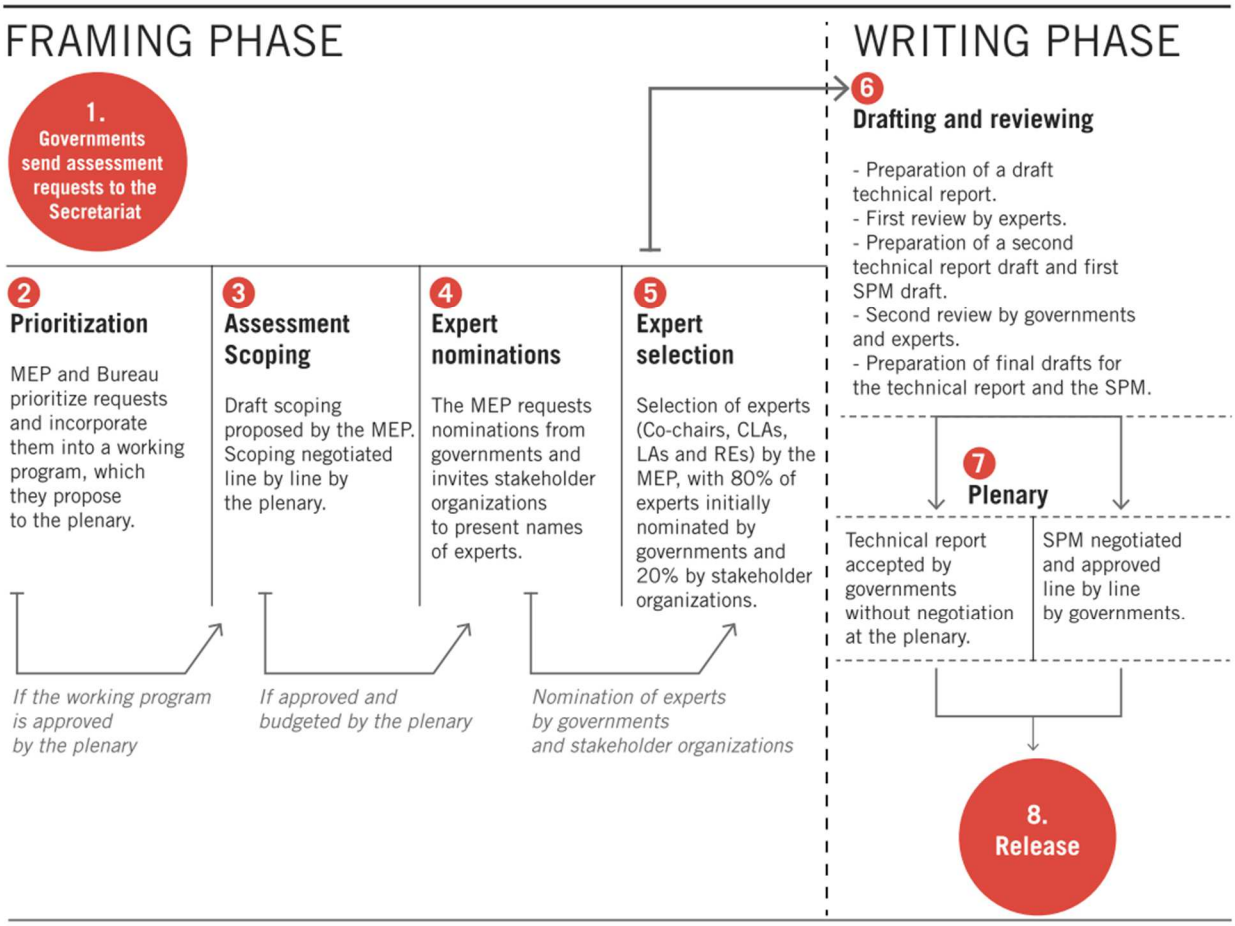

Figure 29 - "Schematic view of the IPBES assessment production process" from Rankovic et al. (2016, 4). *MEP refers to the Multidisciplinary Expert Group, CLA refers to a Coordinating Lead Author, LA refers to a Lead Author, RE refers to a Review Editor, and SPM refers to Summary for Policymakers*

This condensed overview of the Platform's nuts and bolts begins to sketch out the contours of the Platform's bureaucratic arena. To bring these diagrams back to the lived experience of those actually enacting these processes, the spaces constituted through IPBES were at times somewhat surreal. During plenaries, I grew accustomed to observing formal negotiations between state representatives contesting definitions for the meaning of value, what a good quality of life entails, and how to distinguish between epistemology and metaphysics. To give brief a sense of these

negotiations, specifically when delving into substantive matters, I will highlight one such intervention during IPBES-3 held in Bonn in 2014, relating to the Platform's preliminary guide on valuation (IPBES 2015a):

> Measurable values and non-measurable values should be clearly separated because the degree of objective reality of the values that are brought up in diverse conceptualizations of humans, and their societies, about their surroundings, perceptions, and observations, and prior existing conceptualizations of metaphysics, sometimes religions, are simply different. For example, ontological values based on human metaphysical abstractions cannot be quantitatively measured simply because they do not represent an objective reality. But still they represent values and they should be mentioned. But they are not acute to the measurable values that are the real subjects of human scientific works.

After several further suggestions, the negotiator concluded, "We should clearly mention economical methodology and axiology. Thank you, Mr. Chair." In these settings, through these types of exchanges, and across already fraught intercultural boundaries, I observed a series of philosophically lofty and politically significant questions—the ones actuating such heated debate in the wider ecosystem services literature and critical scholarship—one after the other, getting explicitly debated, negotiated, and settled. Note that this exchange took place during the Platform's annually held Plenary, which constitutes only one of many processes where such issues get worked through, each with distinct roles, compositions of experts, and involvements by IPBES subsidiary bodies. Each of the outputs outlined above, each activity, each process, each document, each social space constituting and constituted by the Platform has come to represent a unique opportunity, subject to contestation, where various participants in the process like Pacheco and other dissenting experts could "get stuck in"—where they could make interventions, provide statements, edit documents, nominate experts, invoke alternative scholarship, charm their colleagues, out-maneuver others, and through myriad, often banal actions, big and small, try to steer the Platform's still-forming institutional apparatus toward what they perceived as a less problematic and arguably worthwhile politics.

The specific interactions between these critically-aligned/heterodox experts and the Platform's more mainstream scientists comprise a core element of this story. My experience at one expert group meeting for an ongoing IPBES assessment process begins to illustrate the kinds of difficulties these dissenters (often social scientists) faced in such contexts. In accordance with the earlier scoping process for the assessment, and in line with the IPBES Conceptual Framework (discussed later), I noted one chapter group having to tackle questions of "concepts" and "perceptions" in relation to the assessment's particular subject matter, which would involve addressing "different worldviews, including those of indigenous and local people." It quickly became apparent that the group assigned to the chapter had only a single self-identified social scientist. In this case, that was an anthropologist, whom I observed for the better part of a day struggling to find common ground with the positivist natural scientists with whom he would be collaborating for the next three years. Interpreting their assignment as outlined in the scoping document, they moved through questions such as "where do concepts come from?", "how are they formed?", "how do they have an impact?", and "what kinds of impact?" Facilitated by the anthropologist, the group spent hours debating the meaning of these and other key terms in social theory (see Figure 30). The discussion grew especially spirited when the anthropologist questioned the assumption that western science had direct access to objective reality, prompting especially strong reactions from one of the ecologists in the group.

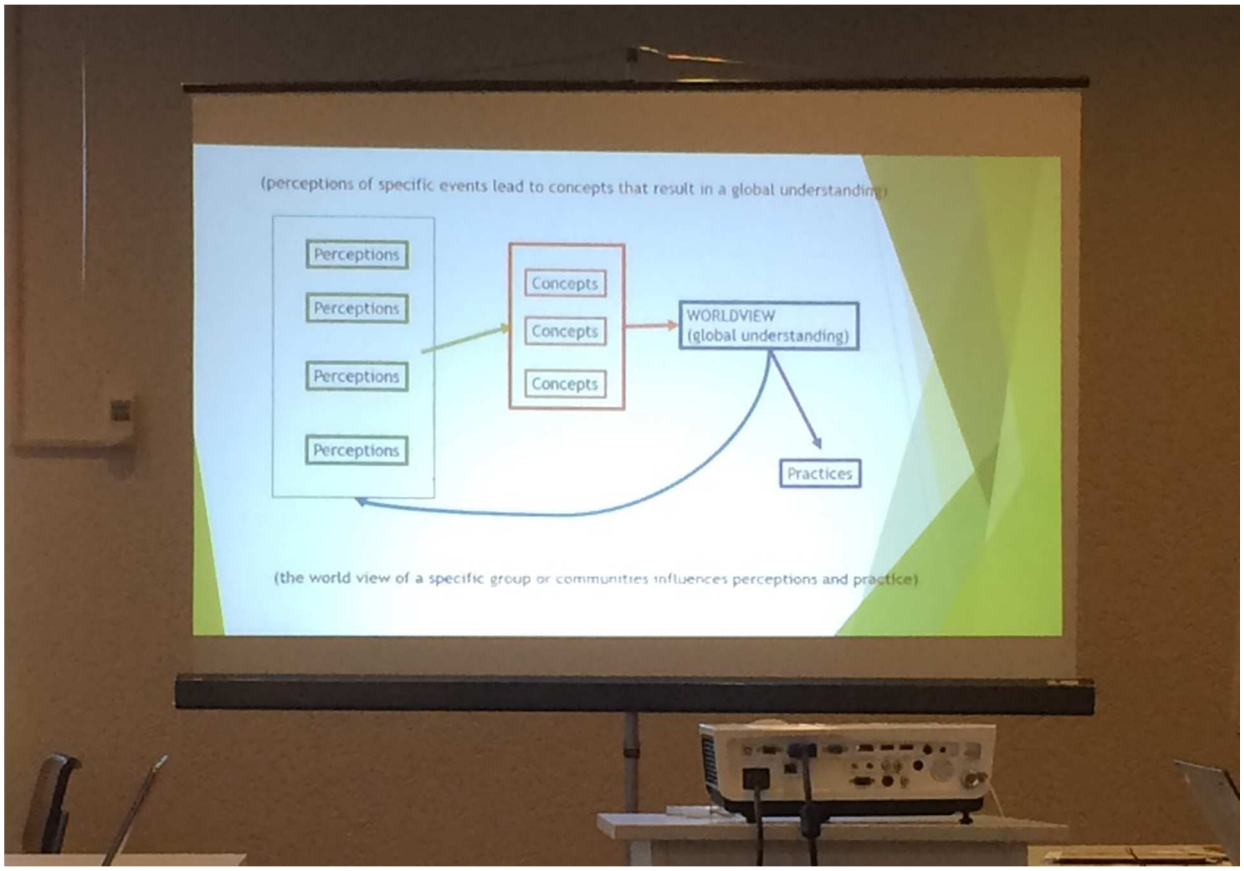

Figure 30 - Diagram used by social scientist to explain what concepts are

The exchange is worth highlighting for at least three reasons. First, it begins to provide a textured illustration of what an expert group looks like. In this case, this was an early authors meeting for an ongoing IPBES assessment which assembled the two co-chairs (who provide high-level leadership to the process), coordinating lead authors (CLAs, who lead respective chapters), lead authors (LAs, the most numerous group who perform much of the actual work of writing the chapters), as well as supporting personnel from the MEP, Bureau, and Secretariat (providing guidance on both procedural and substantive matters). Through a combination of plenary discussions and break-out groups, like the one highlighted above, experts gathered to discuss, debate, frame, re-frame, and find some way to come together to move forward the work of their chapters. Echoing themes highlighted throughout this dissertation, these are quite literally groups of people in rooms making decisions, constituting momentary spaces each with their own idiosyncratic, interpersonal, and contingent micro-social dynamics.

Second, the exchange more specifically illustrates a common observation throughout my fieldwork: outnumbered social scientists (of varying stripes) struggling to widen the conceptual (and political) horizons of their natural scientist colleagues who comprised the overwhelming majority of the Platform's experts. That a group comprised largely of natural scientists was tasked with addressing such fundamentally social-theoretical questions was rather striking and a glaring signal of the dearth of social scientists enrolled in the process in general. Indeed, according to Vadrot et al. (2016, 160), social scientists have comprised only 10% of its experts (far short of their 30% target). This was a pattern that repeated across many of my observations. In such moments, as I conclude in Chapter 7, I found myself imagining how impactful—and welcome—a

critical social scientist or humanist could have been. Indeed, worried remarks to this effect were commonly made by IPBES officials and the scientists faced with such daunting assignments.

The third point is what I neglected to mention in the exchange above: despite initial scepticism from the natural scientists in the room, and after a somewhat grueling series of discussions involving line-by-line interpretation of their instructions and extended conceptual debates, the anthropologist had largely managed to bring his colleagues on-side. By the end of the meeting, the most outspoken and occasionally reluctant of the scientists in the room had grown somewhat enthusiastic, remarking with earnestness towards the end of the meeting: "Ah! I get it!"

From these kinds of vantages embedded among the Platform's bustling, heterogeneous processes, I started to observe a proliferation of small (and sometimes large) moments of epistemic transgression, aimed at prying IPBES away from dominant, epistemologically narrow, and politically problematic interpretations of ecosystem services which were threatening to dominate the Platform. These experts brought fundamental concerns about ecosystem services—its preoccupation with quantification, monetization, market mechanisms, and so on—and were maneuvering those critiques carefully (and often somewhat effectively) into the heart of the Platform's deliberations and seeing to their systematic incorporation throughout its bureaucratic vasculature. Through various means, these practitioners of ecosystem services, simultaneously proponents of and dissenters to the idea, have been able to force the Platform to take seriously ecosystem services' heterodox approaches, subaltern perspectives, and critical scholarship (although just how seriously remains an open question).

MAKING SPACE FOR MOTHER EARTH

Before unpacking the work of these dissenting experts in more detail, this section highlights several supporting factors that may have enabled them to countervail the Platform's more mainstream tendencies. The first and most readily apparent condition is simply that the Platform included Bolivia, and specifically Pacheco, once he had started to engage (and to engage vigorously) in the negotiations. In turn, his actions must be understood in the context of entwined historical shifts in the politics of biodiversity conservation and north-south international relations as they have been unfolding over the last three decades.

Vadrot (2014, 371) notes that throughout the earlier rounds of negotiations leading up to the formation of IPBES, the centrality of ecosystem services had remained mostly unquestioned, seldom requiring any strenuous or elaborate justification. Not coincidentally, Bolivia was absent from these earlier meetings. Eventually, however, they sent a small delegation to the two final negotiations that would establish IPBES—first in Nairobi (in 2011) and then in Panama (in 2012)—where they coordinated their position as part of the Bolivarian Alliance for the Americas.[162] Crucially, Pacheco was not a part of these negotiations. While the Bolivian delegation raised similar objections to those later advanced much more forcefully by Pacheco after the Platform had already been established, multiple interviewees recounted several key moments where these more junior Bolivian negotiators were outmaneuvered by the Platform's proponents. As one IPBES official noted, in those "instances where he was not there, it was a lot quieter." Following occasionally tense negotiations and one particularly dramatic episode of brinksmanship in Panama where the Bolivians tried to assert their objections and were, according to several interviewees, ultimately forced to back down, IPBES was established (with the "ES" in its name

[162] ALBA's membership includes Antigua and Barbuda, Bolivia, Cuba, Dominica, Ecuador, Grenada, Nicaragua, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines and Venezuela

preserved) together with a reluctant Bolivia whose concerns had remained, from their perspective, inadequately recognized.[163]

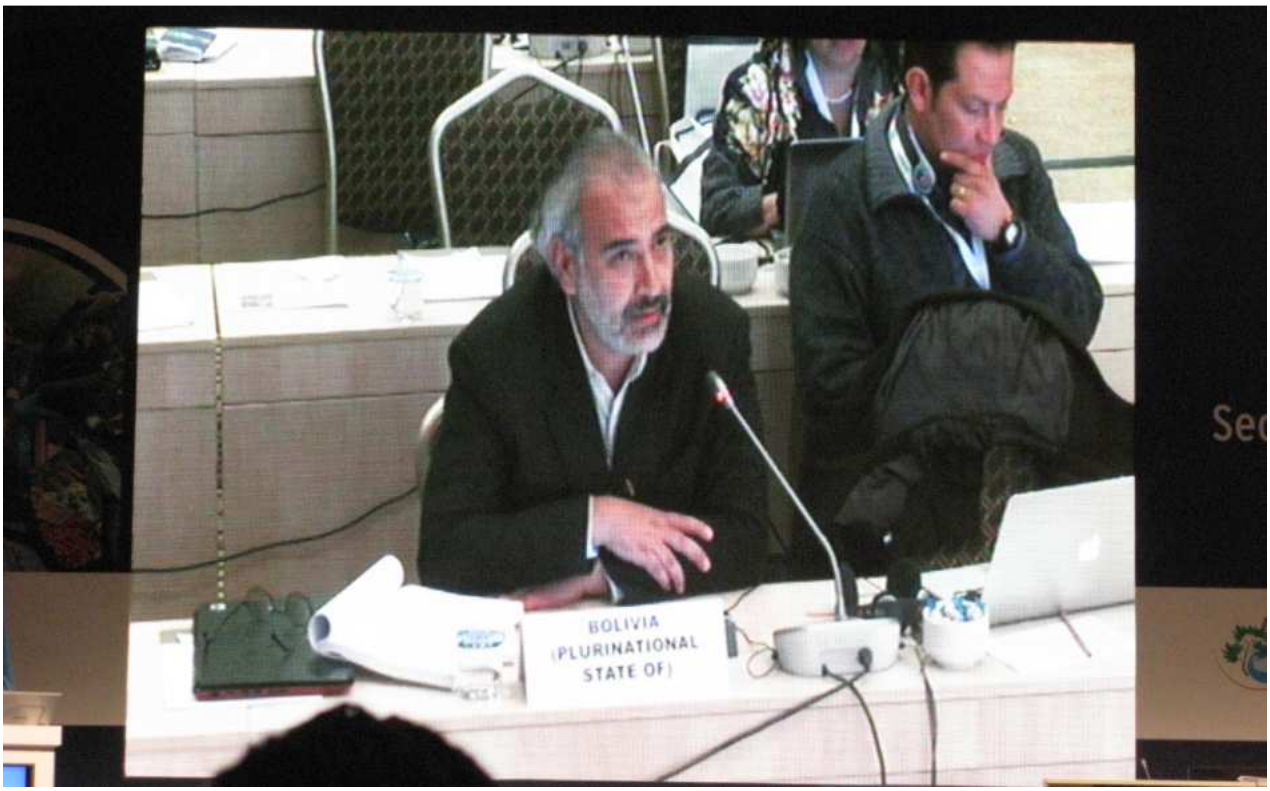

Figure 31 - Diego Pacheco providing an intervention in Plenary at IPBES-2 in Antalya, Turkey in December 2013

As noted earlier, Pacheco had been representing Bolivia at the CBD and UNFCCC, the ostensible "big leagues" of international environmental negotiations. At the very first IPBES Plenary in Bonn in January 2013 (IPBES-1), Pacheco arrived on the scene and, mobilizing critiques he had rehearsed and refined across a range of other fora, vigorously contested the central role that ecosystem services had been afforded in the Platform. With the occasional support of a handful of other delegations, Pacheco initiated what became a longer, ongoing campaign to force the Platform to reckon with a prolific array of interventions channeling lines of critique that ranged from the hyper-specific to the fundamental. As I will discuss, these earlier clashes have been credited by many IPBES participants as decisive in producing subsequent openings that could be utilized to bring a further range of heterodox perspectives on ecosystem services into the process. The chair of one IPBES assessment, for example, while generally unenthusiastic about Pacheco's

[163] Another negotiator was especially forthcoming in his recollections of Nairobi and Panama. In Nairobi, he remembered the Bolivians acknowledging that they had missed earlier negotiations simply because they were not aware of their existence. While recognizing that other countries would be reluctant to re-open already agreed text, he they shared "serious misgivings about the whole intellectual and philosophical underpinnings of the whole body," including with the inclusion of the term "ecosystem services" in its name. They explained Bolivia's national legislation which had been structured around a specific conceptualization of *pachamama*, or Mother Earth, a term which would later become a fixture in subsequent IPBES negotiations. Unfortunately, the simultaneous Spanish translation was poor and although they garnered sympathy they did not garner support from the other delegations: they "didn't make a ripple." The pattern was again repeated in Panama. There, the translation was apparently even worse, putting the "very young" Bolivian negotiators, along with the aligned delegation from Venezuela, at a recognized disadvantage.

"polarizing" approach, acknowledged that Pacheco had usefully "created room to maneuver" which "opened give-and-take negotiating space." As another IPBES expert put it, "Bolivia sometimes played roles that are annoying. But it's important."

Pacheco has led Bolivia's delegation across several key international environmental agreements (including UNFCCC, CBD, and now IPBES) since 2011. He trained as an anthropologist in Bolivia before completing a PhD with Elinor Ostrom at Indiana University, where he conducted doctoral research analyzing indigenous timber management and the governance of Bolivian common property forests. His professional experiences have been wide-ranging: Vice-Minister of Planning for the Plurinational State of Bolivia; professor and rector of the University of the Cordillera in La Paz; consultant for a range of development projects; director of an indigenous advocacy organization; author of publications spanning both academic literature and public policy formulation; principal advisor to various branches of the Bolivian government;[164] and contributor to broader Bolivian government reforms enacted under the administration of President Evo Morales. Indeed, Pacheco distilled many of the ideas he brought to the negotiating room in a 40-page manifesto he prepared in 2014 for the Bolivian government entitled *Living-Well in Balance and Harmony with Mother Earth: A Proposal for Establishing a New Global Relationship Between Human Beings and Mother Earth*, which was aligned with new legislation enshrining "Mother Earth" as a rights-bearing entity under Bolivian law (Pacheco 2014). Several interviewees suggested that Pacheco was thus not merely carrying out directives from his capitol but actively shaping them. In the proposal, Pacheco elaborates on contrasts between the green economy and a conceptualization of its preferred alternative, under the rubric of Mother Earth, which he has in turn worked tenaciously to establish as a part of IPBES (Figure 32):

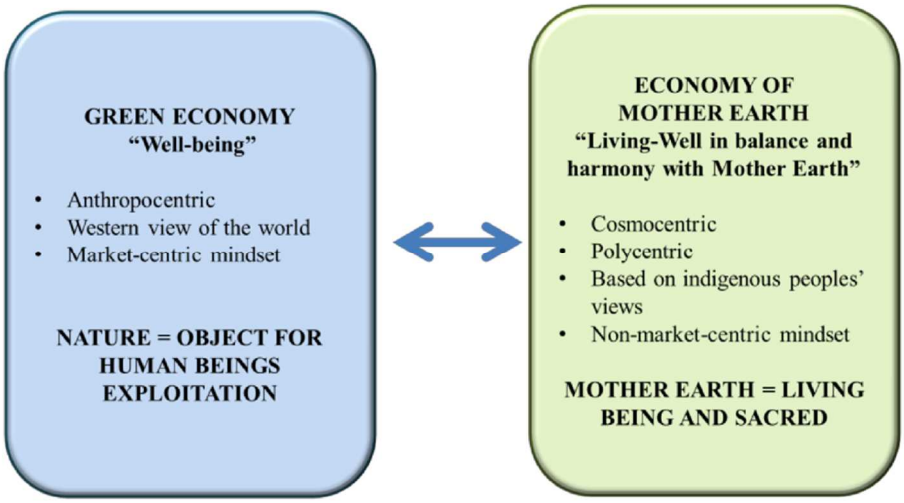

Figure 32 - "Two paradigms of civilization for the world." Diagram from Pacheco's proposal, "Living well in harmony and balance with Mother Earth: A proposal for establishing a new global relationship between human beings and Earth." The diagram contrasts key elements of the green economy with an alternative conceptualization (Pacheco 2014, 4).

[164] Including the Ministry of Planning and Development, the Ministry of Agriculture, Rural Development and the Environment, the Ministry of Production and Microenterprises, Energy and Hydrocarbon, and Ministry of the Presidency

Pacheco was a regular topic of discussion among other IPBES participants. Although opinions of him varied, interviewees were unanimous in acknowledging his central role in shaping the Platform. Whether supportive or critical, and usually somewhere in between, conversations frequently converged on a recognition of the outsized influence he has somehow managed to exercise over the process. As one IPBES official remarked, "He's very smart and tends to get his way." The overall portrait depicted in these exchanges was of a person who takes up a lot of space. Making statements, contributing comments, proposing changes, providing line-by-line edits, Pacheco was among if not the most prolific Plenary delegate. Another country's negotiator described him as "very, intelligent, with a huge scientific understanding. And a very good negotiator, too," echoing characterizations provided by many other interviewees.

Even at meetings where he was not present, I observed deliberations regularly checking to see if a given decision might run afoul of the Bolivian position and how to approach such an eventuality if it did. At times, he appeared to have become an almost taken-for-granted fact about the process: a "known quantity" in the words of one expert that everyone had simply grown used to and could plan for, "like the weather, once you know how to deal with it." Moreover, experts emphasized that his interventions were more than grandstanding, requiring careful preparation, close reading of documents, and a thorough understanding of the text. As another IPBES official recognized, "he does the work," and could actually be quite helpful by delving into the fine-grained subject matter and contributing detailed, substantive comments.[165] His involvements have also exceeded the negotiating stage of the Plenary itself. In addition to his prolific interventions during the intergovernmental negotiations, Pacheco was directly involved in the expert groups that produced the IPBES Conceptual Framework (Díaz, Demissew, Carabias, et al. 2015) and the Platform's approach to questions of valuation (Pascual et al. 2017). As I discuss in the next chapter, the dynamics of these two processes, which have been important in shaping the Platform, speak directly to Castree's questions concerning the role, and possible scope of influence, for critical environmental social scientists working in such settings.

As implied in the diagram depicted in Figure 32, Pacheco's presence often stood out in contrast to his surroundings—particularly during Plenaries. His interventions frequently felt (and were often perceived as) markedly *different* from the prevailing sensibilities that had precipitated the Platform's establishment. Compared to the bureaucratic operators and more mainstream experts literally surrounding him in Plenary who had been struggling for so long to finally create a worthy successor to the MA and a counterpart to the IPCC—an institution meant to continue building on the scientific pillars of biodiversity and ecosystem services—Pacheco's dogged attempts to place notions of Mother Earth and related concepts at center stage of the Platform felt palpably anomalous and out of place. His presence was dissonant, disruptive to the flow of things, and at times uncomfortably awkward to observe in context: the reverberations of other delegates squirming in their chairs, rolling their eyes, and incredulously grumbling as he made his many interventions appears repeatedly in my field notes. Along similar lines, his distinctive editorial modifications have propagated throughout the Platform's constitutive documents to the point that I have learned to identify their characteristic style: their overloading of sentences, their counter-balancing of economic concepts, and their idiosyncratic turns of phrase. His proposal for *Living-*

[165] While generally respected as a tough negotiator, many interviewees described him as a personable individual: pleasant, even easy to work with by some accounts, in 'off-stage' contexts.

Well in Balance and Harmony with Mother Earth further underscores these incongruences. In it, he describes Bolivia's transition from Republic to Plurinational State, whose aim now was to:

> challenge at a global scale the international order based on neocolonialism and capitalism, as the necessary initial step for indigenous peoples and marginalized peoples of the world to define their own development agenda for achieving their well-being. Bolivia questions the established world order that is rooted in the capitalist political and economic model […]. This model of civilization has marginalized and continues to drive millions of people into poverty by capturing and concentrating the wealth of developing countries, and overexploiting nature, whilst preserving the faith in western science to revert the problems that the system has caused to humanity and nature. (Pacheco 2014, 1)

Multiple interviewees interpreted this position somewhat cynically, pointing to the particularities and contradictions of Bolivia's current geopolitical context and the need to present this image. Cynically or not, that IPBES has been able to accommodate anything resembling this position at all (however uneasily), let alone accept one of its chief exponents as a central part of the process, is worth noting. By the same token, that Pacheco has in turn *also* accepted a central position working within the process and, as I discuss, grown increasingly invested in the Platform is similarly revealing.

Of course, it is crucial to understand the broader range of factors enabling Pacheco to operate in this manner. As one IPBES official remarked, luck may have played a significant role. For instance, the largely consensus-based structure of the negotiations had effectively handed Pacheco a kind of "veto" power over the process, allowing him to advocate much more strongly for his positions than if it were structured by majority vote. Pacheco was also not alone. As many interviewees pointed out to me, he was usually supported by many quieter, less conspicuous allies in Plenary (not only in IPBES but also in the CBD and UNFCCC) among both developed and developing countries who were often less well-positioned to stake such a strong stance. However, they were "happy" to let him take "responsibility for being the tip of the spear" as one expert commented and could step in to "back him up" if and when he got into trouble. Outside of Plenary, he also had a number of sympathetic experts embedded in the subsidiary bodies of IPBES. "It could have been economists," one IPBES official remarked, in which case his proposals "would have been dead."[166] Recalling earlier Bolivian engagements with the process, another IPBES official noted that Pacheco did have the choice of simply not participating. Eventually, however, the Platform's experts "began to respond to each of his comments and surprised him by saying *we agree*," which served to draw him further into the work of the Platform.

While the amenable structure of IPBES, the idiosyncrasies of Pacheco himself, and his unexpected range of allies in the Platform are important, they are also proximate explanations. The more seasoned IPBES participants with prior international experience situated Pacheco's actions within their broader historical context, referring to much longer and broader-ranging struggles that had been taking place, for example, around the CBD. As the chair of one IPBES assessment stressed, "It's not just him. This is a thirty-year old process with plenty of other people with more nuance. So, he has a role but I don't want to give him all the credit." The conditions shaping the

[166] As another IPBES official remarked, "Very fortunately, in the MEP, and in the whole IPBES process, economics is just *one* way of thinking, and we have lots of government delegates who are following different lines of reasoning. We have Bureau members, MEP members, experts selected, who are representing a broader view on this issue. So that is a very valuable aspect of IPBES. It was not narrowed down like TEEB or any other initiative"

formation of the CBD in 1992, subsequent negotiations within it, and indeed the wider landscape encompassing many other global environmental governance regimes, reflect a decades-long reordering of international political relations and environmental discourse. These shifts have entailed, among many other things, a growing assertiveness on the part of developing countries when engaging in multilateral environmental agreements—including (and especially) when negotiating sovereign claims over natural resources and issues of environmental governance (Najam 2005). One important element and result of these shifts in the context of global biodiversity politics has been an increasing recognition of the claims, concerns, and roles held by indigenous and local communities ("ILCs," in international bureaucratic parlance) in relation to biodiversity conservation.

Many of the severest critics of IPBES I encountered framed their concerns about the Platform in these geopolitical terms—rather than on the substantive merits or demerits of the ecosystem services notion itself—focusing on the relationship of IPBES to the CBD and the Platform's implications for the broader political context in which both international agreements are situated. After decades of incremental, hard-fought political struggle, the CBD had—for instance, through decisions relating to Article 8(j) of the Convention[167]—become a comparatively advantageous strategic terrain on which coalitions of indigenous communities, social and ecological justice movements, and other global south political formations and their allies had learned to maneuver. From this perspective, these achievements, now ingrained in the CBD, became imperilled by the siphoning off of financial resources, negotiating capacity, and substantive issue areas from the CBD to IPBES. I met one activist who had been participating in the CBD since its inception and who emphasized each of these claims, noting that "IPBES is gaining acceptance and we are not happy about that. It could be a problem for the CBD process." He cited what he considered to be clear overlaps between IPBES and the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), which provides an analogous function to the CBD, adding that the Platform burdens already thinly-stretched developing country delegations.[168] As a long-time participant in the CBD, he lamented:

> from the time of the negotiations of the CBD up until now, there's been a degradation in the quality of negotiating strength of developing countries. The skilled G77 negotiators have almost disappeared, except among financial matters. […] Articles favorable to developing countries have lost their potency as a result. There used to be major diplomats participating. Now, only bureaucrats who are not very well-informed about the economic and political undercurrents of issues.

It was in this geopolitical context, involving the incremental dilution of the CBD and its promise of a more robust developing country voice in international affairs, that he and many of the other sceptical activists I encountered remained actively opposed to the Platform. From these perspectives, the emergence of IPBES was at best, an unhelpful distraction duplicating functions

[167] Article 8(j) states: *Each contracting Party shall, as far as possible and as appropriate [and] [s]ubject to national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge innovations and practices.*

[168] "This is a syndrome of the world order we live in," he argued, "where developing countries have hardly any capacity to create international institutions but remain victims of international institutions created by others."

already performed by SBSTTA, and at worst a cynical power-play by well-connected scientific, political, and economic interests from the global north seeking to undermine the CBD's countervailing role, while further dispersing the negotiating capacities of developing countries.

As Pacheco's multi-forum negotiating role illustrates, residues of these conflicts in the CBD, including the critiques articulated by these vocal IPBES sceptics, circulate freely between the two fora. Like Pacheco, many of the negotiators sent to IPBES are the very same delegates sent to the CBD—to a large extent, they comprise the same first-name-basis community and have come to develop shared understandings and expectations about the main issues and how they are typically settled. Moreover, IPBES decisions are routinely and explicitly shaped in relation to the CBD. While IPBES was intended to remain above the fray and circumvent the ostensible "politicization" that had come to afflict the scientific functions of the CBD and SBSTTA, IPBES has since its inception remained susceptible to and had to inoculate itself from these extant, CBD-hardened criticisms from developing countries. Partly to neutralize this perception of IPBES as the invention of a small enclave of western experts and elites trying to create an expensive new vehicle for extending market logics to nature, the negotiations leading up to the establishment of IPBES ended up borrowing liberally from the CBD's concepts, principles and treatment of these issues—especially with respect to norms set in the CBD with respect to so-called ILCs—resulting in formally institutionalized commitments to recognize the importance of ILCs and to include indigenous and local knowledge (ILK) systems in its future work and overall vision.

Following through on these commitments has been a continuing struggle for IPBES.[169] Yet this basic logic of inclusiveness provided a well-established, highly legitimated, and, as one IPBES official put it, a "familiar" entry point through which Pacheco could much more securely negotiate his positions. Crucially, among other outcomes, the embedding of this logic in the Platform through protracted negotiations between developed and developing countries during the formation of IPBES translated into the codification of rules stipulating "balanced" representation in the selection of experts, specifically along the lines of gender, discipline, and region. Many interviewees stressed the importance of these rules in providing room to maneuver. The implication of this regional representation in particular meant that IPBES nominations and selections of members to the Bureau, MEP, and expert groups had to be evenly split among the five officially recognized UN regions of (1) Africa, (2) Asia-Pacific, (3) Latin America and the Caribbean, (4) Eastern Europe, and the (5) Western Europe and Others Group (WEOG), which includes Canada and the United States. Given the relative dominance of scientists from "WEOG" in the broader biodiversity and ecosystem services research communities outside IPBES, both in terms of number and influence, these rules were instrumental to further unsettling the ordinary culture of the assessment process (as illustrated, and critiqued, in the IPCC, for instance). It served to widen out the perspectives represented across all the various activities and deliberations of the Platform. This issue of regional representation is important to keep in mind in the following discussion. This arrangement—where experts were roughly divided among these five UN regions—was reflected in the group composition of every IPBES process where I was embedded and which I analyze in this chapter and the next.

Questions of ILC participation have been a central preoccupation for the Bolivian delegation. As one IPBES expert put it, Bolivia has "made it impossible to disregard local and

[169] As one IPBES official acknowledged, "we are trying to incorporate different knowledge systems, which is unique, and I think very courageous, although some people say suicidal."

indigenous knowledge systems." As another remarked, he has "broadened out the process so it's not so western dominated." Irrespective of their other opinions about Pacheco, participants in the process were consistent in these observations. Through this longer historical context, and through Pacheco's interventions—actions which were themselves enabled by structural features of the Platform and supported by various allies embedded in the process—the Platform has been wired in such a way that an array of dissenting experts could to not only express their views but establish strategic handholds throughout the process, allowing them to have those views formally adopted and organizationally integrated into the Platform's work. In this way, heterodox and critical experts have found an unexpectedly wide (albeit still highly circumscribed) scope through which to contest the Platform's more lamentably narrow, market-oriented, and overtly neoliberal tendencies. While the incorporation of indigenous and local communities is hardly new in such fora, what is important in this context is that they provided the entry point for much more extensive kinds of re-imaginings of ecosystem services.

While this interpretation may read somewhat cynically, we can, as I am inclined to do, also begin to wonder at more generous interpretations. Over the course of my fieldwork I came to discern a dynamic receptiveness among many of the Platform's proponents, personnel, and participants—an abiding willingness on the part of what I had expected to be a fairly conservative, lowest-common-denominator organization—to extend themselves. This sense applies not only to the more overt epistemic dissenters whom I was following who were for the most part intentional and strategic in their efforts to judo-flip the Platform's approach to ecosystem services. Rather, I emphasize how the successful shepherding of these heterodox, critically-aligned, and subaltern knowledges into the process has also depended on a wider and reciprocating array of other scientists, practitioners and experts filling various roles throughout the Platform to also play their part. As I will illustrate, many had come to IPBES with fairly mainstream views regarding what ecosystem services meant and what it was supposed to do. Among these experts—an assortment of life scientists, for the most part, whose disciplinary training had not included much exposure to those dissenting knowledges—I observed an openness, even an enthusiasm for what they were encountering. Often, they allowed themselves to play along, to be compelled, to be persuaded and enticed, and to undergo something that could even be mistaken for the inklings of a nascent radicalization.

Figure 33 - The United Nations building in Bonn where the IPBES Secretariat is headquartered and the main base from which I conducted my participant observation

EPISTEMIC DISSENTERS

In contrast to Pacheco, whose presence in the Platform was rather unmistakeable, I have endeavoured to anonymize the less visible, dissenting ecosystem services experts whom I met. In this section, I will briefly highlight my experiences with one specific key informant (although they were a diverse group) as a means of contextualizing the epistemic transgressions I was observing.

Trained in Europe, this expert described himself, depending on the company, as an ecological or environmental economist. However, like many of the other dissenting experts working alongside him in the Platform, his research has grown increasingly interdisciplinary and difficult to categorize. Not coincidentally, he has flourished in the peculiar social spaces constituted by processes like IPBES. Like the institutional bricoleurs conceptualized in previous chapters, he and many of the other dissenting experts I met displayed clear facilities for operating across the diverse epistemic, institutional, and political boundaries inherent to the process. Beyond IPBES, this expert had been a longstanding and sometimes leading participant in many other large-scale scientific initiatives, including as an advisor to the European Commission, CGIAR, multiple United Nations organizations, and Future Earth. In the context of biodiversity and ecosystem services, before joining IPBES he had also contributed to the UK's National Ecosystem Assessment process and also TEEB. Indeed, he played a leading role within TEEB working on questions analogous to those he would later address in IPBES related to values and valuation (including work on the specific chapter that Pacheco remembers Sukhdev imploring him to read). Like other experts in IPBES who had also taken part in TEEB, he expressed several regrets about this experience, emphasizing that IPBES needed to learn from and try to avoid what happened to

TEEB, which became "hijacked" by those wanting to make the project more narrowly (and in his assessment recklessly) focused around pulling dollar figures out of the science.[170]

Across the many settings where I saw him work, he was curious and collaborative. While Pacheco often played the role of lightning rod, my experiences with this expert were as a rule much lower-key. In this regard, this expert evinced a skill possessed by many of the other supporter-dissenters of ecosystem services I got to know who were distributed across the Platform's various expert groups and especially the MEP. I had many opportunities to observe them carrying out subtle, tactical actions, typically in coordination with other like-minded colleagues, aimed at dislodging conventional approaches to and conceptualizations of ecosystem services. To varying degrees, they tended to display similar collaborative intuitions and facilities for operating across disciplines, cultures, institutions, and political sensibilities. In multiple settings, I observed them interpreting, and skillfully re-interpreting, the disparate elements of what were frequently (and perhaps inevitably) highly disjointed conversations among diverse participants, making them an important asset to the deliberative processes instantiated, for example, by expert group meetings.[171] This facility for cross-disciplinary bridging, especially in the case of this key informant, has enabled them to quickly translate between (and build coalitions from) the distinct argots of various life sciences, economics, policy, and, crucially, also the heterodox, subaltern, and critical perspectives that Pacheco had helped to create a toe-hold for.

In contrast to Pacheco's interventions, which were sometimes perceived as abrasive and at times incomprehensible—as introducing cacophony into the consensus-building *raison-d'etre* of the Platform—the role that was often played by most these dissenting experts was in some senses Pacheco's inverse. They helped broker compromises between constituencies, reconcile misunderstandings between divergent disciplines, and translate critical perspectives regarding the meaning of ecosystem services to the Platform's typically more mainstream scientists in ways they could recognize, accept, and even start to embrace. Note that these are precisely the skills I noted NatCap's personnel having to sharpen to do their work. The work of these dissenting practitioners as "bricoleurs" of ecosystem services represent clear illustrations of institutional entrepreneurship (Hardy and Maguire 2008). In previous chapters, I argued that this dynamic, involving the work of actors capable of effectively bridging boundaries across an array of institutional settings, was central to understanding the politics of ecosystem services. In this case, however, the practices of "institutional bricolage" (Christiansen and Lounsbury 2013) I was observing—the creative tinkering and cobbling together of different bits and pieces of available logics to craft novel solutions and new coalitions—were being directed not at mainstreaming ecosystem services but, in a sense, 'unmainstreaming' dominant logics ingrained in ecosystem services.

Thus, beyond the specific expert highlighted above, from the organizational perch of the MEP and embedded across different expert groups, scoping processes, and task forces, I noted a diverse assortment of other dissenting ecosystem services experts performing similar kinds of day-to-day transgressive epistemic work and contributing in unique ways to this dynamic.

[170] Indeed, consistent with this concern, I noted one fascinating debate he instigated among the Platform's top brass about simply refraining from using monetary valuations altogether.

[171] In the case of this particular expert, I observed several characteristic behaviours across a series of important discussions where he would: remain silent for long periods, listening intently, perhaps asking the occasional question at opportune moments; then intervening with thoughtful consideration of what had been said, identification of what issues were at stake, and sensitivity to the latent sentiments of those in the room; before finally articulating acceptable, even elegant solutions among those still struggling to find their words.

Maneuvering through the Platform's bureaucratic gauntlets, I glimpsed a range of subtle efforts aimed at nudging, cajoling, and ultimately steering IPBES's contingent formation—enacted through a variety of subtle bureaucratic means and line-by-line, assessment-by-assessment, micro-scale epistemic subversions—away from what these experts felt were epistemologically reductive and politically problematic expressions of ecosystem services.

I will widen out this discussion to reflect on these efforts as a whole in the following chapter. Before continuing, I should briefly highlight the significance of the current Chair of IPBES, Bob Watson, in shaping the Platform. While I do distinctly recall a senior IPBES official cautioning me not to overemphasize Watson's influence and to acknowledge the roles played by a cast of other key players in the Platform, no honest explanation of IPBES could exclude him.[172] More than any other individual, he was widely credited as having been one of *the* driving forces behind IPBES and in directing its trajectory. As one negotiator told me, "my guess is that the way this turned out matches 95% with what he wanted, with that 5% variance being that he wasn't chair for a while. Though that's being fixed and he will become chair." As promised, after a brief interlude as Vice-Chair, he is now back in his role as Chair.

Beyond IPBES, he has been deeply involved in shaping the broader landscape of international scientific assessments. He has been a scientific advisor to the US White House, chief scientist of the World Bank, and chief scientific advisor to the UK's DEFRA. Indeed, his CV reads like a history of *the* major environmental assessments of the past several decades. He has either chaired, co-chaired, or directed a series of important scientific processes including the Millennium Ecosystem Assessment (MA), the IPCC, the stratospheric ozone depletion assessment, the Intergovernmental Assessment of Agricultural Scientific and Technology for Development (IAASTD, the "Agriculture Assessment"), the Global Biodiversity Assessment, the UK National Ecosystem Assessment, and now IPBES.

Having spent some time in working spaces with him (from a distance during Plenaries and more closely during my participant observation with the Secretariat), I can say that he is probably the most dramatic example of an "institutional bricoleur" that I have encountered in any context. As a Bureau member, among other functions, he is responsible for helping facilitate negotiations in Plenary and deliberations in the multiple expert groups where he is embedded. He is very skilled at this task, to which he brings a distinctively forceful personality[173] and, as many participants in the process pointed out, remarkable intuitions for improvising workarounds, well-timed compromises, and cobbled-together solutions based on experience accumulated over decades of past assessments (Arpin et al. 2016). The institutional bricolage in this context is quite literal. I saw him regularly inserting ideas and assorted elements from various other processes (such as the IPCC)—processes which he had often led and helped to establish—directly onto IPBES discussions and documents.[174] Indeed, the whole process of intergovernmental negotiations could be interpreted as an elaborate, collective form of institutional bricolage: of creatively syncretizing a considerably diverse range of logics into new institutional forms.

[172] His role in the formation of IPBES was discussed in an interesting article by Arpin et al. (2016), who likewise identify him as an "institutional entrepreneur."

[173] He was at times, *too* forceful, according to many. I was told multiple times that this approach, while impactful and even vital in certain situations, has also created problems and gotten him into trouble in the past.

[174] He was constantly Googling things which would in short order make their way into the discussion and sometimes documents.

Like Pacheco, everyone had opinions about Watson, most of which are not relevant to the present discussion. Despite his importance, his influence on the specific epistemic transgressions I was observing—the primary focus of this chapter—was not straightforward. Given his general reputation for heavy-handedness, this 'light touch', at least insofar as it was visible to me, was itself somewhat revealing. Curiously, one of the valuation experts recalled meeting Watson years earlier in another context, where, true to form, he was "strong, imposing, loud, smart—all that we knew already." Here, however, "he was speaking such a different language, not only from the MA and the UK assessment, he was talking about so many things he would not have talked about 12 years ago." Her interpretation was that he had to some degree simply grown comfortable with what they were doing. Whatever his reasons, I noticed that he, like many of the other authorities in the Platform, had let a lot of these epistemic transgressions slide.

CONTRASTS

I began this chapter by highlighting several notable contrasts. The first was between the triumphant Sukhdev I observed in 2010 at the launch of TEEB at CBD/COP-10 and the somewhat more beleaguered Sukhdev I noted in 2012 at Rio+20. While in both instances I was encountering a fully focused and talented communicator making his pitch for "mainstreaming" ecosystem services, he had, as noted earlier, been quickly backed into a "very defensive and highly qualified" posture as a result of the intense pushback he had started to encounter. As a result, he and other colleagues in TEEB have focused significant efforts on trying to draw distinctions between different operational understandings of ecosystem services and to parse its different political meanings. His comments signal wider developments in the field of ecosystem services involving widening epistemic and political ruptures over what exactly ecosystem services means, what it is supposed to do, and what it should become.

I also drew a contrast between Sukhdev (as an ardent champion of ecosystem services through TEEB) and Pacheco (who has long represented one of the most vociferous critics of TEEB and of the entire notion of ecosystem services). Given the tremendous work Pacheco has dedicated toward fighting these concepts, as well as the emergent visions for a "green economy" in which they are frequently enrolled, his presence in the Platform presents another somewhat striking incongruence. Indeed, that he was not only participating in the process but actively contributing and, as I show in the next chapter, now deeply invested in IPBES raises key questions. These questions revolved not only around Pacheco but pervaded much of the Platform, which, as I came to understand, was constituted by a diverse array of political and epistemic orientations in relation to its namesake concept: not only proponents of ecosystem services but a range of other practitioners with variously unexamined, reluctant, curious, often critical, and even actively dissenting relationships with mainstream understandings of the notion.

Hence, another contrast: on the one hand, an idea that in many respects seems like a quintessentially neoliberal extension of market logics, an aggressively reductive form of economic and scientific knowledge, and a discursive perpetuation of hegemonic power relations; and on the other hand, critical scholars, scientists, and experts who understand these tendencies and who see real (and I argue valid) hope in it as a site of epistemic and political struggle, where useful concepts, tools, and allies might be salvaged. Indeed, as I have begun to illustrate, the Platform has, to their surprise, offered some unexpectedly fertile ground for planting seeds of epistemic and political dissent, whose fruition I will explore further in the next chapter. In this way, IPBES has come to represent a fascinating meeting point between global change scientists who, as Castree (2017b, 67) observes, are expressing a clear "appetite" for somehow engaging with the representational

politics, power relations, and political-economic processes that profoundly shape what they study, and the critical scholars whose "extraordinary insights and arguments" are vital to meaningfully delving into those questions. IPBES represents a prominent example of Castree's speculations about this possibility actually unfolding. With the stage set, in the following chapter I turn to more specific examples of how epistemic dissenters embedded in the process endeavoured to decenter dominant approaches to ecosystem services.

CHAPTER 6 – OCCUPY IPBES

> There's this narrative that we must speak the same language of finance and economics to show benefits. […] That's very naïve. Just because we speak the same language, that doesn't guarantee anything. It could even backfire. That has been the strategy up until now and it has not worked. […] That is why [IPBES] is transformational: because we are in a discursive way, we are stopping with that paradigm of 'let's use an economic language to try to move the conservation agenda forward!' We say, no-no. This doesn't work. We want to go beyond that. […] We have to go much beyond economics. A lot of practitioners, many delegates, realize this is the case. You can't win an argument with just economics. The world is not like that. Some people *think* the world is like that. But in reality, it is not like that.
>
> - IPBES expert and appointed official[175]

FALKLANDS

I recall watching what I found to be a somewhat strange ten-minute exchange during one Plenary session of IPBES where diplomats from the United Kingdom and Argentina inexplicably began arguing about the Falkland Islands. It was not clear to me at the time what this conflict had do with either biodiversity or ecosystem services. An IPBES official later explained to me that this is simply what they do. It had become an almost ritualized part of many international fora: they are going to argue about the Falklands. The moment was a reminder that I could have little idea of what most of the country delegations 'really' wanted, of the 'true' subtext for how they were behaving, and of what I was told was the subtle art of diplomacy where every action is connected to a galaxy of other actions that had accumulated over decades of international relations like an infinitely recursive Mandelbrot set image. It took years, even decades, to learn this terrain in its fullness and to develop the necessary intuitions to effectively engage at the highest levels of such negotiations.[176] Or so I was told.

While the intricacies of many other 'Falklands' likely remained opaque to me throughout the negotiations, what I did come to have a handle on were the lively social worlds of the biodiversity and ecosystem services experts who were, like me, engaged with the Platform yet admittedly also often mystified by its formal political process. This chapter is about the social worlds of these experts as they came to intersect with IPBES and how they tried to navigate it. In particular, I focus on the efforts of a small number of 'counter-economic' epistemic dissenters who were endeavouring to deliver various lines of heterodox, subaltern, and critically-aligned

[175] Interview, Oct. 8, 2015, Bonn, Germany.
[176] Thus, delegations were usually organized in a sort of apprenticing format with more junior negotiators shadowing the seasoned maestros.

knowledges into the process and to subvert, and perhaps even re-purpose, dominant understandings of ecosystem services.

My focus on these more submerged layers of the process rather than the formal negotiations and official documents around which it nominally revolves arises from the premise introduced in the previous chapter: that what is at stake is not only the specific form its documents take but the character of the deeply "social process" (to quote one IPBES assessment chair) underlying the production of those documents. When regarded in this manner, what the Platform produces is not only scientific texts but scientific subjectivities—and, like the Millennium Ecosystem Assessment that came before it, potentially new scientific fields. Thus, it is primarily around these generative, intersubjective dynamics unfolding among the thousand-plus international experts brought together into the Platform—how they were subjected to its affectively-laden and deeply "social process"—that this chapter revolves: less on the technical specificities of its documents and the arcane formalities of its political negotiations.

In the previous chapter, I began to introduce the transgressive experts operating in IPBES working strategically from various positions inside the process to redirect the Platform's approach to ecosystem services. I contextualized the Platform's formation and identified some of the dynamics enabling these experts to maneuver alternative ideas about ecosystem services into the process. I also started to set up the question recently posed by Noel Castree (2017b, 69) regarding whether and in what ways critical environmental scholars might be able to "work towards changing the intellectual climate by supporting a broad-based project to politicise geoscience in a reasoned and passionate way." He asks:

> can geoscience, or at least some sections of it, have its public functions more deeply radicalised? Left to its own devices, geoscience will almost inevitably move in lock-step with tame reform efforts by well-meaning or cynical governments. […] The empirical (or formal) radicalism of current geoscience could, I believe, be turned to more richly radical ends. But first Leftists in universities need to believe that they can help effect this turn (Ibid, 63).

This chapter seeks to empirically explore the basis for such a belief. This question, and its underlying tensions, pervaded my experiences in IPBES. Was the organization capable of dislodging ecosystem services from its prevailing and problematic tendencies? What would it take to do so? Was it even possible? While the dissenting experts I met in IPBES were diverse and typically did not align exactly with Castree's vision, the various interactions I watched them instigating among its experts did reveal a certain dynamism that seemed to be drawing the process (with some judicious nudging) directly along this path. The epistemic and political struggles I observed unfolding within IPBES provide a vivid illustration of Castree's speculations, showing how such engagements might work, while also highlighting the significant challenges associated with such a prospect. He anticipates a host of obstacles: the narrowly-conceived terms on which "interdisciplinarity" is often envisioned; the tendency toward bracketing off questions of political economy, as emphasized in Chapter 4, in favour of technical fixes; and a circumscribed (i.e. 'pragmatic') field of analysis focused "only on means, not values or goals," thereby excising questions of "social power, social disagreement, and social conflict" (Ibid), and evincing an entrained "post-political" impulse precisely in the terms described by (Swyngedouw 2010). Similarly problematic is a blindered theory of change rooted in information-deficit assumptions about the role of properly communicated knowledge in impelling societal action. And, of course, the mainstream scientific establishment is not a political blank slate but *already* implicitly

politicized in multiple ways that one could expect might inoculate its members from such radical overtures.

I saw all of these challenges being actively struggled over in IPBES between a range of mainstream scientists, a somewhat smaller array of heterodox experts, and even a few unambiguously critical scholars who were thinking about their role in terms not dissimilar to those envisioned by Castree. As noted in the previous chapter, an assortment of dissenting experts had, albeit with some ambivalence, come to believe that such efforts were both plausible and worthwhile. They had decided to engage. This chapter illustrates their attempts to advance this vision within IPBES and how they fared.

In this chapter, I argue that the intersubjective dynamics discernible in these often-arduous epistemic dissensions offer a modest but unmistakeable affirmation that the contested knowledges and ambivalent scientific subjects constituted by ecosystem services are not (yet) lost causes—and that they should not be allowed to be. Amidst all the considerable constraints and objections noted above, I contend that there are openings—the kind of political wiggle room which appears somewhat meekly in earlier chapters and much more visibly here—where alliances can be explored, where a more robust radicalism might be fostered, and where new scientific subjectivities more alert to the centrality of power relations, political economy, and social struggle (the traditional remit of critical scholarship) might be forged. I also suggest that IPBES represents one such opening. As the profoundly radical implications predicted in the findings of global change scientists grows ever starker, I have come to believe—at least in relation to IPBES—that the radical theorizations offered by critical scholars represent not only appropriate but urgently necessary and *quite plausible* parts of the dialogue. As I conclude later, the Platform has also been starting to recognize this necessity. I suggest that these invitations should be taken seriously.

In the next section, I illustrate the process involved in producing the IPBES Conceptual Framework where I highlight two notable features: its colour-coding, which represents a revealing visual marker of epistemic and political dissent, and a small box in a diagram titled "indirect drivers," which I interpret as a kind of 'Trojan Horse' through which radical ideas and critical scholars were smuggled into the process. I then explore the work of the Platform's expert group on values and valuation which utilized the room to maneuver established by the Conceptual Framework and which became a hotbed of counter-economic epistemic dissent and a vehicle through which ecosystem services was being methodically separated from its more dominant understandings. Following that, I examine these dissenting experts' strategies, and their effects, on the process and in particular on the intersubjective dynamics of the much more numerous, mainstream scientists that had also been crowded into the Platform with them. I conclude by noting significant opportunities for critical scholars to engage, the straightforward usefulness of that engagement, and the growing recognition among the Platform's experts and leadership that these engagements, in some form, have become urgent.

A ROSETTA STONE FOR NATURE: THE CONCEPTUAL FRAMEWORK

Two key processes conducted under the auspices of the Platform—the development of the IPBES Conceptual Framework and its expert group on valuation—were particularly active sites of epistemic dissent: where mainstream understandings of ecosystem services were contested and re-negotiated. The head of the Bolivian delegation, Diego Pacheco (whom I introduced in the previous chapter), was very actively involved in both processes and serves as a useful entry point into making sense of these struggles. However, I also emphasize the critical roles played by a less

visible array of other out-of-the-mainstream experts embedded throughout the process who were broadly sympathetic to what he (and other heterodox experts) were trying to bring to the table. The experiences of these experts as they worked deliberately to prevent IPBES from backsliding into narrower conceptualizations, provide a glimpse into the Platform's constitutive politics and, I suggest, those of ecosystem services more broadly.

The first of these processes, whose final approval I observed in December 2013 at the second IPBES plenary (IPBES-2) in Antalya, Turkey (my first direct engagement with the Platform), was the production of its first substantive output: the IPBES Conceptual Framework (CF). The CF formally establishes the Platform's operational understanding of its broad subject matter. It was designed to "underpin all IPBES functions and provide structure and comparability to the syntheses that IPBES will produce" (Díaz et al. 2015, p. 1). In other words, every ongoing and future activity of the Platform—the production of assessments, policy support, catalyzing knowledge generation, capacity-building, and so on—is required to conform to the CF's common set of definitions and align with its unifying vision, including each of the outputs identified in the previous chapter. The inclusiveness of the CF, in other words, its capacity to accommodate the kaleidoscopic diversity of knowledges inherent to the Platform's expansive topical breadth, was stressed as critical both to its legitimacy and its usefulness as IPBES called its banners and mobilized its disparate assessment expert groups.

Borie and Hulme (2015) describe the sequence of events leading to its production, which took place between April 2012 and December 2013. I will briefly outline this chronology before interpreting what unfolded. Once the Platform had been officially established in Panama in April 2012, in line with other assessment processes, IPBES member states requested the development of a CF that would help guide the process and improve on the famed but overly simplistic and analytically incomplete four-category classification scheme introduced by the MA (2005; see Figure 1). UNESCO was given the task of convening a small informal workshop to produce an initial version, which met in Paris in October 2012 and involved roughly thirty participants selected on an ad-hoc basis. The draft CF that arose from this workshop was made available for comments and then presented at the first IPBES Plenary in Bonn in January 2013 (IPBES-1). Notably, this Plenary also formally elected a roster of Bureau and MEP members which included many of the dissenting experts whom I would later meet in my fieldwork. Following IPBES-1, another larger workshop (involving over sixty participants) was convened in Cape Town in August 2013, this time involving members of the Bureau, MEP, and experts who had been formally nominated and selected (including Pacheco). A second draft of the CF emerged from this workshop and, as noted above, was finally approved at IPBES-2 in Antalya in December 2013. The final version of the CF is summarized diagrammatically in Figure 34.

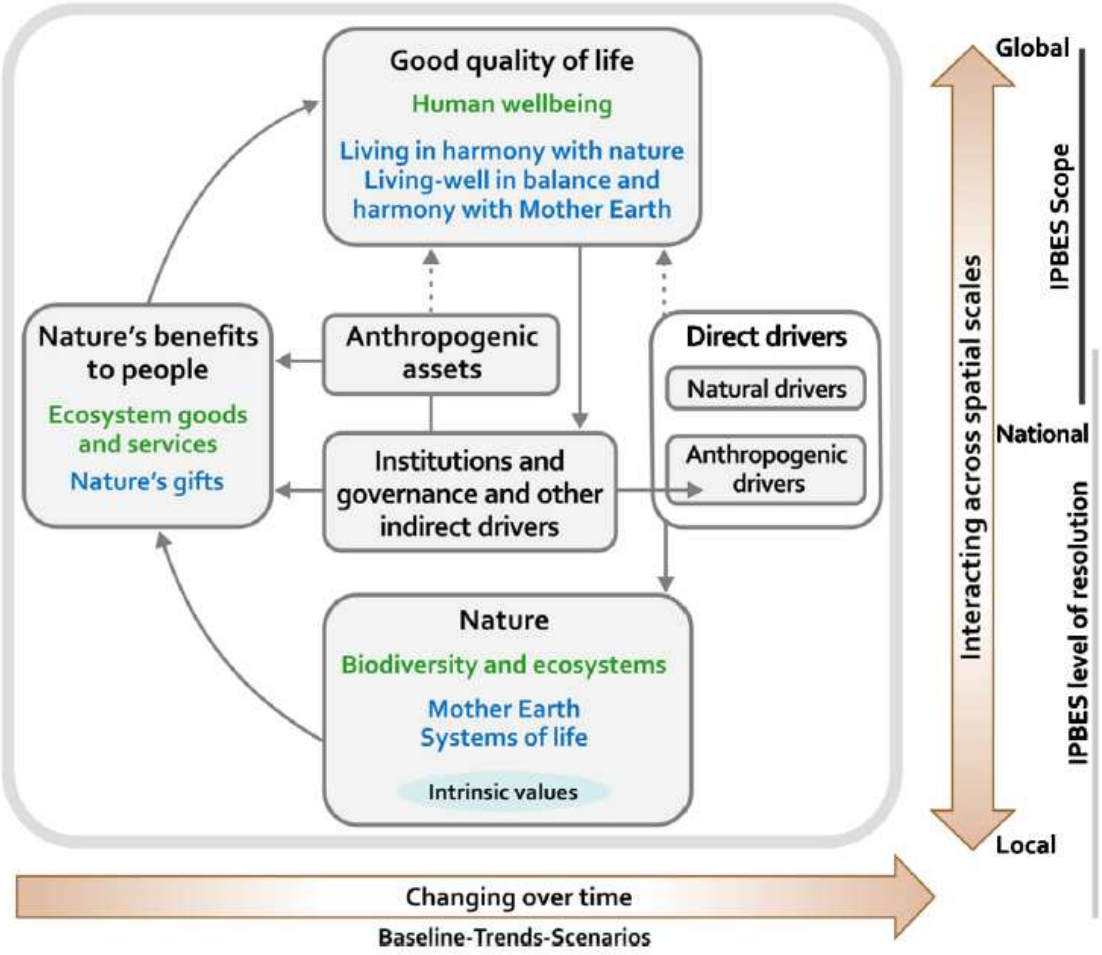

Figure 34 - The final version of the IPBES Conceptual Framework as approved at IPBES-2 in Antalya, Turkey, in December 2013. (Díaz et al., 2015)

According to its authors, the CF was intended to "provide common terminology and structure" for important system variables and "propose assumptions about key relationships in the system," while also producing "a shared language and a common set of relationships and definitions" (Díaz et al. 2015, p. 3). They emphasize that it provides an especially useful function in "fields requiring interdisciplinary collaboration" where they can help "make sense of complexity by clarifying and focusing thinking about relationships, supporting communication across disciplines and knowledge systems, and between knowledge and policy" (Ibid).

The first important feature to note about the CF involves the three different colours—black, green and blue—assigned to text in several of the key boxes, specifically those under the generic black headings of "Nature," "Nature's benefits to people," and "Good quality of life." As with many of the linguistic compositions I observed being formulated in the Platform, this awkward arrangement was the direct result of conflict. The tensions that erupted around the CF were compounded by the breadth of the CF's subject matter (i.e. nature and humanity and everything in between) and the high-stakes organizational function given to the CF itself (i.e. every IPBES process would be required to follow it). The CF became the center of contentious debate among its expert group, fierce negotiation during Plenary, and a continuing entry point through which

further kinds of epistemic dissent were allowed into the Platform at later stages of its work. As Pacheco put it, the CF "was the first fight."

As Borie and Hulme (2015) explain, the colour-coded terms depict a negotiated settlement. In other words, as one Cape Town participant put it, the CF "represents a political artifact." Whereas the Paris meeting which had drafted the first version of the CF was organized as a "conventional scientific workshop" (Borie and Hulme 2015, 92), the Cape Town meeting, as signaled by the presence of Pacheco and the more formal selection process, took on characteristics of both a scientific workshop and a political negotiation. Pacheco's dual role as the head of the Bolivian delegation *and* a recognized expert in his field with a PhD working under Elinor Ostrom somewhat illustrates this epistemic and political blending. Acknowledging the seeming absurdity of flying 28 hours to draw said diagram, one CF author recalled his initial reaction to the task at hand: "You're flying across the world for what? A conceptual framework? A diagram?" As he would soon discover, things were about to get a lot more incongruous. As many interviewees vividly recalled, the two-day expert group meeting in Cape Town turned into a protracted debate over the composition and arrangement of this diagram.

While there were multiple axes of disagreement, the most contentious of these involved clashes between one constituency that included Pacheco (who posited the *blue text*, representing ideas outlined earlier relating to his conceptualization of Mother Earth) and another group favouring more straightforward, mainstream biodiversity and ecosystem services concepts (who posited the *green text*) who had wanted these terms to be the encompassing language for the entire conceptual framework. Indeed, earlier drafts of the CF, prior to Pacheco getting involved, *only* used the terms which are now in green and which were essentially the same definitions used in the MA (i.e. "biodiversity" → "ecosystem services" → "wellbeing"). This first draft, arising from the earlier Paris workshop, is depicted in Figure 35.

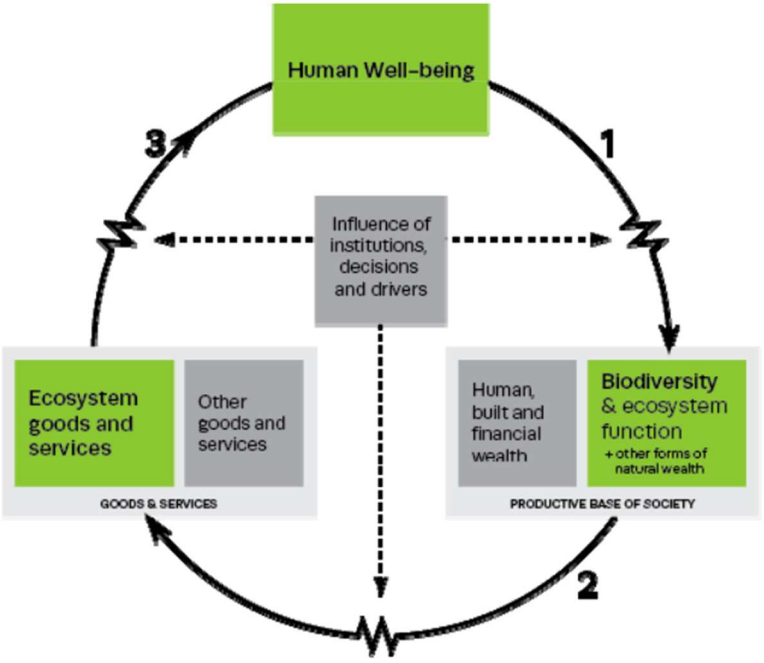

Figure 35 - The first version of the IPBES CF which arose from the UNESCO workshop in Paris in October 2012 (United Nations Environmental Programme 2012)

Pacheco made no secret of disliking this earlier formulation. Referring to the initial diagram, he explained, "at the beginning, the first framework from Paris was very bad for Bolivia. It was a very clear idea of nature as economics. Then, nature moves into this idea of services. And then you convert the services into the environmental accountability […]. It was very clean, very easy to understand how to move nature into the accounting systems—this idea of natural capital."[177] As he acknowledged, it was thus deemed necessary to "push hard" to decenter such an understanding to prevent it from becoming *the* conceptual basis for all of the subsequent work of the Platform. As other participants at the Cape Town meeting confirmed, his strong advocacy for this position became a key point of tension, and was particularly irksome for several of the more mainstream ecosystem services specialists in the expert group with whom I spoke. As one participant explained, there was a lot going on at the Cape Town workshop:

> There were very different views. Mainstream, economically focused views. There were different worldviews that wanted holistic and social values. There were views that really wanted visions of indigenous people and local communities and even different knowledge systems. Trying to put together one single conceptual framework with one single diagram—because there's no conceptual framework without a diagram—that could resonate with all these different worldviews and agendas? That was a big fight. Not only a big fight. It was an *epistemological* challenge. Because we wanted something that was meaningful for all of us. Not just for scientists. Not just for politicians. Not just for indigenous people. You try describing the world of people and nature in five boxes!

Thus, the Platform would need to be stretched open, significantly, to make way. After intense pushback led by Bolivia after the Paris version of the CF was released—expressed through submitted comments, interventions at the first Plenary (IPBES-1), and most dramatically in Cape Town—the MA's green text was, in the end, relegated to the status of just another "perspective" and ended up having to appear simultaneously alongside the blue text under a more generic and less contentious compromise heading (in black). The colours are visual markers of this brokered compromise (and a vivid illustration of a lack of consensus around ecosystem services). In the final version, the green and blue text were placed side-by-side as two different, seemingly symmetrical and opposing views on how to consider these interrelationships. While the pluralism suggested in this diagram has been promoted as one of the chief virtues of the CF by its authors, it also signaled the continuing inability to fully absorb Pacheco's dissonant articulation of "Mother Earth," "Nature's gifts," and "Living-well in balance and harmony with Mother Earth" into the MA's textbook vision for "biodiversity," "ecosystem services," and "well-being." As I would later observe, this composition of the CF served to formally install in the Platform the promise of continuing struggles over these conceptual foundations as an enduring institutional condition.

As one IPBES expert noted, "the whole conceptual framework changed because of Bolivia. The conceptual framework looked very different before IPBES-1. Then it changed. And they inserted ILK [indigenous and local knowledge]." While ambivalent about Pacheco's overall

[177] As a side note, his use of the word "accounting" has a specific meaning here. In another expert group, I noted one discussion where an economist was trying to convince a natively Spanish speaking ecologist that natural capital accounting could be formulated in biophysical rather than economic terms. In response, the ecologist remarked, "with respect, and I will go with whatever the group decides, but accounting has a very specific charge. In Spanish, the word of 'accounting' translates into what a banker does. What an accountant does. That's how the word is used popularly and in the media. This is understood." I believe Pacheco is using the phrase "accountability" with this specific "charge" in mind.

position, on this last point, he admitted that he had come to "appreciate this quite a bit." Another participant who was less enthused about the outcome emphasized how Pacheco had left telltale "fingerprints all over the conceptual framework"—referring to the distinctive terminology in the diagram—but also acknowledged that "it wasn't just him."

I should emphasize this last point. A key part of what had made this possible, as Pacheco explained, was a critical mass of IPBES experts who were willing to back him up. "I think there was a lot of sympathy from the MEP in order to have a more effectively broad conceptual framework," he noted, adding, "we pushed a *lot.* That's true. But I think there were people trying to effectively have a more inclusive conceptual framework. That's a very appreciated effort." A key point here is simply to note that this outcome was not the work of one idiosyncratic Bolivian with "radically different" ideas, as one workshop participant described them. Pacheco was coming to appreciate that he was participating in a process that was clearly conflicted about what he represented yet still sufficiently receptive and adventurous enough to run with those "radically different" ideas. Another workshop participant speculated that Pacheco had to maintain a publicly critical stance given his role—even stopping short of voting for the CF which had already been transformed to accommodate his interventions. But, at the same time, this expert had also been observing Pacheco positively and substantively contributing to the process. In other words, as this expert suggested, Pacheco, this most avowed of opponents of ecosystem services, was starting to grow invested in the Platform. "He was incredibly good and very quick with comments," noted one IPBES official who had taken part in Cape Town. "He must have put considerable time into his contributions."

The production of the CF illustrates a dynamic I observed operating more broadly across the Platform. The dynamic tended to involve participants like Pacheco (usually it was Pacheco) pushing hard at the boundaries, which in turn required a wider group of more sympathetic experts working from inside the Platform to smooth over that process, broker compromises, and build bridges between more heterodox positions and the much larger array of more mainstream experts who needed to be carefully coaxed into tolerating, accepting, or even learning to embrace such "radically different" ideas. After interviewing multiple participants at the Cape Town workshop, it became clear that the specific maneuvers of these conciliatory, enabling experts was of critical importance to 'unmainstreaming' ecosystem services. And it was not easy. One of these experts who was centrally involved in translating between the Bolivian position and the rest of the group recalled, "Cape Town was one of the hardest workshops in my life. There was a lot of tension." Stabilizing these epistemic transgressions in the Platform has required both hard work and finesse.

In the end, these facilitated clashes and the related epistemic and political bargaining which unfolded in Plenary negotiations, in small expert groups, in even smaller break-out groups at the margins of those workshops, and in prolific electronic correspondence, ultimately resulted in the compromise shown above: the literal sidelining of the MA's textbook version of ecosystem services.

It was clear that many experts continued to have reservations about the final version of the CF. Indeed, many of the dissenting experts in the Platform who had themselves played key roles in enabling the CF's formation in its present arrangement were *also* often not especially enamoured with it. While they too were working to de-center mainstream approaches and re-purpose the concepts packaged under "ecosystem services," they also shared varying degrees of ambivalence about Pacheco's unique way of interpreting what this meant, which he had now conspicuously emblazoned right in the middle of the Platform's most prominent articulation of its overall vision.

These experts noted what they considered to be clear conceptual shortcomings in the CF. Most obviously, they pointed out that his specific formulation of "Mother Earth" is only *one* non-western conceptualization of nature-society relations and was coming dangerously close to trying to speak for *all* local, indigenous, and non-western knowledge. As one expert noted, "It's still incomplete. You can't represent hundreds of worldviews in this one notion." Another expert whose research also engaged indigenous knowledge but on another continent from Bolivia commented that the CF represented a "helpful, but still unidimensional perspective of indigenous and local values." Similarly, an expert who had been involved in drafting the Paris version said that while the new CF was still workable, what had gotten re-negotiated was about "semantics," noting, "I would have used different terms."

Yet, Pacheco's myriad insertions and modifications, and the way these interventions have conditioned the politics institutionalizing the Platform, were widely recognized as having provided other dissenting counter-economic experts with crucial avenues to contest its problematic tendencies and to further entrench a range of other heterodox perspectives within it. While not necessarily reducible to Diego's formulation, they shared a common subversive and sometimes explicitly counter-hegemonic impulse. As I will show, Pacheco's foot in the door has served as an opening to a variety of critiques including but not limited to the inclusion of indigenous knowledge systems and Bolivia's conceptualization of the primacy of "Mother Earth."

As one of the key brokers in the CF compromise in Cape Town admitted, "it's not the most beautiful." But it did at least represent an epistemically and politically workable settlement capable of accommodating the sharp incongruences that Pacheco and his allies were introducing. Thus, as this expert explained, the proper (and official) metaphor for the CF was that of the Rosetta Stone (Díaz, Demissew, Joly, et al. 2015). It did not bring all relevant meanings into one language but instead constituted a boundary object for translating between them. Sharing another analogy, this expert remarked, "think of international processes and these rows and rows of flags. That's the IPBES CF." At IPBES-2, where the final version of the "political artifact" constituted by the CF was approved by Plenary—and just as I was beginning my research—I saw the flag of a decidedly heterodox vision for ecosystem services being firmly planted right in center of the Platform.

JUST A SMALL BOX IN A FIGURE: INDIRECT DRIVERS

The second feature to note about the CF relates to the box at the center of the diagram referring to "institutions, governance, and other indirect drivers." This feature also stands in notable contrast to the now-ubiquitous "textbook" diagram produced ten years earlier through the MA (see Figure 1 in Chapter 1).[178] Several key informants were heavily focused throughout the process of formulating the CF on ensuring that this box stayed in the middle of the diagram. The significance of this positioning is worth unpacking. As one of these experts told me, "I was very proud. To me, it's one of the things that I am most proud of in my scientific career. It's just a small box in a figure, but I knew that if we were able to put this little box in the middle, then—if it was approved by plenary—then it would be very difficult for not having an explicit account of this box." He elaborated, "It's not at the margins. […] This is right in the middle. So, people like me,

[178] The conceptual framework in the MA depicts four boxes, representing the four different categories of ecosystem services (i.e. provisioning, regulating, cultural, and supporting), and, through a series of arrows, their contributions to different components of human well-being. While it has been heavily criticized as oversimplistic and conceptually muddled, it is probably the most famous product to come out of the MA and is regularly used in presentations to introduce the concept of ecosystem services.

and other people who were aligned with my view, have kind of an alibi for engaging IPBES to push this, to keep on pushing for this agenda."

On a technical level, this schematic insertion distinguishes "direct drivers" (which are proximate causes of impacts to "nature" such as harvesting, land conversion, pollution, and so forth) from "indirect drivers" (which are more ultimate causes that encompass terms like "institutions" and "governance").[179] While the full definition is extensive (see footnote), the CF's authors identify this box as "the underlying causes of change," encompassing "social structures that determine how decisions are taken and implemented, how power is exercised, and how responsibilities are distributed," as well as "the access to, and the control, allocation, and distribution" of resources (Díaz, Demissew, Joly, et al. 2015, 6). It was through this box that dissenting experts believed that the Platform could not only surpass the MA but explicitly begin to tackle questions of power relations and political economy, including "issues of justice, freedom, and equality" (Ibid). In other words, they hoped—and they were often explicit about this—that it purposefully equipped the Platform for more radical critique. Not only that, this insertion *mandates* that all of the Platform's assessments centrally include questions not only of the status and trends of biodiversity and ecosystem services but of the "underlying causes" of these patterns. As the product of primarily life scientists, such questions were something the MA was unable to meaningfully address. As one high-ranking official with IPBES who had also participated in the MA acknowledged, "there was no social science, no governance, no indirect drivers. […] It was very descriptive."

In IPBES, by contrast, dissenting experts worked hard to ensure that this analytical tunnel-vision with respect to structural and systemic political-economic questions would not be repeated. Pacheco, for instance, after emphasizing the importance of integrating diverse knowledge systems into the Platform, noted that this insertion of indirect drivers had been another priority of theirs for the CF. The box, he reasoned, ensured a consideration of "different management regimes. You have different property rights, public, private, common pool resources—these are related to institutions and governance. We wanted to introduce this idea." The expert whom my informants most closely associated with this insertion had much to say about the meaning of this box:

[179] Excerpts from the full definition in the CF: "Institutions and governance systems and other indirect drivers' are the ways in which people and societies organize themselves and their interactions with nature at different scales. They are the underlying causes of change […] influencing all aspects of relationships between people and nature. […] Institutions encompass all formal and informal interactions among stakeholders and social structures that determine how decisions are taken and implemented, how power is exercised, and how responsibilities are distributed. Various collections of institutions come together to form governance systems, that include interactions between different centres of power in society (corporate, customary-law based, governmental, judicial) at different scales from local through to global. Institutions and governance systems determine, to various degrees, the access to, and the control, allocation and distribution of components of nature and anthropogenic assets and their benefits to people. Examples of institutions are systems of property and access rights to land (e.g. public, common-pool or private), legislative arrangements, treaties, customary laws, informal social norms and rules, and international regimes such as agreements against stratospheric ozone depletion. Economic policies, including macro-economic, fiscal, monetary or agricultural policies, are institutions that play a significant role in influencing people's perception about the importance of nature's benefits, and their behaviour and thus decisions about the way they interact with nature. People, however, have diverse perspectives on a good quality of life, beyond the domain of wealth and income, to incorporate issues of justice, freedom, and equality. Governance systems have different degrees of legitimacy and voice, performance, accountability, fairness and rights, and scale of operation" (Díaz, Demissew, Joly, et al. 2015, 6–7)

> I am a realist-pessimist when it comes to the global environmental crisis that we're facing. A pessimist in the sense that I feel that the institutional structures are so entrenched, so difficult to reset them, not at the margin, but actual, real transformation of the key institutions, which I guess we call 'the main indirect drivers' of the way we use, exploit, or benefit from nature. […] If we can have an intellectual influence over which lens we use to understand the complex human-nature interactions, then we can make an impact. Then we could have a *hope* to make some impact. And I firmly believe there is a potential. From being a realist and a pessimist about how entrenched institutions are, I don't just go home and cry about it. I say, I am going to analyze this. And as far as I can, I will provide my ideas, and share my ideas with other people to try to steer this global initiative to a specific understanding about what are the root causes of what we are trying to solve.

The focus of this gaze contrasts markedly with what I had been encountering among NatCap personnel and seems to articulate a very different vision for what ecosystem services means and what it can and should do. Both conceptualizations begin with the same sets of ideas, methods, and tools. Yet the political *purposes* to which they are set seem to diverge radically: the former seeks to optimize 'win-win' decision-making within given arrangements while the latter seeks to pursue "root causes" and to effect "real transformation of key institutions" as articulated through the definitions above, confronting head on questions of access, control, power, political economy, inequality, and social justice. Indeed, a recent paper explicitly identifies this opening, arguing that "the IPBES conceptual framework offers a unique opportunity to deal with power dynamics," which in turn, may help to "steer scientists, practitioners, and decision makers towards putting ecosystem management at the service of sustainability and social justice" " (Berbés-Blázquez, González, and Pascual 2016, 140; 136). This box, the paper observes, entails analyzing "how power shapes institutions that regulate access to and control over ecosystems" and in turn produces "winners and losers based on the distribution of ecosystem benefit" (Ibid 138). In essence, the small box these experts had formally inserted into the CF is describing the work of political ecology.

Thus, the more critically-aligned experts asserted that this innocuous-appearing insertion provided not only a much-needed step toward more realistic analysis (i.e. of the social factors mediating human-nature relationships). They stressed that it could serve as a kind of Trojan Horse for more critically-oriented lines of reasoning and, crucially, a means of bringing on board the kinds of critical *scholars* capable of introducing such analytical reasoning competently into assessments. In other words, it could be interpreted as effectively requiring the engagement and inclusion of critical scholars in the work of the Platform. As one dissenting expert stated, "many of us entered IPBES and use it like a Trojan Horse. We know international institutions are strongly biased towards neoliberal ideology. We're trying to re-frame this general trend."

They suggested that positioning such questions within the CF so centrally could, in time, create a slippery slope toward explicit analysis not only of standard-issue "governance" questions related to market mechanisms and market failures but systematic critique of more foundational political-economic structures such as those implicated in capitalism as a general process. On a strategic level, I noted multiple instances along these lines where the more seasoned IPBES experts with experience from past international assessments suggested how diagrams can be especially useful for this purpose. As one of these experts remarked, "[d]iagrams are dynamic, rather than linear, like in text. Diagrams can also be radical in ways the text can't get away with—although people are now more attuned to this and you can't get away with it so easily. […] [B]ut remember

that they can often contain logically radical commitments that make their way through negotiations."

It was often when talking about this somewhat dry term, "indirect drivers," that I learned that a significant number of the ecosystem services specialists in IPBES—including but not limited to the dissenters actively trying to steer the Platform in more radical directions—self-identified as either deeply sceptical of or even avowedly opposed to "capitalism" as a viable part of what they could consider a just, sustainable world. "We need fundamental change and to move away from capitalism," one scientist explained to me. "Capitalism has outlived its use. It's clear. There are movements against capitalism everywhere calling for a more balanced economic system that doesn't have such a huge environmental footprint and such human rights damage." This was not an uncommon sentiment. While these pocket theories of "capitalism" varied in their particulars and level of elaboration, the regular expression of this sentiment was nevertheless somewhat unexpected. Reflecting on all these considerations that were drawn into focus by this "small box," one of its strongest advocates in IPBES concluded in an interview:

> For me, that's why I fought a lot during the conceptual framework meetings to convince the other scientists and decision-makers who were engaged in the dialogue that to come up with a useful framework, institutions and indirect drivers should be at the core. At the centre of *any* conceptual framework. Until now, most of the conceptual frameworks around biodiversity and ecosystem services treat indirect drivers as some 'arrow' which was impacting on biodiversity and we didn't know where it came from. […] [I]f we don't tackle [indirect drivers], and if we don't understand the way those institutions operate, how they function, why they might be so entrenched, […] why they are so difficult to change, etcetera etcetera, if we don't have that understanding then the scientific value of IPBES would be very marginal, shallow, and superficial. It would just be repeating the Millennium Ecosystem Assessment—version 2, version 3, version 4, new knowledge, new data, but we would not be tackling the actual causes of what we are trying to understand.

During the various expert group meetings I attended, I noted multiple instances where this question of indirect drivers came up, triggering fascinating discussions about how far up the causal chain they dared to go in their assessments. In one such exchange during a scoping meeting for an upcoming assessment, I observed a group of experts tracing the links from "harvesting" and "land degradation" to "social drivers" like "market forces" and "trade," prompting one expert to assert, "I'm strongly in the camp of more fundamental social-economic drivers," triggering yet further debate about whether and how they could shepherd this idea through the process to eventual approval. At another meeting when the topic of indirect drivers came up, experts debated whether to address "why institutions are failing," leading to further proposals to insert sections on the evolution and implications of different kinds of institutions and their institutional failures. One of the 'epistemic dissenters' in the room wanted to make explicit that such analyses "shouldn't just perpetuate the environmental economics narrative of externalities and market failures." This prompted another participant to remark that it was the dominance of Ministries of Finance that was ultimately the root of such failures, and, despite that, they were still allowed to dominate. The mainstream economist in the room retorted, "maybe for good reason."

Thus, indirect drivers were triggering impromptu debates among the Platform's experts about the real, root causes of environmental change and biodiversity loss. These discussions elicited a wide range of different and often conflicting beliefs among the natural scientists who largely dominated the Platform. As in other moments throughout my time in IPBES, but in these

moments especially, the paucity of social scientists was made painfully conspicuous, prompting me to imagine with increasing clarity how useful, but also how *appreciated*, it would have been to have leading experts in critical political economy also in the room to match these leading minds in the physical and life sciences. Indeed, as I elaborate later, the Platform has been moving toward a growing recognition of this need as well. "We have lots of ecologists," noted a coordinating lead author for one of the regional assessments. "However, political economy is hugely influential in how things work and the decisions people make. There is a serious mismatch of expertise in need of analysis."

This point was echoed in a recent report (Rankovic et al. 2016) which highlights the pervasiveness of this issue with respect to the Platform's first fast-track thematic assessment on pollinators, pollination, and food production (IPBES 2016). Although the assessment identifies "a series of direct drivers to pollinator decline," the report observes that it stops short of "cover[ing] 'indirect drivers' or 'underlying causes' of biodiversity loss with the same depth of analysis" (Rankovic et al. 2016, 1). For instance, while the report mentions "transforming agricultural landscapes," the assessment also neglects to "mention the contextual conditions that would enable such changes, nor the factors that are currently involved in blocking change" (Ibid, 3). The report analyzes the author composition of the assessment process and points to the miniscule proportion of social scientists with this sort of expertise as the main culprit behind this discrepancy between the assessment's mandate (which now included the small but potent 'political-ecology box') and the final product. Alarmingly, they note that the chapter on "drivers" lacked *any* social scientists altogether. Thus, echoing many comments expressed to me by various informants involved in the process, the report concludes that "to achieve its general objective, IPBES will need to recruit more experts from the social sciences," and especially those with specific expertise in "indirect drivers" with a "strong emphasis on underlying causes," in all future assessments. This "gap," I suggest, conveys the unmistakeable silhouette of Castree's "stuck in" critical scholars.

Figure 36 - Photographs captured from three different IPBES expert groups I attended during my research. Each image depicts group discussions where all the experts in the respective process were gathered. Much of the time in these meetings was spent in break-out groups divided up by chapters (in the case of assessment processes).

DOWN WITH THE KING! VALUES & VALUATION

The second process considered in this chapter, after the CF, was the expert group that developed a "guide" on how IPBES would address questions related to values and valuation.[180] This expert group was also responsible for preparing a scoping document proposing a full methodological assessment on values for consideration by Plenary.[181] This prospective undertaking would have built on the guide by not just outlining possible means of approaching questions of valuation in conducting IPBES assessments (which the guide establishes), but by critically assessing and synthesizing the overall state of knowledge regarding such questions (IPBES 2015b). While much of this discussion will revolve around the development of these documents, I should reiterate that the significance of the values group—and indeed, those of other expert groups—involves much more than just its final outputs (i.e. the values guide and values assessment scoping document). Rather, I focus on the dynamic social process that generated these texts, the intersubjective effects this process had on its participating experts, and their broader epistemic and political influence on the Platform. While I was embedded among various IPBES expert groups in the Platform (see Table 1 in Chapter 1), I spent the most time with this one.

Formally, the preliminary guide on values and valuation was intended to "assist in the preparation of comprehensive and scientifically, technically, and socio-economically sound

[180] Following the long process of producing this guide (as discussed in-line), and rather than disbanding the expert group, a subset of its members was retained on a continuing basis. In turn, these values experts were embedded in (i.e. "coupled" with) the other ongoing IPBES assessment processes in order to ensure that they addressed questions of values and valuation in accordance with the Platform's agreed approach—that is, as defined by this expert group.
[181] While the valuation scoping document was eventually approved (IPBES 2015b), the full methodological assessment was not ultimately not initiated.

Platform reports and technical papers" (IPBES 2015a, 9). To this effect, the document aims to "raise awareness of the diversity and complexity of [the CF's] associated 'value' types, how to conceptualise them, what methods may be applied to elicit such values, what data and capacity building needs currently exist […] as well as how the diverse conceptualization of values and valuation approaches provide for the design and application of policy support tools" (Ibid). The guide is 121 pages long and provides a detailed step-by-step approach—together with extensive discussion arising from the expert group's deliberations—showing how IPBES experts can approach questions of values and valuation in the development of assessments.[182] With respect to conceptualizations of value, the guide acknowledges:

> The word "value" has interrelated but distinct dimensions and is understood and analyzed differently in the biophysical sciences, social sciences, economics and ILK. It is therefore essential that an assessment team tasked to address diverse values be broadly interdisciplinary and come to a shared understanding of terminology. (Ibid)

The guide enumerates multiple possible meanings for value, including as "a principle or core belief," as "a preference (for something or for a particular state of the world)," as the "importance (of something for itself or for other things)," and as "a measure (for example the number of species)" (Ibid).[183]

As I will show, the dynamics of this expert group provide a vivid illustration of the sorts of epistemic dissensions, political ambivalences, and dynamic expert subjectivities that have shaped the Platform. The group's workflow came to be organized around three formal meetings: first in Siegburg, Germany (July 2-5, 2014, involving 41 participants); a second in Bonn, Germany (September 8-12, 2014, involving 32 participants); and a third in Budapest, Hungary (June 8-11,

[182] Each step is tasked primarily to a given assessment's resident "value experts" plus varying combinations of chapter leads and co-chairs. According to the guide, these steps involve: (1) identifying value dimensions and understanding where values play a role in the assessment; (2) searching the literature, in a broad-minded, comprehensive, and inclusive way, considering diverse values and worldviews, including those coming directly from ILK holders, and which may require going beyond standard peer-reviewed papers; (3) categorizing, sorting, and assessing values, considering which values have been elicited (in the literature) and how they were elicited, covering biophysical, cultural, economic, public health, holistic, indigenous, and local knowledge-based approaches; (4) synthesis, up-scaling, and integration in relation to the given purpose of the assessment as outlined in its agreed scoping document;[182] and (5) contextualizing and communicating results in appropriate ways for decision-makers (Ibid, 3). The approaches the guide identifies which the assessment experts may use to "synthesize information diverse values and to relate it to other results of the assessment process" are wide-ranging, including both quantitative and qualitative approaches, such as: narratives, story-telling, graphs, sketches, and integrated modeling and scenarios. It might also require assessment experts to directly involve relevant stakeholders, organizations, or other actors activities like multi-criteria analysis and deliberative valuation for discovering, constructing, and reflecting values in dialogue with others (IPBES 2015a, 7).

[183] Throughout all the steps, the guide poses a series of key questions to the IPBES expert—questions that would need to be operationally addressed in order to substantively grapple with issues of values and valuation in the assessment. For instance, in the first step, among other questions the guide asks, "what worldviews are involved, and what issues are at stake" in the assessment's subject matter (IPBES 2015a, 4). It also instructs expert groups to consider whether the "assessment team [has] the needed expertise to address the worldviews and scale issues involved," emphasizing the importance of "ILK, ecological science, economics, and other social sciences such as sociology, anthropology, and human geography" (Ibid). Interestingly, and in line with the CF, the guide notes that valuation is implicated in the "institutional settings that shape issues such as distributional justice and equity, power relations and inclusiveness across stakeholders" (Ibid).

2015, involving 52 participants).[184] At the first meeting in Siegburg in 2014, the selected expert group met for the first time in person.

As one expert recalled, "when I read the list of participants I saw at least 30-40% economists. I said *oh no*. This is going to be TEEB!" To her and many of her colleagues' surprise, many of these economists turned out to be heterodox economists. Here, the role of epistemic dissenters in the MEP was vital. Following the nomination of experts by governments and organizations, members of the MEP were responsible for actually *selecting* the expert group. Indeed, much of the story in IPBES as presented in this chapter can be traced in one way or another to these experts (and others whom they strategically brought into the process).[185] As one expert noted, "the really strong part was the MEP. The individuals from MEP are really amazing people. They sincerely, genuinely want a different kind of message to come out. […] They already thought it was important. They nourished it." One such MEP member explained:

> We selected, as MEP and Bureau members, the experts [and] took care to make sure the values group was very diverse. Of course, gender and region balance were needed, but we were very lucky that we had philosophers and anthropologists and sociologists and political scientists, not just economists, and economists did not dominate.

He acknowledged that this was "maybe a surprise to some, that yes, we are very different types of economists. We did have mainstream economists in that expert group but we had more heterodox economists." For the non-economist social scientists and humanists, this presented a different terrain to what they had been expecting and a departure from what the more experienced experts had grown accustomed. As one humanist in the group recalls, "at first sight, I was impressed by how diverse the points of views were." Another of the more experienced experts in the group who had participated in several other international assessments remembered having a similar reaction in Siegburg:

> I was really, really impressed by the selection of the experts that they managed to get. Obviously, a lot of people got nominated who thought like I do, that this really needs some sort of different approach and that it really needed to reach out. At first, we were really worried. With two or three colleagues, we tried to identify who are the people in the group that would probably be on our side. But when we had the first plenary we realized there was not really *anyone* on the other side. That was the first expert group meeting. There were no narrow-minded economists in there. The people you usually have in the room were not in the room.

Not everyone agreed about this last claim regarding the absence of narrow-minded economists, as I discuss later. While there were some high-stature figures in the room, there were also many junior academics with less exposure to these kinds of assessments. As one expert noted, only "one third of us were experienced in these kinds of processes. I really appreciated that," adding, "many of us were quite young and inexperienced, which turned out to be a good thing. We have energy and naiveté, perhaps, to think maybe not totally out of the box, but somewhere near

[184] Experts in the group gathered in various other sites as well, including Plenary negotiations (which provided important decisions between expert group workshops that influenced their work), formal meetings of the MEP and Bureau (members of which were embedded in the values group), and meetings of parallel IPBES expert groups (where valuation team members were also embedded).

[185] The election of the MEP, in turn, depended on sympathetic delegations in Plenary, such as Pacheco and his allies, who negotiated for the selection of heterodox experts to fill these positions in the MEP itself.

the corner of the box." Many participants also noted Pacheco's presence at the first meeting, which one expert suggested was "instrumental to leading the early discussions."

The locale itself—a small picturesque town outside of Bonn—as well as the hotel which served as the workshop venue, were recalled fondly by participants. As one expert noted, "it was nice, we had breakouts, we would come back, breakouts, come back, small two-people side meetings, then larger ones, very dynamic, tables everywhere, outside, and upstairs. It was nice to adjust the agenda so dynamically." While generally less contentious than the CF expert group discussed earlier, and despite the claim that "there were no narrow-minded economists," this in fact became one of the defining tensions faced by the group. As they got down to work, divisions began to form between the group's more mainstream economists and its non-economist social scientists, humanists, and interdisciplinary scientists. This tension would, in different ways, come to shape the group's work throughout the process. As one critically-aligned scholar in the values group recalled of Siegburg, "we had very strong frontal clashes in the very first plenary—disciplinary clashes."

At their first meeting, these divisions were expressed most prominently in the groups assigned to two different chapters: Chapter 2, which delved into conceptual issues, and Chapter 3, which addressed valuation tools and methods. As one expert explained, the Chapter 2 group was focused "more on philosophical issues. What values are. Much more, many more social scientists, anthropologists, philosophers. The other group was more about the tools." She added, "in our group, the dynamics were really fantastic. We had these charts and then another chart. It was really evolving." Chapter 3 was where the more mainstream economists had concentrated. She continued, saying that this evolving, generative dynamic was "not so true for the tools. They were more dominated by quantitative people who were not so used to other tools."[186]

These tensions were compounded by interpersonal dynamics. Interviewees depicted a somewhat consistent portrait of how these tensions manifested in the group's work. One expert recalled that there were "people who represented themselves as experts on parts of valuation knowledge collection, and they were behaving like kings. Like, 'I'm the king of economic valuation, so social scientists should not tell me that cost-benefit concept has limitations!' I'm exaggerating here. It was all very nice, collaborative, but it was tough. And never fully resolved. A work in progress." Another expert recounted how the "domination by one or a few individuals with a very narrow perspective was a problem," quickly qualifying that these pricklier experts were, however, "good at what they do, of course, and very smart people." Given the mandated regional representation according to the five official UN regions (meaning that experts from Western Europe and the United States comprised only one fifth of the group), intercultural tensions also contributed to the dynamics that emerged in the expert group. As one expert remembered, "the issues at stake are many. There are conceptual issues. And there are cultural issues, like people

[186] Indeed, overcoming these interdisciplinary boundaries was one of the main challenges the group had to overcome, and not only for the economists. Regarding the first meeting in Siegburg, one expert said that she "found it a very difficult process. An intellectual marathon. […] If someone is not used to working in a multidisciplinary group, the feeling is you come together in a thirty-person group, you remain the economist, or the anthropologist, or the biologist, and you stay that way. That happened in our first meeting. Everybody kept putting out their discipline and academic interest in the question of value and valuation. It was very difficult to break all of that down. Eventually, we got to a place where could have an open discussion."

from Asian countries not speaking up. They were uncomfortable with the person from [western country] speaking very loudly."

These tensions seemed to have been managed in three ways. First, the initial versions of these documents that ended up being presented at the following Plenary (IPBES-2) was heavily contested by Pacheco, among other delegations, for placing too heavy an emphasis on economic approaches, which served to justify moving away from dominant economic frameworks, setting the stage for the subsequent values expert group meeting in Bonn. Second was the work of skilled brokers in the group who were able to somewhat bridge between the incongruent expertise in the room. As one expert noted, "we became worried about the quant stuff. We wanted more of the qualitative people in the other group [i.e. Chapter 3 on tools]. We wanted people to move back and forth who were strategic and could dilute and break a bit the more rigid areas." She explained that "interdisciplinary people, and people with experience in participatory processes, were the brokers." Another expert recalled, "you get hybrid experts, which is fantastic, because they see both sides and the need to integrate. You need these bridging, hybrid people." Such experts, he observed, were able to coax the other experts to "leave their comfort zone, bridging the disciplinary gaps." In this regard, one of the younger experts recalled the importance of several such participants, particularly the anthropologists, whom she remembered as "brilliant, and kind, and nice persons. They were women. They acted as facilitators. I really enjoyed this."

The third means by which this tension played out involved the more doctrinaire economists simply not showing up anymore. As one expert explained:

> There was one economist. He is really hardcore and he was at the first authors meeting giving lectures on economics to all the group. And finally he was…he kind of left the process because he was not able to open up. He got frustrated, I guess, but he hasn't communicated. But he was the first to disappear. In a sense, it is a pity. But I think the other experts were not regretting it. It was really kind of, in a way, you know, this lecturing type of way, 'You don't know economics! I tell you how to think about it!' You know, fortunately I should say, these people disappeared and the other people remained.

By the second expert group meeting in Bonn in September 2014, as another expert remembers, and partly as a result of these tensions between the group's economists and non-economists, the "more traditionally focused resource economists—they fell out of the picture. They walked away from the assessment. Leaving behind the people who were selected along similar lines in terms of vision." This effect was even more pronounced by the third expert group meeting.

I should emphasize that my interviewees were describing a very personal, enthralling process which had been frustrating some, entertaining many, and inspiring others. That this group took the shape that it did depended on who was in the room, which in turn depended on who was *selected* to be in the room and the interpersonal styles and emergent social dynamics of that room. In this case, as multiple interviewees suggested, the mainstream economists appeared to have simply gotten fed up having to deal with what they perceived as the heterodox, interdisciplinary experts having fun on the other side of the room seemingly at their expense—it was alienating.

And so, the expert group was able to carry on with its work at that second meeting, this time less encumbered by environmental-economic orthodoxy, and to more fully indulge Pacheco's and others' critical interventions rebuking the first overly-economistic version of their work. The pendulum swung back. What was delivered to the Plenary after that second expert group meeting

in Bonn was heavily inflected with the disciplinary knowledges of anthropologists, sociologists, political scientists, philosophers, and other non-economic (or counter-economic) experts. The comparatively much more heterodox product that emerged from this second round of writing triggered vigorous debate, and resistance, at Plenary (IPBES-3)—except this time from the delegations that wanted a more mainstream set of documents. The United States, for instance, intervened in relation to the scoping document proposing that the Platform undertake a full methodological assessment on diverse values:

> United States: As it's changed now, I'm not sure *what* sorts of experts are being sought as part of this group. I think we've moved away from the initial intent to find tools to incorporate the various approaches to understanding value and have gone into a more philosophical general text about all the ways to connote value. We're not even sure how some chapters even help to develop tools for incorporating value rather than just…thinking about various ways of conceptualizing things.

Chile's intervention echoed these concerns regarding the scoping document, suggesting that the text had veered too far from mainstream approaches:

> Chile: We are concerned that these values are not connected to the policy-making process. We encourage the task force to explore this issue and how IPBES can connect to the UN SEEA's new Ecosystem Accounting Framework.[187] One of the principal challenges of natural capital accounting is valuation. We want an additional chapter on ecosystem accounting, separate from other kinds of valuation.

In another intervention, Chile reiterated this critique and introduced additional concerns about the values guide which had been produced by the expert group: "I have major problems with the preliminary guide […]. The preliminary guide has taken a wrong direction. It has some muddled concepts. I'm also confused about the references. It is not a product that will be of use to the [IPBES] assessments or to the policy-making process. We can go through the guide if you wish, but I have very substantial comments. I would move not to approve it as it stands." Australia also added its skepticism about the scoping document:

> Australia: We're not convinced of the 'value proposition' has been made for this values assessment. The case for how this deliverable relates to other deliverables has not been made. This valuation assessment has not been shown to have practical usefulness for policy makers. This requires a significant rewrite.

Notably, the roles of these countries had been completely reversed compared to the previous round of negotiations in Antalya (IPBES-2) where I had observed Bolivia on an all-out document-editing offensive attempting to uproot the texts, and the work of the valuation expert group, out of their economic foundations. Here, conversely, Bolivia had found itself on the back-foot *shielding* the work of the expert group from the other countries, most notably the United States, Chile, and Australia, who were now on the attack. Bolivia, one of the most prominently hostile international presences in opposition to the green economy, natural capital, and ecosystem services, had by this time become clearly invested in the Platform. The process had started to

[187] The United Nations System of Environmental-Economic Accounting (SEEA) defines "a measurement framework for integrating biophysical data, tracking changes in ecosystems and linking those changes to economic and other human activity. It applies the accounting concepts and rules to the emerging field of ecosystem assessment and measurement in response to a wide range of demands for integrated information related to environmental sustainability, human well-being, and economic growth and development" (United Nations et al. 2014, iii).

reflect their values, interests, and overall position—enough so that they had found themselves in the role of the Platform's defender. They *wanted* what it had to deliver. Pacheco tried to respond to these critiques:

> Bolivia: Bolivia already stated here and before that we need a balanced approach […]. In the last Plenary, we focused on economic values, letting others fall by the wayside. At the expert meetings, consideration of other values is now there. We can't put economic above other values. It seems like some delegations are once again stressing economic value. […] We can't have a chapter on national accounting. That would ruin the balance of the document. There are different visions and values for the world. The changes others have proposed would undermine the balance struck in the document. In sum, we believe the document put forward by the working group is very balanced and that Plenary should accept it without revision.

As the negotiations wore on, it became clear that both the guide and the scoping document were not going to be approved and that the valuation expert group would need to return to the drawing board for a third time. Several countries pushed to insert more conventional economic approaches by re-structuring the values expert group such that it would reflect more mainstream views. Once again, Pacheco stepped up to the plate:

> Bolivia: Let's remember what happened in Antalya. For some parties [i.e. Bolivia etc.], that scoping process from IPBES-2 was very weak. That is why this scoping process through the expert group happened [i.e. the second values expert group meeting in Bonn]. The solution is not just practical mechanisms like national accounting. Others mention WAVES[188] and TEEB. That's going to create a lot of unbalance, a lot of bias. This isn't a manual for national accounting or a way of implementing TEEB. […] This is a way of orienting the idea of multiple values, to create a balance of worldviews, a balance of conceptual approaches. I do not like the idea of bringing in practitioners who are into WAVES or national accounting.

As much as these failures to approve the expert group's two documents were a setback for the epistemic dissenters who had swung for the fences on these outputs, I noted at least two developments during this Plenary that worked to their benefit. First, while he was not able to successfully shepherd either of the expert group's outputs through Plenary at IPBES-3, he was able to keep the band together, and efforts to insert orthodox resource economists from WAVES, TEEB, or UN-SEEA were ultimately thwarted. The core expert group would be given another chance to get it right. Second, while a full assessment on valuation methods was not approved, Plenary did agree on a "coupling" arrangement, which would entail selecting valuation expert group members and embedding them in each of the Platform's other ongoing assessment processes: the global assessment, the various regional assessments, and others. This plan was intended to allow these other ongoing assessment processes to inform the continuing development of the values work. Moreover, and perhaps more crucially, the arrangement also enabled the IPBES values experts to directly try to influence these other assessments.

Here, the way that the CF was negotiated (as described earlier) was instrumental to enabling this strategy. In Plenary negotiations, Pacheco was thorough in checking over the plan's various details, for instance, requesting "a summary document that reflects this process of

[188] WAVES is the World Bank's global initiative, "Wealth Accounting and Valuation of Ecosystem Services"

discussion, and the details," with "major structural changes depicted," and which "should provide details about number of experts, steps, outcomes, and so on which will help produce substantive reports, and which should also include ILK and how that is included in this process." He was insistent on knowing "how consistency with the methodological [i.e. valuation] and conceptual [i.e. the CF] documents will be maintained" throughout the coupling process. Indeed, across his engagements with IPBES more broadly, and alongside several key experts in the MEP, Pacheco has been tenacious about ensuring that the Platform remain "consistent" with the CF he had fought tooth and nail to establish—and soon perhaps, also with the guide that that was being re-formulated by the values group.[189]

I suspect Pacheco's thoroughness on this matter was carefully considered. As I will show later, this "coupling" decision would in effect serve to circulate epistemic dissenters from this expert group throughout the IPBES process. As Pacheco's repeated interventions about "consistency with methodological and conceptual documents" helped to establish, these dissenting experts were being explicitly empowered to use the CF and the valuation guide to ensure "consistency" with the heterodox vision articulated in both the CF and the preliminary values guide across the Platform's broad work programme. In short, Plenary had just decided to infiltrate counter-economic epistemic dissenters into the production of each of its outputs. Indeed, the Platform had not only enabled but *instructed* these transgressive experts to enforce compliance with their counter-economic vision, prescribing dedicated time, resources, and coordination to support their engagements with the other assessment expert groups. Here, the CF and values guide had equipped the epistemic dissenters of ecosystem services with a potent tool for advancing a central goal: unmainstreaming dominant understandings of ecosystem services from the Platform.

The third and last meeting of the expert group was held in Budapest in July 2015. Here, the goal was to finally get its documents past Plenary. They would need to be strategic. Moreover, as even the more critical experts acknowledged, the previous versions of their documents were in fairness admittedly somewhat jumbled, and they appreciated having the extra time to refine the texts. Anchoring the discussions in Budapest was the development of the diagram shown in Figure 37 which seems to crystallize the persistent tension within the group between mainstream economics and its alternatives. The diagram depicts two "world views," one of which is "monistic" and focused around "Economic Dominated Valuation" (the right-hand side), and one of which emphasizes "Diverse Valuation" and "Diverse world views" (the left-hand side).

[189] At the previous Plenary (IPBES-2), for instance, Bolivia had argued forcefully for the need to establish precisely this "consistency between the languages of the conceptual framework and the language of the work programme." Here at IPBES-3, Bolivia once again insisted, "we have guides on how assessments are to be prepared and conducted. The aim of these guides is to specify what activities will be conducted."

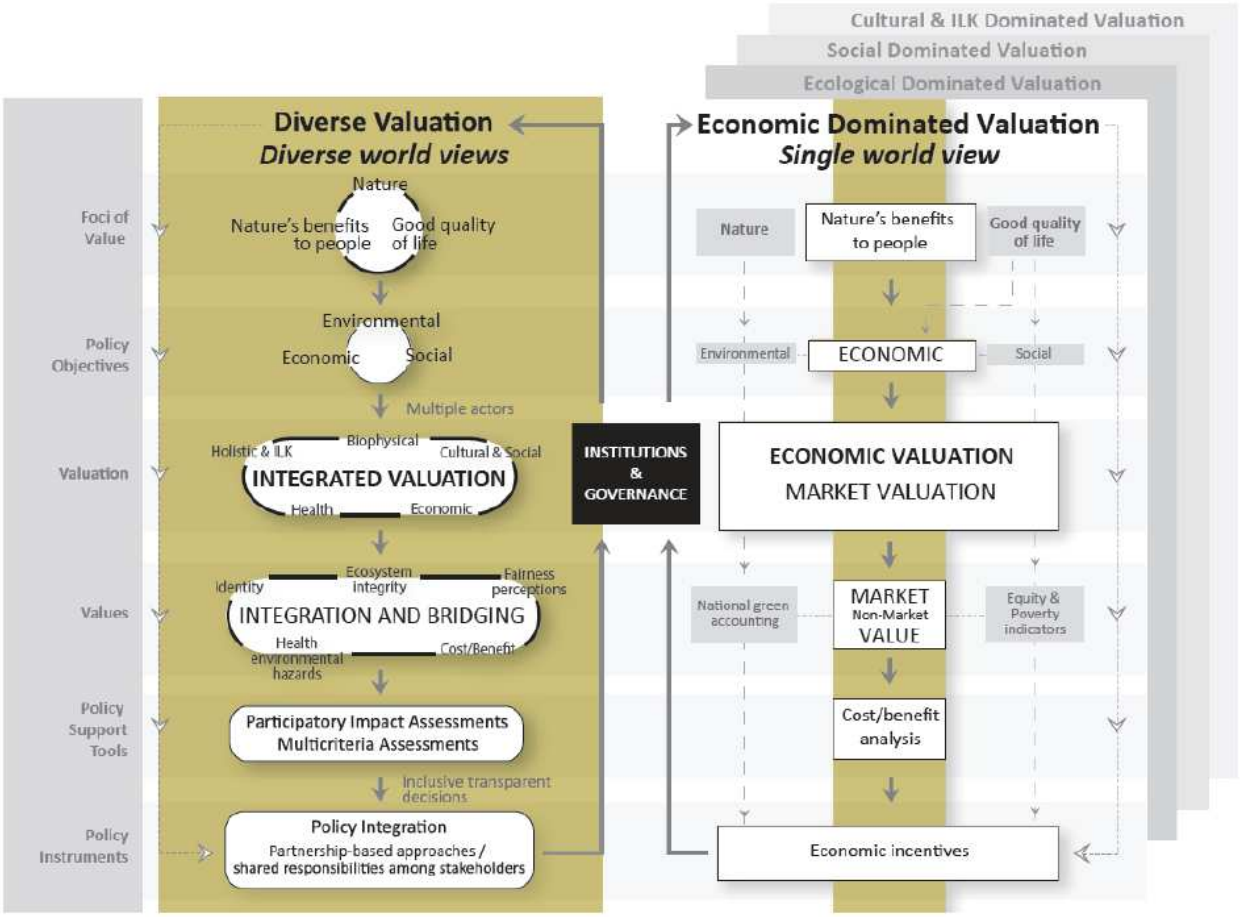

Figure 37 - A stylized illustrative framework of contrasting approaches to the process of valuation of nature, nature's benefits to people and good quality of life. The left side panel emphasizes the importance of a pluralistic notion of value, compared with monistic approaches to human-nature relationships represented in the right side panel. […] A given monistic approach, such as that associated with economics alone (on the right hand side) contrasts with the pluralistic and integrated notions of value (on the left hand side)" (IPBES 2015a)

What this diagram most immediately seems to convey is a straightforward pitch for value pluralism. However, in effect it also delivers a counter-economic critique of dominant understandings of ecosystem services. While there are other layers in the background behind the right-hand side of the diagram, implying that *any* value monism might be undesirable, whether it is "Ecological Dominated Valuation," or "Social Dominated Valuation," or "Cultural and ILK Dominated Valuation," the fact that none those visions are either foregrounded or actually dominant leaves behind a clear and specific critique of "economic" and "market valuation."

The values experts were very fond of this graphic and I observed it being received positively when it was brought by members of the values team to various other expert group meetings. As one values expert remarked of the early version drawn up in Budapest, "this is the most inspiring piece I've seen across the board across all work. There's two systems. One is not working. One we're trying to make work." As another expert explained, "it has huge importance for me. It speaks to a concern I've been having for many years." Considering what it represented in the context of the Platform, she emphasized how they had to strike a carefully calibrated strategic balance: to "hammer hard enough, well, hopefully hard enough, but not *too* hard for the

economists. We wanted a reaction strong enough to be accepted and questioned but not so strong they will reject it," referring to the negotiations that would eventually ensue in Plenary over it.

The diagram, and the broader document where it eventually became a centerpiece, had to deliver its counter-economic message but in a way that would begin to click with and not overly threaten the more mainstream participants in IPBES. Another expert shared this strategic outlook, explaining, "the recommendation of the group was that we should move away from monistic valuation toward pluralism. That is the best compromise that we could ask for. […] I mean, the battle would be lost if we forced them to choose between something like 'intrinsic value' versus dollar value. Putting it in that frame definitely doesn't work. With pluralist values, at least economics is only one element." Similarly, when anticipating possible objections to the diagram as it was formulated in the final version of the document, another expert remarked, "they have no weaponry—it would be very difficult to argue against this view because it is all encompassing. It is open. It is positive. And we were able to frame it in such a way. We did it well and it was a good decision to approach it in this way. It wasn't written this way at first and people felt it was risky for my position. In the second version, we were much more tactical."

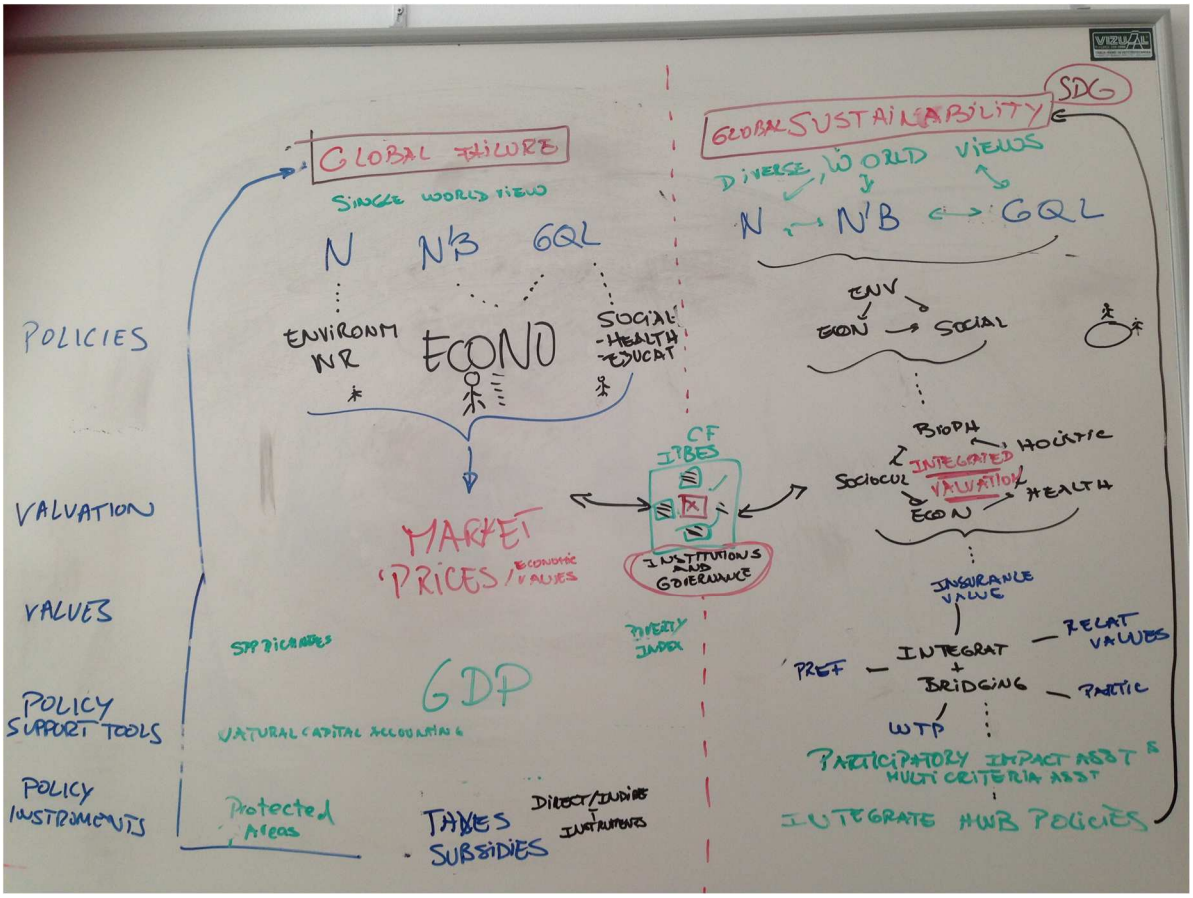

Figure 38 - A preliminary draft of the previous figure. Note the heading ("GLOBAL FAILURE") given to the business-as-usual 'status quo' model, used as a foil against the valuation guide's alternative formulation

Tellingly, in earlier drafts, I observed a different headline for the right-hand segment of this schematic, which simply reads, "GLOBAL FAILURE" (Figure 38). While this sentiment remains implicit and intact throughout the guide, it has also been presented in much more diplomatically-phrased prose aligned with the Platform's more general commitments to diverse

knowledge and value pluralism. Observing the formulation of this diagram in person was quite revealing. One expert narrated the schematic for me:

> Okay, so the left column is the conventional approach—"global failure"—and the second is what we want—"global sustainability." Look at the sizes of the stick figures. That represents influence in the policy process. There's even lines to represent the shadow the Finance Minister casts. The size of fonts indicates the influence. So, GDP is huge. But poverty and species, etcetera, are small. The second part of this [pointing to the right-hand side of the diagram] are recommended changes that moves on from that conventional schematic. Everything is interacting with arrows everywhere. Instead of a giant Finance Minister there are all ministers sitting around a table.

Note that the left-hand/right-hand arrangement was switched for the final version. As one participant had suggested, "start with a positive." All of these comments highlighted above, and various others, reflect extensive strategic deliberations and considered fine-tuning aimed at landing the needed punch while not exposing themselves to the same vulnerabilities that had taken down the earlier guide and scoping document. One senior IPBES official acknowledged that they would likely receive criticism in Plenary—but also that they could probably find enough to support to get away with it. I noted the group growing increasingly enthusiastic, eventually deciding to make the diagram a centerpiece for the whole document. Beyond liking what it had to say, many of these experts tried to explain to me why they believed it was important. One expert, for instance, working for her country's environmental agency, was in the process of developing an ecosystem services assessment framework for her government. She explained the relevance of the valuation group's work in that context:

> We need reliable, not fringe pieces. IPBES would fit that bill. We can then make reference to this. I anticipate using excerpts from it to make the case for whatever consideration happened to be relevant at the time. It has the potential to be practical, relevant, and useful—not only for IPBES assessment folks. There's not anything else out there I'm aware of that does this. […] you look at early documents on ESG [ecosystem goods and services] and they are strictly economics. There's a bunch of 'em out there. Everyone knows about that. We keep hearing that, 'We get that socio-cultural stuff is important…but how do we do it?'

She emphasized that there were many existing alternatives to conventional, standard-issue approaches to ecosystem services, but the synthesis of these alternatives through the Platform was vital because it was not only authoritative but *useable*. It offered a handy user's manual for the representational repertoires of ecosystem services, empowering its bricoleurs to "make the case for whatever consideration happened to be relevant at the time." While such technical guidance documents for ecosystem services are certainly common (as pointed out in Chapter 2), most of these texts, this expert suggested, are steeped in mainstream economics: "there's not anything else out there I'm aware of that does this." As another values expert remarked, "I think we made an amazing jump. What is in this new document is nowhere to be found in the current literature as it is. The bits and pieces are there, but not the whole. This is a powerful voice in a bigger conversation with many possibilities."

Yet another ecosystem services specialist in the group told me, "I don't like economic valuation and this was a chance to push beyond that." Himself from a developing country, he suggested that "developing country contexts often emphasize economic value, monetary value.

Having arguments to widen that out is exciting. The values assessment can make a statement in these broader debates." He further suggested that "there is a movement towards non-monetary valuation in the broader literature. We are pulling that forward. 60-70% of us in the group thought this even at the beginning, based on the communities that they were coming from, what they see on the ground, and what they are hearing at their research institutions." Like several other experts in IPBES, including in the valuation group, he had also been involved ("a bit") in TEEB. He noted:

> It had a very economic values-based focus. It was always fixated on coming up with a real big number. IPBES is not about that. Not about economics. Not about business. It's about people. About demonstrating people's dependence on nature in defensible ways. Two different tacks, same topic. Some people attracted to the TEEB approach will think this [i.e. the values guide and the scoping for a methods assessment] is rubbish. Some will feel the opposite. I hope this is a counterpoint of TEEB.

Another critical scholar who had struggled toward similar goals within TEEB (with mixed success) was more sanguine about this prospect in IPBES. He reflected on the two processes, and emphasized the importance of showing up: "one of the main battlefronts is in the vocabulary and in the way you frame things. If you just give up all the good concepts to people who are pushing agendas that have little to do with sustainability and social justice, in the end, you give away all the power and your capacity." In this regard, he was clear about why he was participating in IPBES: "I'm trying to do exactly the opposite. I'm trying to appropriate the notion of value and valuation to make a case against commodification. […] I believe we have good concepts in ecosystem services that we need to appropriate."

Finally, at IPBES-4 in Kuala Lumpur in February 2016, the preliminary guide and the scoping document were both approved by Plenary. However, amidst a work programme that was already bursting at the seams, and combined with mounting budgetary concerns, the decision to undertake the methodological assessment outlined in the scoping document was delayed by Plenary. The guide, however, and a skeleton crew of valuation experts would remain active to ensure that their lessons would be taken up in the other groups through the establishment of the "coupling" arrangement.

By its conclusion, the process seemed to have not only surprised but personally affected many of the more critically-oriented experts who had participated in it along with the rest of the group who had grown friendly as they bridged their disciplines, learned from one another, and got subversive together. Over the three-year process between the first expert group meeting and IPBES-4, they undertook a counter-economic effort to un-mainstream ecosystem services and dethrone its dominant assumptions. I recall meeting one expert, for instance, who had taken me aside during the workshop to share that she was into the same critical scholarship as me ("I, too, read political ecology!") and was probably best known for a book (now in its second edition) whose title, I noted, was an unmistakeable dig at the notion of ecosystem services. When we spoke after the process had concluded, she reflected on the experience, "I was quite surprisingly proud to say that I find it really inclusive and quite well-balanced. That means that if it seems well-balanced to me it must seem unbalanced for the ecosystem services champions." Yet she said she believed that ecosystem services could be salvaged, and that their work "can be a promise for going further in that direction." As her experience in the valuation group demonstrated to her, "monetary valuations are so strongly attacked from ideological, methodological, and even practical reasons, that ecosystem services could and *should* survive monetary valuations."

Figure 39 - The valuation expert group discussing the "two worldviews" diagram in Budapest at their second expert group meeting (July 2015)

MICRO-TRANSGRESSIONS

Having now discussed these two processes—both of which came to serve as important conduits through which counter-economic dissent was being introduced into the Platform—I will characterize some of the broad strategies that these epistemically transgressive experts relied on in trying to influence the Platform overall. One frequently deployed strategy is illustrated, for example, in the titles of the two deliverables that had been assigned to the valuation expert group: (1) the "Scoping report for a methodological assessment on diverse conceptualization of multiple values of nature and its benefits," and (2) the "Preliminary guide regarding diverse conceptualization of multiple values of nature and its benefits, including biodiversity and ecosystem functions and services." As noted in the context of the CF, these distinctive grammatical compositions were the result of political negotiation. More specifically, they bear the hallmarks of Pacheco's idiosyncratic editing style which now permeates many of the Platform's constitutive documents. In Turkey, for instance, among a wide assortment of other proposals, I watched him intervene in fine-grained detail to edit the titles, and content, of these and other deliverables to make them less "economically" focused and to emphasize multiplicity and diversity (see Figure 40).

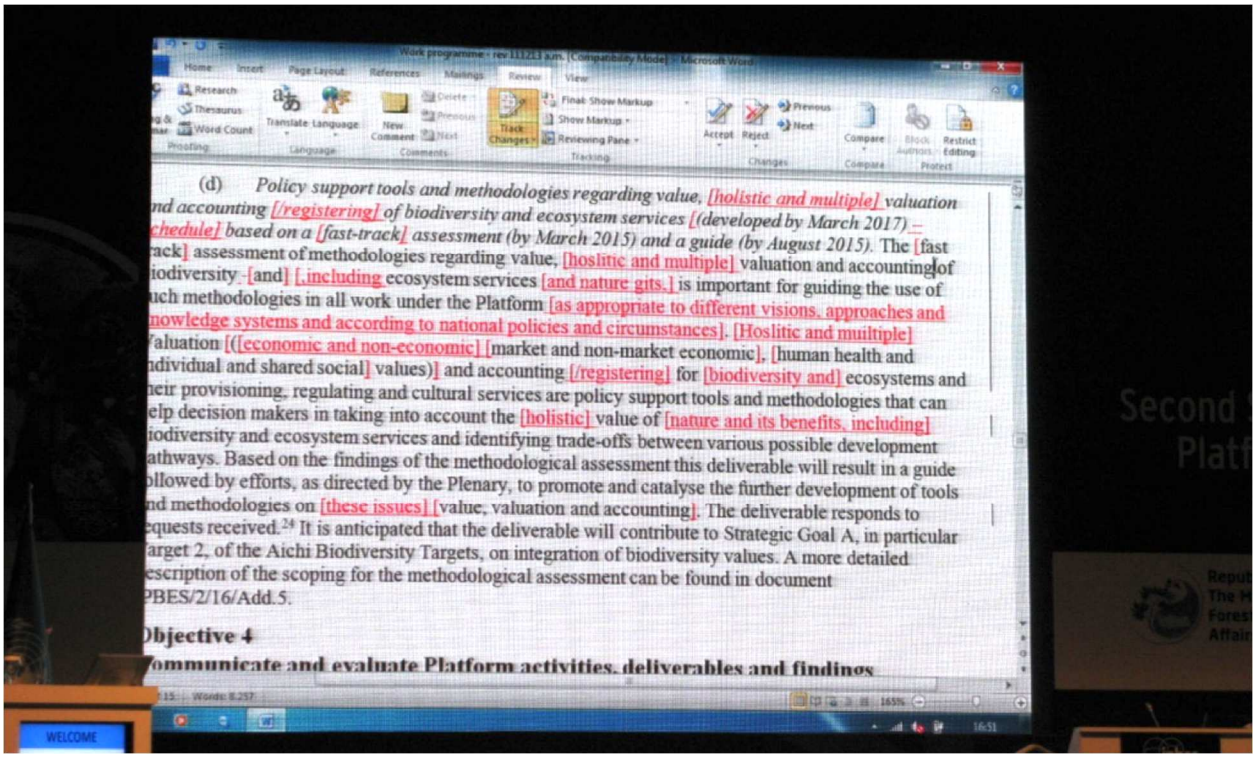

Figure 40 – one paragraph (among many) in the negotiations which bears characteristic signs of Pacheco's editorial interventions. Note his insertions, which are highlighted using 'track changes' in the document.

I observed this tactic being deployed continuously. Pacheco's insertion of "nature's gifts" in the negotiations around the CF, for instance, illustrates a wider and sustained strategy of either replacing terms (e.g. "ecosystem goods and services") with non-economic substitutes, or simply placing additional terms with countervailing connotations alongside the others in the text. Because "services" implies a financially-mediated relationship, the term "gifts" (which implies a logic of reciprocity rather than market exchange) instead, or at least also, had to be inserted to guarantee balance: to protect the pluralism the Platform had committed itself to and to ensure that its work ultimately adhered to the CF. Note also his proposal to substitute "registering" for "accounting," which he argued "has more business and financial connotations," whereas registering "has more scientific connotations, for databases, and counting, and these kinds of things, health, social values, not necessarily a figure that will be used in an accounting system." One sympathetic expert in the valuation group had jokingly nicknamed him "Search and Replace," which she felt somewhat captured his prolific editing style during negotiations and among the valuation group's writing process.

> I found it quite funny. He did the same lobbying job in the group as he did in Plenary, which is to be sure that the vocabulary about Mother Earth, nature's gifts, living in harmony, etc. is there. You can find it in the conceptual framework, where it is mentioned and repeated.

While she found these interactions somewhat dissonant, "especially when you are writing a text, […] to have someone who puts words you don't want especially when sentences become unpresentable," she also emphasized that "his lobbying has been invaluable for those of us advocating for 'less' than Mother Earth." As another member of the valuation group noted of the

title Pacheco had given to their task, "the term is totally terrible but it's also great in the sense that that is the challenge."

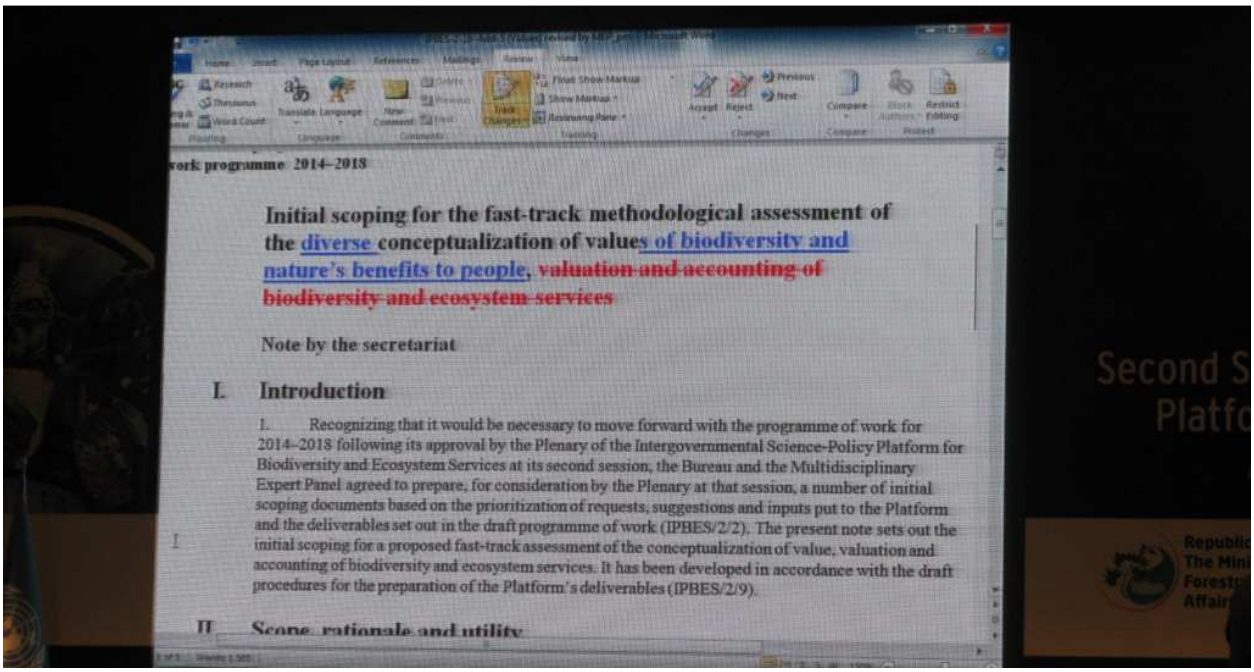

Figure 41 - Editorial modifications made during the negotiations at IPBES-2 in Antalya, Turkey (December 2013) on the title of the scoping process for the prospective IPBES values and valuation assessment

Beyond having the effect of countervailing or replacing elements of ecosystem services discourse that Pacheco and other dissenters in the Platform had taken issue with, this strategy neatly illustrates the kind of sustained focus, hard work, and subtle, micro-scale actions it has required. These epistemic transgressions were woven through numerous people, countless hours, various processes, and in this case detailed and sometimes profoundly tedious copy-editing of voluminous reams of text—displayed across 40-foot MS Word documents projected in plenary halls; scribbled on dry-erase boards; and exchanged as email attachments with incomprehensible suffixes marking innumerable sedimentations of dates, versions, and authors. I should emphasize that none of these experts or MEP members are paid for their work as part of the Platform.[190] And yet they show up. They have chosen to undertake, often at personal expense, the typically unromantic, often-stultifying, always time-consuming, arduous, and sometimes deeply uncomfortable work that epistemic dissent in the Platform has required: a line-by-line, page-by-page, assessment-by-assessment, incremental war-of-inches.

But, as I argue, and as IPBES's epistemic dissenters have come to recognize, their efforts have made a difference. For example, I have seen the CF, now established as the official unifying vision for the Platform, repeatedly serving as a kind of shield protecting incongruent perspectives from more reactionary experts and empowering various MEP members and valuation experts to stand their ground and challenge more mainstream, and, in their view, problematic expressions of ecosystem services. Indeed, I started to see the CF invoked "tenaciously," as one expert described it, in multiple instances to re-align documents beginning to drift toward the "monistic" vision of ecosystem services that is now out of sync with the CF and disavowed by the values guide. These

[190] With the exception of developing country experts who get travel reimbursements.

documents, together with the epistemic dissenters that struggled to contest the terms on which those documents were made, are now ingrained (however tenuously, however incongruently) in the institutional programming and constitutional texts of the process. Indeed, to this effect, as one dissenting expert commented, "the CF team has a glossary. The valuation team has a glossary. One of the legacies of IPBES will *be* a compiled glossary."

The creation of the CF and the work of the values group signal cracks in what may be a not-so-invincible consensus. They offer intriguing invitations to further explore, or even build upon, a counter-economic and potentially counter-hegemonic impulse. Of course, it does not always work. I recall one of the Platform's embedded ecosystem services dissenters being foiled while trying, apparently surreptitiously, to remove all instances of the word "ecosystem services" from one of the Platform's major assessment scoping documents. One official whom I spoke to about the incident was incredulous that experts would opt to join an organization whose name they were trying to disallow. But, as I learned, the Platform was a very contradictory place. While this particular (and somewhat audacious) epistemic transgression was unsuccessful, the point is that the Platform is not yet entirely sewn up. Throughout my time with the Platform, I observed numerous exchanges among IPBES experts and officials that convinced me of this.

The Platform and its hundreds of scientists, experts, and practitioners will surely continue to exemplify, at moments, some or many of the more lamentable tendencies of ecosystem services. For instance, I recall one of the valuation expert group members who had been embedded in another assessment process remarking to me, "This whole naïve understanding of how markets work, even here, yesterday, someone was saying 'yeah, we use ecosystem services to get the values, so that the market can take care of the issue'. The market *cannot* take care of conservation issues." Exasperated by the fact that many of the scientists in the other assessment processes were not meaningfully engaging with the valuation guide they had painstakingly prepared, yet another values expert embedded in a separate assessment exclaimed, "If we don't do our homework, and we sit in an exam, then what do we write? We write whatever is in our mind!" And, as he recognized, what was in many scientists' minds when they thought about ecosystem services was still dollar signs.

Despite these and other dispiriting observations, I hesitate to accept these tendencies as an automatic, irretrievable or general condition. Indeed, they underscore the importance of dissenters showing up: of not only making documents with the right words available but providing bodies in the room to engage directly in earnest, human-to-human contact and trying to foster robust interdisciplinary dialogue about ideas, values, and the fundamentally political nature of what is at stake. I highlighted a protracted multi-day exchange in the previous chapter between an anthropologist and the natural scientists in his group over the nature of "concepts." This is not an easy process. Their dissensions against mainstream conceptualizations of ecosystem services have been a struggle and will continue to be. It has required, as one of them put it, fighting "assessment-by-assessment." Indeed, in those spaces where such dissenters were not able to show up—where heterodox, subaltern, and critical perspectives remained absent and unrepresented—the outcome was often, in my observations, often somewhat disheartening, yielding familiar reinforcements of ecosystem services in its more hegemonic articulations.

Already exhausted and overwhelmed by the voluminous array of guiding documents they are required to read, including but certainly not limited to the CF and values guide—much of it written in a worst-of-both-worlds fusion of social scientific language and bureaucratic procedural script—many scientists seemed to default to the familiar categories and narrow conceptualizations

which those documents specifically caution against. I noted one meeting where representatives of the different assessment groups were reporting, one after the other, that "there were very few social scientists. Almost no social scientists. There was not much confidence dealing with these issues." As another expert speaking for another assessment remarked, "people were very confused. Everyone recognizes the importance of the issue, but no one knew how to deal with it." The other representatives provided similar testimonials. These documents, and the dissenting, counter-economic epistemologies they begin to broach, must be *translated* through the hard work of those both familiar enough with them and willing to join the fray and "get stuck in." Thus, as one values expert explained to me, a plan was formulated to "find ways of getting people from our group" into those processes—to place actual bodies in the room.

BIOLOGISTS OF THE WORLD UNITE!

Although guiding documents capable of decentering the ways that ecosystem services has been talked about, thought about, and operationalized have been maneuvered into place, which dissenters emphasized as an important achievement, the work of making sure they actually get *used* has required direct and continuous engagements among the broader social process and diversity of constituencies intersecting around the Platform. As I discuss in this concluding section, the formulation of the CF and values guide signal not only active epistemic struggle within the Platform but a discernible willingness by a critical mass of the Platform's other experts to be coaxed along this path: to allow themselves to join in, however modestly at first, to the interdisciplinary and counter-economic dissensions to ecosystem services to which they were being exposed.

Beyond the formal rules, the specific wording of documents, and the precise content of the reports coming out of IPBES—objects around which so much of the process has revolved—I again stress the potentially powerful intersubjective dynamics surrounding what one IPBES assessment co-chair repeatedly emphasized as a deeply "social process." What is at stake here is not only the maneuvering of certain statements into the Platform's texts (though as I illustrate in the case of the CF, these maneuvers are also consequential) or about any particular individual's skill in seeing his or her opinions reflected in writing. I seek to highlight the affective potency of the dynamically interactive spaces underlying the production of these documents and constituted by the process itself. I emphasize their capacity to shape—like the MA did over a decade ago—the scientific subjectivities, shared identities, and political imaginaries of the experts shepherded into the process, a thousand at a time, and brought into sustained, intimate contact with one another. In short, the process produces much more than simply documents.

As I have argued throughout this dissertation, ecosystem services can be understood as both reflecting and reinforcing the disciplining of political sensibilities. These trends are widely visible, the subject of much discussion in critical scholarship, and resonant in interviews across all components of my fieldwork. The conservation scientists now forced to contend with ecosystem services, over my many encounters with them, recognized a perhaps lamentable but irresistible yielding of their consent, often reluctantly (and 'pragmatically'), to a hegemonic political-economic order that requires them to conform to centers of power rather than confront them. Hence, as described over previous chapters, conservationists have felt themselves being compelled to accept that they must make their work, their cause, and themselves legible to the governing vision cast by "economics" because that is what The Decision Maker requires. This is the narrative identified by the IPBES official in the epigraph to this chapter—a political imaginary which he

believed the Platform's job was to dismantle. As Spash (2009, 255) observes of this ostensibly "pragmatic" line of reasoning more broadly:

> a common justification is that these approaches are necessary to be 'realistic' and 'engage' with power elites in the sustainability debate and decision process. What exactly is this decision process? Mainstream economists do not discuss politics as otherwise they would have to admit their subject is actually political economy and their positions heavily ideological.

Within IPBES, I was able to observe something different starting to emerge. To be sure, many of the mainstream scientists I met who had been brought into the process did appear to bear the cognitive marks of exactly this conditioning and to bring with them its corresponding political baggage—where ecosystem services represents a necessary project of assigning monetary values to nature because there is no other alternative for those seeking to save nature. Yet, reminiscent of the liminal spaces constituted by the MA, I also observed these more mainstream experts being subjected—often apparently for the first time—to sustained engagement with subaltern perspectives, to heterodox scholarship, and to critical approaches highlighting the political implications and political meaning of their work. And I saw many of them start to *like it*. These encounters pervaded my experiences in IPBES. Moreover, they were typically instigated through the presence, translational capabilities, and direct human-to-human engagements of the dissenting ecosystem services experts embedded within the Platform.

As a biologist in one of the regional assessments noted, "most of the people in [his assessment] are mainstream scientists. They are somewhat naïve of the political aspects, how societies actually work, and what monetarization does." This scientist noted that many of those in the Platform have "the same intentions as me: we must stop the biodiversity crisis. Okay, fine. Ecosystem services is the way to deal with society." This moment—a combination of shrugged shoulders, a sad sigh of resignation, and an acknowledgment that *something* must be done and apparently ecosystem services was the only way to do it—has served to fold vast swaths of the ecological scientific community into the embrace of ecosystem services, including its various epistemological assumptions and embedded political rationalities. As many practitioners of ecosystem services acknowledged to me in our conversations, they were relying on ecosystem services not because they really wanted to but because they had come to accept, often reluctantly, that they must. As one critical scholar in the Platform commented, "for natural scientists, and for ecologists, it is totally obvious that we cannot just reduce everything to money." And yet, what other option was there? As the biologist above remarked, somewhat characteristically, "I don't know any better tool. I think this is still the best path we know of, using this knowledge to show people what's going on in the world."

One of the most striking experiences for me inside IPBES was repeatedly observing the dissenting experts whom I have been describing throughout this chapter trying—and even sometimes succeeding—at breaking apart this dynamic in their interactions with the Platform's more mainstream experts. I observed them showing these experts that there were not only alternatives but *better* alternatives with rigorous, well-developed literatures to back them up: critical, heterodox scholarship which those dissenters were often happy (or at least willing) to teach. And, in turn, I observed many of the ambivalent, conflicted scientists who had been working under certain presumptions about what ecosystem services meant and how it defined the rules of the game starting to grow enthusiastic about the prospect of not having to acquiesce to the more hegemonic visions articulated through the framework. Several dissenting experts in the MEP and

the values group were exceptionally talented at this task—namely, prying ecosystem services from its more narrowly doctrinaire valences, from its shackling to more conventional strains of environmental economics, and from its politically neoliberal expressions—and getting others excited about the prospect.

For instance, I observed one expert presenting the flagship diagram from the values guide to several other expert groups and subsidiary bodies of the Platform. This expert emphasized not only its usefulness but its importance in the broader epistemic, political, and socio-ecological context of the Platform's work. At one meeting, before providing a detailed rundown of the diagram and the steps in the values guide, this expert prefaced the significance of the work, remarking, "stakeholders understand values in very different ways. That's a fact. We have to make sense of that fact and deal with it in IPBES." The expert continued, "valuation is a battlefield but it's not a minefield," emphasizing that there *were* rigorous, systematic means of thinking about questions of value and valuation from various domains of social science other than economics which the Platform could confidently rely on.

The expert proceeded to walk the group through the work of the values team. Looking around the room, I could see that many of the natural scientists were engrossed: sitting up, taking notes, nodding, even smiling. After the presentation, one scientist commented, "I was much excited by your talk. A big evolution of ecosystem services theory," adding "we do need to redefine the concept of sustainability, and redefine ecosystem services. […] IPBES gives tremendous opportunity to settle the never-ending debate about valuation, what matters most, economic or non-economic […] we could really create momentum to use this vision of what valuation is *for*." Later, the expert interjected, saying "Yes, it is new. But that is why we need to do it! It would be a shame if we didn't do it within the IPBES framework, if we didn't go in this direction. We have a good intellectual rationality to move in this direction." Other experts shared similar comments. "This is very important" remarked another participant at the meeting, adding, "we have these perverse subsidies, and those subsidies persist for reasons of political economy and because of broader issues." He concluded later with an acknowledgment of the need for "transformational change," stating, "I think this work is essential."

Afterwards, I had lunch with the presenting expert. One senior IPBES official came to our table and was effusive about what the expert had said, remarking that his "government gets really confused by this difference between valuation and pricing. We need guidance." At another meeting, I observed this expert presenting the rationale for the scoping document prepared by the values expert group which proposed that IPBES undertake a full methodological assessment on diverse values. The effect was again visibly positive among the scientists in the room. The expert remarked, "This will be the first global initiative of this kind that does this and implements it and puts it in practice on biodiversity and ecosystem services. This could settle huge debates in the scientific community, and have a huge impact on science and more broadly on how values matter."

The comments around the room expressed broad agreement in support of the proposal. Another expert at the meeting reinforced a key message from the presentation: "This is the first major attempt, for a scientific audience, to capture this multiplicity and diversity, and not promoting one way of seeing the world, and one way of measuring the world, and one way of managing the world. That's something I'm quite convinced is a central message of IPBES." They discussed what might happen in Plenary, to which the presenting expert commented, "we have to be pragmatic but we also need to be bold and convince them scientifically […] that if they continue looking at the world in this way, there is little hope."

Beyond the many discussions I observed regarding substantive scientific, methodological, and conceptual matters, such 'meta-level' discussions about the broader epistemic and political implications of their work regularly emerged across the various expert groups I attended. In both of these types of discussions—on matters of content and on what was at stake—I watched the epistemic dissenters of ecosystem services not only holding their own but earning the respect and even the appreciation of the more mainstream experts whose exposure to heterodox approaches was more limited yet apparently not enough to stop them from beginning to like what they were hearing.

Ultimately, the Plenary decided not to initiate the full methodological assessment on values and valuation. Yet despite these and many other setbacks experienced by those struggling to decenter "ecosystem services" and re-appropriate the tools and concepts packaged under its banner, Pacheco and many of the other ecosystem services dissenters I met believed the Platform was, in the end, still worth fighting for (or at least fighting in). And, as I noted, they also expressed a sense of surprise by what they had managed to pull off and what might be possible if they continued to play their cards right. To their relief, the values expert group was retained and continues to live on, including in the ongoing assessments and other deliverables where its experts have been embedded (i.e. through the "coupling" arrangement). To my surprise, Pacheco was also recently elected by his region to the IPBES Bureau—the subsidiary body in charge of administering the Platform—signalling both Bolivia's growing comfort with the Platform and the continuing prospect of shepherding more critical perspectives into it.

And, perhaps most promisingly, I observed a certain dynamism among the wider array of mainstream scientists in the Platform surrounding the epistemic dissenters whose efforts I have been highlighting throughout this chapter. In the context of an affectively charged, intersubjectively potent "social process" akin to the MA—itself a process which had transformed careers, produced a new generation of scientists, and established the field of ecosystem services—the experts of IPBES are now being put into intimate, sustained dialogue with critical and heterodox approaches to their work and the sorts of experts capable of delivering them (at least, in those spaces where one was available). Sprinkled throughout the process were a handful of dissenting, more-or-less critically-trained scholars who have, much as Castree (2017b, 70) imagines, "fancied the challenge, rolled up [their] sleeves, and got stuck in." Despite its many frustrations, they had decided to hold their noses and take the plunge in order to enter the discursive arena constituted by the Platform. As one indigenous activist remarked at the final IPBES meeting I attended, Pacheco's election to the Bureau was "heartening" but the Platform will nevertheless remain an "uphill battle" for those seeking to unmainstream ecosystem services.

As the epistemic dissenters of the Platform all stressed to me, that struggle will depend on inserting *more* critical experts familiar with out-of-the-mainstream scholarship in the Platform who can perform the needed epistemic and political translations among all of its many "under-resourced" spaces that so desperately need their expertise. In the next chapter, I will return to this point as a means of concluding this dissertation.

CHAPTER 7 – CONCLUSION

> If you look at the modern environmental conservation movement, it's somewhere over 110 years old. We argued for nearly a hundred years for the intrinsic value of nature, in an emotion-based strategy […]. There's a seismic strategic shift taking place where we are realizing that, in most ways that matter, that strategy has not worked. None of the benchmark indicators are moving in the right direction. […] So, I think amazingly, we've moved toward this brave new set of ideas—of natural resource capital, of ecosystem service value, of recalculating our economics to actually ascribe the correct value within our economic matrix to the system that supports us […]. That's what's going to change things. […] Guys like Richard [Branson], and many others, captains of industry, of extractive industries, are actually seeing the value for their businesses. People are learning it. They are going to do better by embracing these new, more accurate value propositions.
>
> - Edward Norton, actor and UNEP Goodwill Ambassador, Rio+20, June 2012

WE NEED TO TALK LIKE THAT

On the final day of Rio+20 in 2012, I attended yet another social function touting the rise of natural capital and ecosystem services: the last in a long series of similar side-events that extended from the beginning of the summit to its conclusion.[191] It featured a star-studded line-up featuring a cavalcade of high-level interventions by senior government officials, business leaders, conservation executives, and celebrity environmentalists. The speakers included Maurice Strong (who chaired the original Rio Earth Summit negotiations in 1992), the former President of Ireland, the CEO of Unilever, and the IUCN Director-General, among many others.

By the end of Rio+20, the repeated embrace of ecosystem services by such figures, performed at event after event, had become almost gratuitous. Thus, at the last panel discussion on the very last day of the summit after almost four hours of speeches and dialogues, the comments highlighted in the epigraph above—here provided by an unexpectedly fluent Edward Norton speaking in his capacity as UNEP Goodwill Ambassador—had become fairly unexceptional. Norton appeared alongside Richard Branson,[192] the celebrity entrepreneur, and Jane Goodall, the famed conservationist. As I later came to appreciate, the panel captured important themes that would grow increasingly more pronounced over the course of my doctoral research (see Figure 42).

Branson, for instance, was lauded as a visionary of "green capitalism" for his entrepreneurial interest in sustainability: as embodying the political imaginary of the "business

[191] The event was organized around the theme of "Advancing Public-Private Partnerships for Deforestation-Free Sustainable Agriculture" and was hosted by the organization, Avoided Deforestation Partners. The event took place at the Windsor Baha Hotel in Rio de Janeiro on June 21, 2012.

[192] Branson is a well-known business celebrity, as well as a "UK uber-entrepreneur and Virgin Group Chairman" (Prudham 2009, 1594).

case for conservation" that I would later encounter, and see celebrated, with some regularity. On the other hand, he was also protested for several minutes by activists who had infiltrated the event with chants of "no to green capitalism!" and "system change, not climate change!" Here, too, my fieldwork entailed developing an increasing familiarity with an array of active challengers to these notions. It was after the removal of these protestors that Norton, as indicated above, performed the customary embrace of ecosystem services: an act whose proliferation this dissertation has sought to analyze.

Figure 42 – From left to right: Richard Branson, Edward Norton, and Jane Goodall speaking on the last panel on the last day of Rio+20 during a side event themed around "Advancing Public-Private Partnerships for Deforestation-Free Sustainable Agriculture (Photo by the Yale Globalist 2012)

As for Goodall, she prefaced her comments with a familiar conservationist adage: "We haven't inherited the planet from our parents, we've borrowed it from our children."[193] She began to reflect on what she had been hearing from the other speakers over the past four hours and indeed over Rio+20 as a whole. By way of conclusion, she remarked:

> I wanted to give forests the last word. Because what you've said is absolutely true. To save the forests, we have to invent these words about providing services and being capital. And actually, it's a bit shocking to me that we have to do that. I know why we have to do that. It makes perfectly good sense. We should be doing it. We need to talk like that. But we

[193] She added, "we all know that we've been stealing, not borrowing. Maybe the big companies and some people in government, anyway, are beginning to understand—the payback time is coming."

> mustn't forget, for the sake of our children and great grand-children, to keep alive that reverence for the natural world. To be out in the forest, to be under waterfalls, to hear the birds singing in the morning, and the chimpanzees calling […]

With practiced eloquence, she developed this imagery for several minutes. What she expresses here is precisely the sort of cross-cutting ambivalence surrounding ecosystem services which subtends so much of this dissertation. Her disdain for these concepts is unconcealed: "it's a bit shocking to me," she admits. Yet, however much they might contradict or even offend her own sensibilities, and however begrudgingly, she also finds herself acknowledging the need to embrace such fictions. Her sense of the way the prevailing discursive, institutional, and political-economic winds were blowing—her impressions of the surrounding political world where conservation now found itself—demanded that they get with the program. The time for quixotic campaigns was over, she reminds us, and the time for playing by the new rules of the game had arrived.

Her comments seem to convey a struggle to assuage not only her audience's anticipated ambivalence but her own: a kind of recitation intended to overcome an abiding sense of sadness and disbelief at what this line of reasoning represented ("I know why we have to do that. It makes perfectly good sense. We should be doing it. We need to talk like that"). In this way, her remarks epitomize a recurring moment I noted across many of my encounters with environmental advocates. Whether in writing, in interviews, in public pronouncements, or in group discussions, I witnessed again and again this sort of sad sigh of resignation: an ostensibly pragmatic shrug of the shoulders at what must be done to save nature. While they were increasingly coming to rely on ecosystem services, and even as they were internalizing its political rationalities, they were often doing so not because they really wanted to but because they felt they had no other choice. It was an unpleasant business, even a tragic one (in the classical sense of that term), but one for which they foresaw no realistic alternative.

Like Goodall, I also wish to conclude by reflecting on this ambivalence—both hers and my own—about ecosystem services. As illustrated in my discussion of NatCap (Chapters 2, 3, and 4), its emergence has been accompanied by over two decades of focused efforts aimed at "mainstreaming" its policy discourse. Moreover, as illustrated in my discussion of IPBES (Chapters 5 and 6), the apparent ascendance of this way of thinking in biodiversity conservation has also provoked proportionately focused critiques and, at times, active dissent and resistance. Somewhat less visible, yet no less prevalent, has been this deep, continuing ambivalence about ecosystem services among the conservation practitioners, advocates, and scientists increasingly having to deal with its cacophonous politics.

What Goodall illustrates in her comments—a reluctant but dutifully uttered recitation of why "we need to talk like that," emblematic of comments I elicited many times from other environmental advocates—is a visible moment of hegemony. In such moments, I could see conservationists explicitly wrestling with various hesitations, ambivalences, and contradictions yet ultimately coming to affirm the yielding of their consent: the performed acceptance of a political frame which submits conservationist praxis to specific assumptions about power, social struggle, and political economy. Crucially, as I have argued, these assumptions take as given the dominance of certain actors and the hegemonic power relations underpinning their position. I witnessed the performance of such moments throughout my fieldwork: with NatCappers, inside IPBES, and among the broader communities of practice intersecting around these organizations.

Yet, as I have argued, many of these practitioners also conveyed the characteristics of those scientific subjects whom Castree (2017b, 53) evocatively refers to as "unfree radicals," whose work, he argues, "might be deliberately conducted in the service of something more just, egalitarian, and imaginative than the rapacious capitalist world whose perpetuation it is so deeply implicated in." However, for these expert subjects to be "turned to more richly radical ends," the prospect of dislodging them from their deep entanglements with hegemonic politics, neoliberal rationalities, and market logics must be rendered not only imaginable but believable.

Thus, as a means of prefacing my concluding reflections on NatCap and IPBES, I wish to linger for a moment on the possibility of destabilizing such 'moments of hegemony' and breaking apart the ties that bind Castree's "unfree radicals," and perhaps those of ecosystem services practitioners as well. To do this, I present a brief account of the apparent rise and proportionate fall of ecosystem services in my home province of British Columbia. The erstwhile case study, despite yielding a 'null finding' as part of my doctoral research, may nevertheless provide clues about the prospects of releasing conservationists from the kinds of dutiful recitations, sad sighs of resignation, and pragmatic shoulder-shrugging that has folded so many into the embrace of ecosystem services in its hegemonic expressions and neoliberal articulations.

LIKE NOTHING YOU HAVE EXPERIENCED BEFORE: BRITISH COLUMBIA

I can pinpoint almost the exact moment when I began thinking about ecosystem services in earnest. It was in Fall 2005 when an enthusiastic young faculty member delivered a guest lecture to my undergraduate environmental studies course at the University of British Columbia. The notion was then hot off the presses, having just emerged from the Millennium Ecosystem Assessment (MA 2005). As presented, the concept seemed tailor-made (and indeed, it was) to reconcile classic critiques of biodiversity conservation—its antagonisms with marginalized peoples being chief among them—with a "new" kind of conservation that would ostensibly protect nature *for* people rather than *from* people. For this newly-minted academic biologist, emblematic of the "new generation" of life scientists that emerged after the MA (as discussed in Chapter 5), ecosystem services appeared to offer a compelling way out of the continuing failure to staunch the loss of life on Earth documented in the MA's alarming findings.

It was, for most of my classmates (including me), our first exposure to the concept. Its appeal was hard to deny. After finishing my degree, I seriously considered joining this emergent field myself. Indeed, I even considered joining NatCap and still remember my interview at Stanford with Gretchen Daily as a prospective graduate student—a scenario which, I am sure, would have yielded a very different dissertation. Instead, I ended up at Berkeley, where I did in fact end up studying ecosystem services (albeit in a somewhat different register). After 2005, as the influence of the concept continued to mushroom (see Figure 2), critiques of the notion were also proliferating. Gradually, these critiques came to shape what developed into my doctoral research where I sought to disentangle, for myself, the concept's promises and perils, both of which I had been reading about in substantial measure. I specifically sought to understand the exploits of its practitioners: the scientists grappling with what to make of the concept, whose ranks I had nearly joined and whose ambivalences about the idea mirrored my own. Along these lines, I decided to analyze the iconic landscapes of my home province of British Columbia (BC)—already the product of deep historical sedimentations of situated knowledges, power relations, and socio-natural struggles (Braun 2002)—and how they were again being re-imagined, and perhaps being remade, this time in the image of natural capital and ecosystem services.

After some initial exploratory work in the province,[194] I decided to fold BC's idiosyncratic environmental politics into my dissertation as one of three cases to analyze how the policy discourse of ecosystem services was unfolding (i.e. in BC, NatCap, and IPBES). The latter two cases, as noted in Chapter 1, revolved around a distinctively 'wide' pair of organizations: their relations within their respective "fields" have embroiled their experts in a trans-local sprawl of nodes in what MacDonald (2010a) has called a "rhizomic structure of transnational space." Their work is diffusely distributed across far-reaching policy networks (Goldman 2006) and their personnel operate by criss-crossing between contexts and navigating their so-called "context of contexts" (Brenner, Peck, and Theodore 2010). In contrast, BC was to be my more 'grounded' locale where, aside from the globally dispersed "ethnographic circulations" (Roy 2012) featured in my other two cases, I would be able to see how practitioners engaged in the situated politics of governing BC's landscapes were grappling with the rise of ecosystem services.

As this dissertation began in British Columbia, it seems fitting that I should let it end there. I bring in this pseudo-case of BC as a concluding vignette in this final chapter, rather than as a more fully-fledged analysis as with NatCap and IPBES, because things did not quite work out according to what I—or, for that matter, practitioners themselves—had planned.[195]

When I began my research, I noted diverse communities of practitioners in BC coming to embrace ecosystem services. For example, it was clear that key leaders in the provincial bureaucracy were preparing to seize on the promise they saw in the concept. Indeed, they had already begun developing new regulations around the notion. As one provincial bureaucrat who was centrally involved in formulating these regulations explained, "this is a legacy piece—this is a legacy project and a really important policy." I interviewed my way up through the ranks of the province's so-called 'dirt ministries'[196] all the way to the Assistant Deputy and Deputy Ministerial levels. Alongside many of their staff, they expressed growing enthusiasm for the transformative potential of ecosystem services for BC. As one Assistant Deputy Minister remarked at the time, "I see a huge opportunity as a provincial government to develop a sustainability framework around the notion of ecological goods and services." A Deputy Minister I spoke to suggested that "it's accelerating, […] you're going to see a transformation in the next year or two, kind of, five years. A pretty significant transformation."

Similarly, I began encountering a nascent community of "ecosystem services entrepreneurs" operating in the province. I noted an array of private-sector initiatives, often led by former foresters, who were envisioning a new forestry regime for the province where instead of timber, BC's land base would come to be managed around a wider range of ecosystem services, foremost among them, forest carbon: "the biggest game in town when it comes to valued ecosystem services" as one consultant remarked. The rise of ecosystem services, they told me, was on the verge of opening up lucrative new markets in ecosystem services, and indeed, land-based carbon was only the first step. As the CEO of one company beginning to operate in this space told me,

[194] As part of an MA program in Geography at the University of Toronto with Scott Prudham

[195] In the interests of transparency, I also wish to more clearly place myself and my continuing ambivalences about ecosystem services in the analysis before concluding.

[196] The term 'dirt ministries' refers to what were, at the time of this earlier research, nine different ministries with land management responsibilities in the province, including the Ministry of Environment and Ministry of Forests and Range. These ministries were later re-organized into a new Ministry of Natural Resource Operations. At the time, I was particularly focused on what were then the BC Ministry of Environment and BC Ministry of Forests and Range.

"carbon is the low hanging fruit. Water, other types of ecosystem services are coming online, as well as the concept of an ecosystem offset," here referring to the provincial government's nascent regulations that were then being drafted. These green entrepreneurs surmised that carbon would supplant timber as the basis for a new "conservation economy" for the province. Echoing similar expectations shared to me by other practitioners, another consultant who was raising private capital for such projects told me, "if I'm right about carbon, which I think I am, if carbon can beat timber, then that is a game-changing event."

The province's storied environmental advocates, veterans of the so-called "war in the woods" that erupted over the 1980s and 1990s (Hayter 2003), also described jumping aboard "the (P)ES train" (Kolinjivadi et al. 2017). I interviewed activists from almost every major environmental group in the province. They acknowledged how they had been collectively incorporating ecosystem services into their rhetoric, campaign strategies, and advocacy positions. As one activist told me, the term had come to be so ubiquitous—"everybody's talking about it"—that it had become "like the air we breathe." As another put it, the environmental community had accepted the necessity of "using the master's tools in order to create change: how do you use the same market that is driving the destruction of the forest, and use those same market valuation tools in order to keep the forest standing?" Another advocate asked, "in what context *doesn't* it pop up? I'd say nearly in every campaign […] part of the toolbox of every campaigner and every environmentalist, is the ecosystem service approach that has now become bread and butter." As another remarked, "What are the new handmaidens of conservation? To some extent, now they're carbon and ecosystem services."

Figure 43 - Selection of front covers of recent reports applying ecosystem services valuations and related approaches in British Columbia (Anielski and Wilson 2009; Dupras et al. 2016; Knowler and Dust 2008; Molnar 2011, 2015; Molnar, Kocian, and Batker 2012; Wilson 2010)

These are only several of many such comments I elicited during my earlier forays in BC. In line with the restive dynamism that characterized the ecosystem services literature at the time,

practitioners in the province—from foresters and bureaucrats to activists, entrepreneurs and scientists—expressed a sense, just as Pavan Sukhdev had promised in 2010, that ecosystem services "was an idea whose time has come" (MacDonald and Corson 2012; Suarez and Corson 2013). And so, with the aim of eventually returning to the province to see how these new imaginings for the province's ecosystems would manifest over time, I departed BC and re-directed my efforts, for the time being, outwards into the trans-local circuitry of biodiversity conservation to focus on NatCap and IPBES. Finally, in the Spring and Summer of 2016, after concluding the transnational legs of my fieldwork, I returned to BC to see what had become of the "pretty significant transformation" the Deputy Minister had told me to anticipate.

By the time I returned to BC in 2016, I found that ecosystem services had dropped out of the picture as a salient part of environmental politics in the province. Across each domain where I had earlier observed the idea gaining traction, I instead found scaled-back ambitions, abandoned projects, controversies, patient waiting, and lots of moving on. As one of the key ecosystem services operators working in the province acknowledged (herself an academic and consultant), it had been "one step forward, two steps back." She pointed out that several new initiatives toying with the notion of ecosystem services did sprout up in the interim. And, a few of the ecosystem services proponents I met had persevered in their work. However, it quickly became clear that the overall portrait of what had happened in the five years since I left BC was a significant deflating of this ostensibly "game-changing" idea. In speaking to practitioner after practitioner in 2016—many of whom I had engaged years earlier during my initial visits—I realized that my BC case had yielded a dreaded 'null' finding. I ended up focusing my analysis primarily on my other two cases which were, as shown over previous chapters, still very much active and even bustling.[197]

What exactly was I supposed to do with several dozen interviews with practitioners struggling to remember how ecosystem services might be relevant to their work anymore?[198] I discovered that the head of one government initiative designing new ecosystem services regulations had been fired and subsequently became a yoga teacher. Amidst large budget cuts in the environmental bureaucracy (Penn 2010), the policy initiative itself was scrapped. The cap-and-trade system which was going to create the enabling conditions for the province's fledgling forest carbon projects never materialized. The Pacific Carbon Trust, a provincial body set up to manage the province's carbon trading, was shut down in 2013. The lack of a compliance-driven market for land-based carbon offsets had left most of the projects I identified years earlier dependent on the meagre demand from the voluntary markets. While the government decided to try to offset emissions from its own facilities, which did succeed in creating some demand for forest carbon projects (such as in the Great Bear Rainforest, as reported by G. Hoekstra 2016), Hoberg et al. (2016, 80) point out that "its implications are limited." Indeed, as one official with BC's Forest Practices Board remarked, "we've taken a step backward" compared to the "frenzy from a few years ago." Similarly, as St-Laurent et al. (2017, 169) conclude, "the actual magnitude of policy change that occurred with the emergence of the forest carbon policy regime is quite limited. Apart

[197] They were, I reasoned, much more likely to produce effects and were therefore more critical to understanding the rise of ecosystem services, its constitutive politics, and what was at stake in it.

[198] I conducted 32 formal interviews in BC, 15 of which were with environmental activists. Each activist was connected to a major ENGO working in the province. I also attended two multi-day workshops on Cortes Island hosted by the Hollyhock: *The Social Change Institute* and *A Climate for Change*, which convened key environmental advocates for strategy discussions (particularly in the latter workshop), among a variety of other activities. Note that many of my interviews were 're-interviews' with advocates who had once been relying on ecosystem services in their campaigning.

from a few conservation and improved forest management projects that mostly benefitted First Nations, very few projects have been successfully implemented to date."

From over thirty formal interviews, I met only one practitioner who was still willing to reiterate that soaring vision of a transformed forestry regime organized around a "conservation economy" and ecosystem services. Of course, as he acknowledged, his organization's forest carbon offset project (one of the largest of the few established in the province) was beset by highly publicized controversies over its methodologies for establishing additionality (Ibid) and even drew criticism from the BC Auditor General (2013, 5) who referred to it as not delivering "credible offsets."[199] While he was determined to keep his project going despite these setbacks, he admitted, like practically everyone else I spoke to regarding the prospects for ecosystem services in the province, that he was "still waiting" for the compliance-driven markets to come online. Much like the rest of the broader ecosystem services community, the rise of ecosystem services had remained largely promissory rather than operationally realized. Another ecosystem services consultant observed that the notion "hasn't made it into the provincial or federal governments in a substantive way. Look at the budget. It's little dribs and drabs." The consultant later concluded, "I would like to say we're at a turning point, and hoping we can catch up, but it's been lost in the wilderness." Another practitioner put it somewhat more bluntly: "the carbon markets have been a big fat fail."

With only one exception, the environmental advocates I engaged had also largely dropped the rhetoric and conceptual framework of ecosystem services from their strategies. These shifts were especially striking when compared with the earlier prevalence and intensity of statements about the concept's dominance (e.g. it was like "bread and butter"; it was "like the air we breathe"; it was "the new handmaiden for conservation"). What happened? Despite this 'null' finding, upon reflection, I discerned a revealing lesson in what environmental practitioners were telling me about why they had abandoned ecosystem services, which in turn, related to its embedded political rationalities and implicit theory of change. Note that in developing these interpretations, I focus on the experiences and perspectives of environmental activists and their engagements (and non-engagements) with the notion: these concluding reflections arise primarily from my interactions with these activists.

The BC activists highlighted two key shifts that had transformed the strategic terrain on which they were operating since I had last engaged them in 2011-2012. Broadly, these shifts were (1) the escalation of "pipeline politics," and (2) electoral changes in the provincial and federal governments. With respect to pipeline politics, environmental advocates described a shift from clashes around forest conservation which had for many years preoccupied the main ENGOs—in particular, surrounding the negotiation of the Great Bear Rainforest which was agreed in 2006 (Affolderbach, Clapp, and Hayter 2012; Dempsey 2011)—toward much more contentious clashes around energy infrastructure projects. Specifically, they emphasized clashes focused around major pipeline proposals that would deliver bitumen from the Alberta oil patch to the Pacific Ocean, most notably, through (a) the Northern Gateway[200] pipeline proposed by Enbridge in 2010 which

[199] The practitioner strongly disputed this claim, which was also noted in the analysis by St Laurent et al. (2017).
[200] This pipeline was proposed in 2010 by Enbridge and would extend over a thousand kilometers from Alberta to the town of Kitimat along the north coast of BC. The pipeline would carry over 500,000 barrels of bitumen per day and involve over 200 oil tankers to ship the bitumen (in treacherous waters). Despite widespread opposition from affected First Nations, communities, and environmental advocates the federal government under Stephen Harper approved the project in 2014, although the project was never built. Justin Trudeau made a campaign promise to not approve the pipeline and upon his election as Prime Minister in 2015, his government re-affirmed this commitment.

would extend to northern BC and (b) the Trans-Mountain[201] pipeline proposed by Kinder Morgan in 2013 which would extend to Vancouver. These clashes were compounded by important electoral changes: namely, the re-election of the governing BC Liberal Party with a new leader, Christy Clark, who became Premier in 2011; and, that same year, the re-election of the Conservative Party of Canada under Stephen Harper, which was able to secure enough seats in Parliament to form a majority government (they had previously held minority status). In the experiences of BC's leading environmental groups, these two sets of factors profoundly influenced what occurred in the intervening years between when I initiated my research in 2011 and returned in 2016.

From their perspective, the Harper and Clark governments shared exceptionally regressive environmental policies and hostile orientations toward the environmental community (Peyton and Franks 2015). According to environmental advocates, the BC Liberal government under Clark largely abandoned and even reversed whatever nascent policy interest was emerging around a forest carbon offset regime for the province. Even more dramatically, at the federal level, the Conservative government under Harper invested substantial political capital into the development of the country's extractive industry sector broadly, and the Alberta oil sands in particular, with the stated aim of "building" Canada into an "energy superpower" (Harper 2006, as quoted in Peyton and Franks 2015, 1). The federal government's championing of the pipelines was, activists recalled, particularly "scary" (Stoymenoff 2012) and included, for instance, trying to remove the charitable status of their funding and reportedly telling specific environmental groups through the Prime Minister's Office that they were now considered an "Enemy of the Government of Canada" and an "Enemy of the people of Canada" (Frank 2012 in a sworn affidavit).

In comparison to the relatively accommodating bargaining that had defined the politics of the Great Bear Rainforest—where ecosystem services became a bargaining chip as part of more conciliatory negotiations, for example, in the form of forest carbon offset revenues—environmental groups found themselves embroiled in a much more bitter and uncompromising struggle. One activist recalled an important meeting around the Great Bear Rainforest involving three Deputy Ministers and some of the province's main environmental groups. The topic of pipelines finally erupted. She described the pivot from the Great Bear Rainforest toward what became the new environmental battlefront:

> I was in a meeting with the ED [Executive Director] of [ENGO #1] and the ED of [ENGO #2] about the Great Bear Rainforest with our industry partners and some government folks. At the end of the meeting, we asked the forest industry people if they could leave so we could have 15 minutes with the Deputy Ministers. So, the forest industry people left. We said, "we need to talk to you about Enbridge." Because all of our organizations were starting to work on the Enbridge pipeline campaign. I remember [ED of ENGO#3] saying, "You don't understand—you have to be on the right side of the pipeline issue. Because if you are not, you are going to see a fury that will make what happened in the Great Bear Rainforest seem like a cakewalk. You have to understand. This will be like nothing you have experienced before." There was silence in the room. The Deputy Ministers were on

[201] This pipeline was proposed in 2013 by Kinder Morgan and would also extend over a thousand kilometers from Alberta, but this time through Burnaby in Metro Vancouver which, while less treacherous for ships, is a metropolitan area of over two million people. It would increase the capacity of the existing pipeline system from 300,000 to over 800,000 barrels of oil per day, and would result in an increase of tanker traffic by almost an order of magnitude. The Trudeau government approved this pipeline in 2016, although it faces legal challenges and has not yet received full permits.

> the wrong side of the pipeline issue. So, we left. We had no staff on this at all. We didn't have a single campaigner working on it at the time but we knew that we would have to do *something*. We didn't have anything at the time. I remember walking down the hallway. We left the legislature, past the security area, and I look at [ED of ENGO #3] and I said, "Okay. Now we've gotta live up to that. Let's get to work figuring out how to do that." He knew that we had to do something. But we had no means at that moment. None of us did. But we knew we were going to have to light a world-sized fire. It just ended up happening because we had no choice. And that's how it went.

Notably, the last time I had spoken with this group, they described having embraced ecosystem services as a central part of their work. This time, as she made very clear, the notion had unambiguously ceased to be relevant, for reasons I will continue to unpack. Her basic message echoes what many other activists told me. As they shifted their focus from the Great Bear Rainforest to the pipelines, they had to engage in a different style of environmental politics: a politics which, they explained, had no obvious place for ecosystem services. Indeed, it was usually only with some effort that advocates were able to think of specific instances where ecosystem services concepts, valuations, or other elements of the framework had been pertinent—let alone usefully deployed—during the ensuing struggles which spanned legal strategies, political organizing, community mobilization, direct action, and various forms of campaigning. In response to my questions about ecosystem services, this activist noted, "there are times for conciliatory approaches. But then there are times for rattling the cage and engaging in conflict. […] The last few years? Yeah, that was a moment of conflict."

This last point is key. She identifies ecosystem services as a basically "conciliatory approach," shaped to appeal to conservative, right-leaning sensibilities. However, given that these governments were uniquely hostile to anything these groups had to say, whether they were phrased in neoliberal language or not, the relevance of the concept shifted as dramatically as the political circumstances. This appeasing, bridge-building quality of ecosystem services resulted in its broad-scale abandonment as a central or even particularly useful part of how BC's environmental community conceived of their work during this period. Indeed, this conciliatory character of ecosystem services tended to elicit a sense of mild bewilderment among most of the activists I spoke with regarding what I was asking them. The notion that their organizing, campaigning, and activism might include, let alone be predicated on, a strategy of crunching the numbers and indicating how the pipelines may have been sited along a sub-optimal route (once ecosystem services had been factored in) was not making much sense to them.

The one advocate whose group *was* apparently still focused on using ecosystem services concepts during this period acknowledged that the "political climate" over the last five years had not been "conducive" to ecosystem services approaches. She noted that despite their prolific reports highlighting the value of ecosystem services in various areas of the province, they had not gotten much of a "positive result." Indeed, she remarked that it was beginning to seem like the main constituency that was really enthusiastic about ecosystem services assessments were the donors who paid to carry out ecosystem services assessments. Notably, I also interviewed several prominent practitioners working in support of the pipeline, including one former senior provincial bureaucrat and the President of a provincial extractive industry association. When I asked him what role ecosystem services valuations may have played in the environmental battles over the past five years, without hesitating, he said, "next to none," before correcting himself, and stating "none." He largely corroborated the observations of environmental advocates. He said the pipeline

proponents were definitely not thinking about ecosystem services. He further explained that he believed the adversaries of the pipeline (i.e. the activists whom I was also engaging) were "so opposed, intrinsically, to the pipelines and what they represented that accepting this framework would be unacceptable. It would represent bargaining, negotiation, and they weren't going to settle for anything less than unconditional victory." In this context, he noted, "quibbling over numbers" was not a viable strategy for effectively opposing the pipelines.

However, as he acknowledged, they *did* stop the pipelines (one of them, at least, with the second still being contested). Despite being approved by the Harper government, the Northern Gateway pipeline proposal ultimately fell apart amidst intense resistance through legal challenges, movement organizing, and political opposition, which had destabilized the project enough to dissuade investors and potential partners with whom Enbridge could establish business relations around the project. Significantly, in the estimation of many advocates, these clashes *also* contributed to Harper losing the 2015 federal election to the federal Liberal Party led by Justin Trudeau, who campaigned prominently against the Northern Gateway pipeline.[202] As one influential activist in the province pointed out, more people switched their votes in BC from the federal Conservatives than in the whole rest of the country combined. As another had concluded, "the government made a gamble and they lost." That their strategies scarcely involved ecosystem services approaches, if at all, despite those approaches having been embraced by environmental groups immediately prior to these conflicts, is important to note.

The reflections that various activists shared with me regarding why they believed ecosystem services had dropped out of the picture revealed much about the concept's political functions. They were consistent in identifying a pronounced divergence between the implicit theory of change they perceived in ecosystem services and the kind of theory of change that had become necessary—and which, they suggested, was perhaps necessary all along. One activist working for a prominent advocacy group in BC and across Canada and the United States, for instance, situated his rebuke of ecosystem services within wider tensions in the environmental movement. "Some people think we just need to 'win the argument'," he remarked, "but what we really need is power." This assumption, he continued, asserting that "it's just a matter of discourse and not a matter of power," was especially prevalent among Northern environmentalists and was partly the "product of the environmental movement being primarily elite, primarily white, and middle class." He contrasted the institutionalization of this orientation with its alternatives:

> Environmental organizations are a social movement that depends not on humans—or at least less on humans—and more on money. Compare that to how it was before the 1970s, which was a lot more radical, grassroots, and more about people-power. At some point it got codified and better funded, then the funding structures grew, then campaigns could be won without people showing up for them.

He narrated various examples illustrating a movement that had grown increasingly professionalized and reliant on high-level and elite-targeted strategies rather than on the mobilization of large numbers of people—just the kind of movement, he suggested, that would embrace an idea like ecosystem services. For him, the environmental movement's key weakness

[202] The factors that removed Stephen Harper from power are manifold and exceed the scope of this discussion to properly address. As noted earlier, environmental activists believed that he had staked a large part of his political agenda, and his party's political campaigning in the 2015 federal election, on building those pipelines and advancing Canada's energy and extractive sectors. While certainly not the sole issue in influencing the election outcome by any stretch, environmentalists believed it made an important difference.

in BC and elsewhere was that it was a "small numbers" affair. He argued that the environmental groups were often "bad at building movements *because* they believe they are good at reaching elite decision makers." He pointed out, for instance, that one of the biggest environmental organizations in Ontario had "eliminated their organizing people" in favour of direct lobbying of their provincial and federal governments. Having previously been an organizer in fossil fuel divestment campaigns, he lamented, "it's been frankly frustrating to see students gravitate towards the 'economic case'." He described the consolidation of "a centrist, reformist culture" being pushed by the dominant players in the environmental movement and, from his perspective, ecosystem services was a quintessential illustration of this consolidation. What had ultimately brought down Harper, he contended, was emphatically not these strategies of "appealing to the right," as many of the larger environmental organizations had been championing. Rather it was finally getting people to show up: it was an unabashedly direct, radical politics supported by well-organized popular mobilizations and solidarity with *other* movements bringing a range of non-environmental issues to the fore—and especially First Nations. "Again," he emphasized, "it's about building power versus making the right arguments to convince decision-makers."

These themes were repeated throughout my interviews. Another highly respected activist whose group was "renowned for [their] political organizing" again stressed the importance of electoral politics and especially of having an explicit theory of change—something ecosystem services advocates seemed to lack. Noting the remaining environmental organization still pushing ecosystem services in the province, the activist concluded, "lots of policy organizations like [ENGO] and other folks just produce reports. They talked about it for a while, it looked cool, and no one had done it before. It was neat and new, but they were never drivers of change—reality intervenes." The activist later elaborated:

> the pipelines were beat and not by ecosystem services. […] The groups with all the reports have no theory of change. You write reports and then things change? Come on. The world is already too much run by people I call 'commodifiers'. […] Since I came to Canada, things have been dumbed down to bean-counting conversations around how much stuff costs and not about values and what kinda world we wanna live in. The world is controlled by commodifiers. This assumption that if you show them more information, they'll change? That's not how it works. […] Maybe that has some role, but there's no way to satisfy commodifiers. We just have to *beat* them. We need to disempower them and replace them. I mean, this lack of a theory of change—again, we're not gonna convince the commodifiers out there to protect something based on an economic argument unless revenue is possible. This is not a solution to an existential global problem.

The tenuous "enlightenment" assumptions ingrained in ecosystem services tripped clear red flags for this activist that elided a realistic understanding of how power operated. After rebuking ecosystem services, the activist began to preface the kind of theory of change they had come to believe was necessary in the pipeline struggles: "People are always looking for short-cuts, but we [at ENGO] are very suspicious of these because of the long-term implications. Does it build power in ways that can be flexed to a greater or lesser extent in the future?" Their theory of change thus revolved around organizing, around solidarity with First Nations (particularly in terms of providing support in legal challenges), and around finding ways of scaring away investors. Most of all, however, their group's theory of change revolved around "an unapologetic awareness of power. […] a focus on power and how it exists, not how we wish it exists, and how to influence that power." Another activist who had described embracing ecosystem services admitted in our

interview half a decade later how she "used to believe that," referring to the notion that compelling science would be sufficient to effect change. However, what really mattered as she later concluded was "whose ox is getting gored," a reality which the "nice words" of ecosystem services did nothing to change. Reflecting on her earlier hopes for the concept, she concluded:

> What's changed on the ground? What improvements have we actually seen? When you cut through the bullshit, when you cut through the lofty language, what changes have we seen on the ground? […] As soon as the confetti hits the ground after an announcement, fuck all happens […]. It's a sexy, powerful, potentially transformative idea that also has to intersect with capitalism. […] There's a vast chasm between the compelling language of ecosystem services and then the reality of what is or isn't happening in policy, and on the ground, and with resource extraction.

Yet another activist, reflecting on the clashes that had unfolded over the previous five years, confirmed that the strategy of "appealing to people's pocketbooks" had taken a decided backseat in favour of other narratives which proved much more effective in fighting the pipelines. The frames they found to resonate were not those of ecosystem services but, as another organizer explained, those of risk and danger (i.e. from tanker spills), beauty (i.e. wilderness imagery), and "the united wall of resistance" (i.e. a sense of solidarity among First Nations, local communities, politicians, and environmental groups). Or, as one of the province's most prominent environmental commentators (an economist) stated dryly when I posed the question of ecosystem services, "I have concluded that decisions do not get made based on economics."

And so, as another activist observed, ordinarily pronounced movement tensions between reformist and radical tendencies in BC's environmental community were shelved in the face of a uniquely polarizing threat from a government which had "bet the farm" on getting Albertan oil to tidewater. Environmentalists abandoned ecosystem services and its implicit theory of change, together with its embedded political rationalities, in favour of other strategies predicated on very different theories of change: strategies with different framings and narratives; with different (and refreshingly explicit) accounts of power, struggle, and political economy; and with an emphasis on popular mobilization as opposed to a conciliatory, accommodating logic focused around elite lobbying. The lesson that activists were sharing with me was essentially that Goodall was too premature in conceding her politics to the discursive closure of natural capital: as it turns out, they did not in fact "need to talk like that." BC's environmentalists had shelved ecosystem services without regrets.

I should point out that virtually all of the activists I spoke to distinguished the concept of ecosystem services, which they typically appreciated, from its dominant theory of change, whose assumptions they regarded as naïve and woefully insufficient—particularly in a time as exceptional as the one where they had found themselves. In short, they had concluded that ecosystem services was simply the wrong tool for the job. They acknowledged that it was not *always* the wrong tool for the job, but as a means of engaging in environmental politics it failed to deliver a radical approach proportionate to radically urgent conditions. Not only that, by abandoning the emerging consensus I had encountered several years earlier around a conciliatory, elite-focused politics—precisely those expressed through ecosystem services—they found that they could win. Again, they made sure to emphasize that ecosystem services was not a waste of time and that we did need that kind of science. But it alone was incapable of actualizing the kind of transformational change that they came to believe was increasingly necessary in the present

conjuncture. As the activist above noted, they were not opposed to the notion per se but it was quite obviously "not a solution to an existential global problem."

THE M.C. ESCHERS OF NATURAL CAPITAL

It is largely in these terms that I have come to interpret NatCap's work, which in my impressions fell far short of the kinds of "radical" and "revolutionary" implications envisioned both by its proponents and its critics. While I would contend that ecosystem services cannot be plausibly understood as being poised to "change everything" as Kareiva quipped (Chapter 3), the question remains of whether it is poised to "change anything." And if so, what exactly *is* it changing? When viewed through the experiences and perspectives of its personnel, how does NatCap stack up against the key claims being made about their work in the critical scholarship and beyond?

First, I do find a mismatch between the NatCap I got to know and the commodification of nature with which they have so commonly been associated (e.g. in their FAQ as discussed in Chapter 4). By the same token, none of their projects seemed remotely oriented toward fundamentally challenging existing processes of capital accumulation or toward effecting systemic political-economic transformation: their interventions were decidedly incrementalist. Second, characterizations of their work as violently abstracting—as reducing complex socio-ecological relations to a totalizing and unitary logic of calculation did not really match my observations either. While even NatCappers themselves may have anticipated something like this at first, the notion was quickly dismantled as their projects involved them in lively, personal, and dynamically interactive engagements with their partners and project stakeholders. In the iterative deliberations, negotiations, and participatory processes where they have been embroiled, the salience of their specific calculations and valuations tended to recede into the background. In their place, NatCappers developed other skills necessary to wrestling with the social and political messiness overflowing from their "decision contexts."

Yet, these mismatches do not mean that their politics are benign. While perhaps less menacing in several important respects—indeed, quite a few of their engagements seemed hard to fundamentally dispute as bounded and mundane development interventions—key questions, as I have noted, remain conspicuously unaddressed. Even though NatCap does not seem like an obvious harbinger for the commodification of everything or the imposition of rule by calculative optimization, their work nevertheless reflects and may serve to reinforce hegemonic power relations. It is generative of (even more) anti-political subjectivities (Ferguson 1997; Swyngedouw 2010) among conservation practitioners, reflective of a disciplinary governmentality that disavows politics and the prospect of setting the tools, knowledge, and expertise of ecosystem services to the explicit task of challenging status quo power relations (as discussed in Chapters 3 and 4). Indeed, in its prevailing forms, it threatens to consolidate a political imaginary whose theory of change functions precisely by *not* challenging the status quo, depending as it does on existing power structures and the enlightened benevolence of established decision-makers seeing the "light" (which Daily aspires to "shine" through NatCap). What if the questions of power, social struggle, and political economy that permeate their work—and which I believe they know permeates their work—were directly confronted and explicitly addressed? With NatCap, this question was until the end of my research left mostly to the imagination.

In analyzing NatCap's work, I described how ecosystem services is enrolled in efforts to re-align conservation to 'fit' with dominant discursive, institutional, and political-economic logics.

However, I also proposed that this kind of enrollment is perhaps not necessary—indeed, I suggest more positively that it is quite unnecessary. I noted in my time with NatCap a lively, mutable set of practices being put to a range of creative purposes in their projects. "It's fundamentally about bringing the ways nature makes life both possible and worthwhile from the background to the foreground," remarked one senior NatCapper at their 2015 symposium, highlighting the participatory scenario-building, deliberative approaches, and diverse non-monetary values progressively being incorporated into their work. She continued, "[w]e want to be the MC Eschers of natural capital, playing with background, foreground, and perception of the whole." Thus, she stressed, those "attention-grabbing headlines about monetary valuation are missing a critical piece of what this work is all about."

These comments reiterate a central theme: a pronounced contrast between NatCap as initially imagined 'on paper' (together with its initially bare-bones theory of change) and the ways NatCappers then went 'off script', improvising and iteratively re-fashioning various elements of their approach in order to actually carry out their work. Ironically, this surrealist metaphor—a play on Daily's visual analogy of shining the "light" of ecosystem services to make nature-society relations visible—also highlights the political slipperiness of their practice and the chimeric, shape-shifting qualities of the concept of ecosystem services itself. These comments serve to draw into the "foreground" NatCap's own polyvocality, for example, vis-à-vis controversies over economic valuations and the sort of optical sleight-of-hand they perform to simultaneously depict ecosystem services as about dollar signs and not about dollar signs. In this way, as I have shown, the choral admonishment to "make nature's values visible" (TEEB 2017) being effected through the creative syncretism of ecosystem services bricoleurs—the endeavour to transmute a dangerously incongruent nature into a more safely-aligned natural capital—has resulted not in a unitary economizing vision but a kaleidoscopic cacophony of a policy discourse riven with tensions.

In the end, I was able to de-escalate several concerns I brought with me (while raising a few new ones) regarding what it was that NatCap seemed to be doing. Their self-questioning impulse, their re-constituted conceptions of 'decision-making', their investigations of what 'effects' their knowledge and expertise were actually having, their participatory, deliberative approaches to knowledge-production, their conspicuous de-emphasis on monetary valuations, their lack of interest in commodification projects, their general thoughtfulness, sense of humility, and openness to showing me what they were up to, all served to render swaths of their project rather less menacing and more benign than I had anticipated. And at times, the self-questioning reflexivities and experientially-shaped, embodied knowledges that emerged through NatCap's many engagements did seem to show kernels of a recognition: a willingness to engage the political nature of what they were doing and to push beyond how they believed things could be done. For these alternative political possibilities to start really mattering, however, the communities of practice together constituting ecosystem services, including NatCap, will need to take the wiggle room available to them (as discernible in such moments) and *do* something with it—purposefully, coherently, and with far less political ambiguity.

To be clear, none of the practices I saw seemed remotely sufficient to the task of "revolutionary" and "radical" change—a task which NatCap's leadership at least notionally aspires to—nor did they really ever seem to be in much of a conversation with the full (i.e. intrinsically political and power-laden) scope of what this task entails. Nevertheless, I recognized elements of a more generous interpretation entering into frame. The corner of the ecosystem services

community constituted by NatCap and its counterparts could, in part, be read simply as a story about academic scientists attempting to re-direct their efforts from purely "fundamental" research questions toward much more recognizably urgent and "applied" problems. In our conversations, multiple NatCappers seemed to primarily understand the emergence and broader stakes of ecosystem services in these terms. They were not, perhaps, at the vanguard of a "revolution" but simply trying to leverage their existing expertise to contribute at least marginally more helpful and relevant knowledges than their scientific communities had previously been able to provide. Relatedly, their specific project interventions—while again, perhaps falling short of the transformative change implied in their rhetoric—could simply be read as marginal tinkering to what would have otherwise happened: a road gets re-routed in Myanmar, a key watershed is restored in Colombia, a coastal area is re-zoned on Vancouver Island. Here, ecosystem services represents not a radical departure capable of "changing everything" but, more than anything else, just the fine-tuning of existing relations, such as they are. Reminiscent of fictional vampires, NatCap only enters a decision context when invited—they never barge into an abode unless *asked* to help. While certainly, the broader context in which such invitations are extended are never free of power relations or subtle, indirect forms of coercion, it seems reasonable to surmise that NatCap's interventions are rarely imposed unilaterally.

Finally, while the production of ecosystem services assessments on their own is obviously wildly insufficient as a meaningful response to present socio-ecological urgencies (as NatCappers themselves have come to admit), they could nevertheless provide modest but helpful reagents in broader political struggles to confront those urgencies. In analyzing specific dependencies among "people" and "nature"—those "intimate connections" highlighted by Daily—the considerable scientific work now being channeled through ecosystem services could serve to (further) expose, in exacting detail, the enormity of the environmental injustices, distributional inequalities, the exclusions and dispossessions, which are systematically produced under dominant regimes of colonial-capitalist rule. While the knowledge practices associated with rigorously establishing these identifications in no way linearly or automatically translate into *changing* these relations, they can perhaps still be of use. On this level, I do discern meaningful (or at least not already foreclosed) opportunities for critical scholarship to explore and constructively engage the communities of practice now actively trying to make sense of what to do with ecosystem services.

These elements of a generous interpretation are worth recognizing. However, they are counter-balanced by major outstanding concerns discussed at various points throughout this dissertation concerning questions of power, social struggle, and political economy: questions which NatCap seems to carefully and routinely side-step. I will briefly reiterate these challenges here. While, for the most part, NatCappers described encountering pushback primarily from their scientific peers and fellow conservation practitioners, there were moments when they acknowledged wider critiques. I recall several conversations with NatCappers, for instance, noting the recent *Mongabay* series, "Conservation Divided" (Hance 2016). The series draws out some of the ideological tensions and strategic compromises now faced by the international conservation community and surrounding the advent of approaches like those now associated with ecosystem services. Even more troubling were critiques levelled by the writer and activist George Monbiot, a staunch opponent of what he refers to as "the natural capital agenda." He articulated these objections in a widely circulated 2014 lecture which was subsequently published in *The Guardian*,

titled, "Put a price on nature? We must stop this neoliberal road to ruin."[203] His culminating arguments converge with questions emphasized by this dissertation as a means of interpreting what is at stake in ecosystem services: namely, issues of political economy, power, and social struggle. As noted earlier, these inescapably central questions of politics were left almost entirely unaddressed in any explicit way across nearly all of the publications, years of public discussions, and hours of interviews I reviewed as a part of this research (notwithstanding several modest traces which I also noted).

On political economy, for example, Monbiot charges that the ecosystem services framework amounts to "effectively pushing the natural world even further into the system that is eating it alive." He stresses that the solutions he sees currently being articulated through natural capital—marketization, commodification, financialization, and other new-fangled means of profiting from nature—involve extending market relations to managing nature when it is those very market relations that are driving its destruction. These are serious concerns and there are indeed concerted efforts underway trying enact such schemes. This is also a classic argument in critical scholarship. However, as noted, these schemes have largely failed to materialize (so far) at a meaningful scale and they continue to represent mostly terrible investments: profit-seeking capital remains largely indifferent to these overtures of "selling nature to save it" (Dempsey & Suarez 2016; McAfee 1999). Moreover, as illustrated in the case of NatCap, many practitioners also seem largely uninterested in this vision for natural capital and ecosystem services. However, as discussed, NatCap's relationship to its FAQ of "putting a price tag on nature" remains politically slippery: they endeavour to disassociate themselves from the connotations Monbiot (and other critics) seize on while simultaneously insisting on keeping those connotations on standby when needed. Relatedly, Monbiot singles out the abstraction constituted through the economic, calculative logic embedded in natural capital—again, another important critique from the literature—but here, too, NatCap's approach, subordinating its ecological-economic calculations to engaged, participatory and deliberative processes of negotiation, seems to complicate this critique.

Nevertheless, NatCap's overall position on questions of power, social struggle, and political economy remain impenetrably "agnostic." On power, NatCap is virtually silent. Here, Monbiot's argument essentially converges with my earlier discussion of how the prevailing theory of change underlying ecosystem services seems not only to take for granted but to *depend* on the enlightened benevolence and structural power of entrenched decision-makers to work. It proceeds with an expectation that, provided with the right information (i.e. carefully packaged in economically legible terms), ruling elites will come to do the right thing. However, as Monbiot argues, "what we are effectively seeing is the invocation of money as a kind of fairy dust that you sprinkle over all the unresolved problems of power in the hope that they will magically resolve themselves." He adds, "because they are unresolved, because they are unaddressed, because they aren't even acknowledged; the natural capital agenda cannot possibly work."

He proceeds through a series of examples, and even draws one from a popular case study used by TEEB involving the comparison of the estimated $12,000 (per hectare per year) in benefits

[203] Unlike much of the critical scholarship, which makes similar points, Monbiot seems to have effectively caught the attention of the conservation and ecosystem services communities. He makes very similar arguments to those laid out here, revolving around four main critiques. The first is methodological, which are well-recognized among ecosystem services scientists. From there, he escalates his critique to three other points which converge more specifically with those articulated in this dissertation.

arising from conserving a mangrove forest with the $1,200 in benefits arising from building a shrimp farm over it. Aside from the fact that the practical importance of mangroves had been long recognized before they were given a dollar sign, Monbiot points out that the notionally higher aggregate benefits of keeping the mangrove will pale in comparison to the question of who actually has the ability to assert their claim over the resource—often powerful local elites who may reap some of the $1,200 in profits if they can ensure the shrimp farm gets built. This, and other examples, he argues, underscore how "[y]ou do not solve the problem without confronting power. But what we are doing here is reinforcing power, is strengthening the power of the people with the money, the power of the economic system as a whole." In short, simply highlighting the notional worth of something—whether in economic terms or not—does nothing to alter or undo the underlying relationships, the *power relations*, structuring whether the shrimp farm gets built or not. Or, as the BC activist above had concluded, it's ultimately about "whose ox is getting gored." This claim—and I know that NatCappers are familiar with Monbiot's delivery of it—demands some kind of coherent response, and ideally a believable one, which would presumably be less reticent about the prospect of undermining (rather than depending on) existing power structures.

Finally, on social struggle, Monbiot notes what he calls the problem of values and framing. Here he equates natural capital and ecosystem services with a strategy of triangulation: where the question of what is to be done comes to be framed around how to find agreement with right-wing opponents. Once again, the BC activists were unanimous in identifying this characteristic of ecosystem services as a large part of why it had to be abandoned. Drawing a comparison with electoral examples from the US and UK, Monbiot essentially argues that this is simply not how effective politics works. Indeed, he points out how this strategy of imitating and adopting the values of the opposition has been disastrous for progressive-left political organizations which have gradually distanced themselves further and further away from their own values, from the sources of their own authority and legitimacy, and from the prospect of successfully opposing their opponents. Or, as another BC activist stressed, "there's no way to satisfy commodifiers. We just have to *beat* them. We need to disempower them and replace them."

Thus, as Monbiot concludes his polemic, what is needed is mobilization: organizing those who already share values and bringing over those in the middle rather than strategically agreeing with the opposition. Arriving at this culminating argument in his series of escalating critiques of natural capital, he concludes "[i]t is the only thing that has worked, the only thing that can work. Everything else is a fudge and a substitute and an excuse for not doing that thing that works." He asserts that these excuses include natural capital and ecosystem services. The theory of change he outlines here structured around building power rather than pleading to it—again, with clear connections to critical scholarship and a long tradition of activist praxis—contrasts markedly with the primarily elite-focused theory of change now dominant among ecosystem services practitioners which is structured around carefully targeted appeals to optimize 'win-win' decisions among established centers of power.

In making these arguments, Monbiot has translated many of the concerns elaborated in critical scholarship into a form that has been heard by NatCappers. Moreover, among the extensive broadside of critiques that have been directed at ecosystem services, he also puts his finger squarely on those questions which remained, for me, at the end of this research, the most important and least resolved (and to a startling extent almost completely avoided). While Monbiot concludes that these critiques render ecosystem services at best a distraction and at worst a disaster in each of the

ways laid out above, and while I also emphasize these concerns in largely similar terms, I continue to hold a somewhat more ambivalent position.

I do tend to agree with the reflections from the activists I met in BC that the challenges of popular mobilization (rather than catering to elites), confronting power (rather than courting it), and dislodging (rather than reinforcing) the value frames, political rationalities, and institutional logics of neoliberalism are among the most problematic issues posed by dominant variants of ecosystem services (more so than the commodification). It seemed to me that NatCappers and the broader community of practice forming around ecosystem services displayed the capacity, if not yet the willingness, to align their work with a political vision less burdened by this theory of change which, once drawn into critical focus—including their own—was quickly made to appear rather ramshackle. They have done it before. The constitutive practices, knowledges, and experts arrayed around ecosystem services—which are sizeable and suggestive of a certain political potency—could constitute a plank (albeit not *the* plank) in the mobilizations which Monbiot notes are unaddressed by natural capital and which the BC environmental community ultimately abandoned ecosystem services in order to pursue. However, while I remain stubborn in continuing to perceive this possibility, as I have stressed, its realization remains politically contingent. Just as the concept's entanglements with hegemonic politics and neoliberal rationalities are not automatic, irretrievable, or pre-ordained, neither is its disentanglement. As I have argued, our understanding of just how open this 'open question' remains will depend on how much political wiggle room we—and especially its practitioners, like those in NatCap—can find, and the scope of their willingness to overcome the anti-politics of their staunch agnosticism toward fundamental questions about the nature of power, social struggle, and political economy which saturate their work.

Figure 44 - The United Nations building in Bonn where the IPBES Secretariat is headquartered

OCCUPY ECOSYSTEM SERVICES

My suspension of disbelief about the political character of ecosystem services was bolstered by my experiences in IPBES. While I did note various setbacks to the prospect of setting ecosystem services to "more richly radical ends" (Castree 2017b) and although I observed multiple reversals in fortune for the epistemic dissenters operating in the Platform, I also observed them insisting, sometimes doggedly, on showing up and pressing the issue—on getting stuck in. They believed that the prospect of 'unmainstreaming' ecosystem services was, in the end, worth the struggle. Moreover, they had come to believe that prying the constitutive knowledges, practices, and scientific subjects of ecosystem services from the framework's hegemonic forms and functions was not only worthwhile but plausible: that the neoliberal expressions of the concept critiqued by Monbiot, abandoned by the BC environmental community, and still largely containing NatCap's political imagination were not the end of the story. The concept, they believed, was amenable to subversion, to re-negotiation and to the possibility of appropriation toward more progressive and meaningfully transformative ends.

To return to the political "confusion" and pushback that Sukhdev describes (as discussed in Chapter 5; see also Sukhdev, Wittmer, and Miller 2014) such dissensions became a regular part of my fieldwork and particularly within IPBES. As one of TEEB's chief science-policy counterparts, IPBES provided a prominent and unexpected instrument through which critically-

aligned experts have been institutionalizing a prickly resistance to what Pacheco, on behalf of Bolivia, has repeatedly denounced as the "commodification of nature" (which TEEB and ecosystem services has come to symbolize, for many). Over the years, the Bolivian delegation gradually transitioned from being opposed to the formation of IPBES, to being opposed to its name, to being opposed to most definitions of ecosystem services, to finally helping to run the Platform itself from the IPBES Bureau (where Pacheco was recently elected). I noticed at IPBES-3, for example, where several countries were suggesting that IPBES scale back its work to a fewer number of assessments, Pacheco quickly interjected to try to ensure that it do *the most work possible*:

> Bolivia: Bolivia has attempted to have an intercultural and scientific dialogue where there are different views of biodiversity and ecosystems in the world. We have done this successfully. Up until now, the reputation of IPBES is where this can happen. [...] I believe we are running a serious risk to the Platform's image in these respects. Let us not undermine expectations of IPBES. We shouldn't demolish these expectations [by scaling back the number of assessments]. We reached a fragile consensus around the framework of work. […] We were happy when we agreed. Now we are not happy because what we have agreed has not happened and is at risk.

Beyond Pacheco, I met a cast of other dissenting experts performing analogous but lower-key roles embedded throughout the process, ranging from heterodox economists and indigenous scientists to philosophers, landscape ecologists, closet anti-capitalists, and the secret political ecologist (who admitted in a hushed whisper what she had been reading). Most practitioners, including virtually everyone I met in the context of IPBES, were, like Pacheco, at least ambivalent but usually hostile to the notion of the commodification, marketization, and financialization of nature with which ecosystem services has become so closely associated.

IPBES not only reflects these broader tensions, it has produced a critical battleground—literally a "battleground" as one assessment author emphasized where critics can have their say—through which these tensions are negotiated and where these struggles can be realized. IPBES appears to have suspended many of its participating critics' sense of disbelief about what ecosystem services is ultimately about. For them, the kind of politics ecosystem services expresses remains, for now, subject to ongoing contestation, contingent upon continuing political and epistemic negotiations both within and outside of IPBES. As IPBES struggles to bend—without breaking—traditional science-policy routines and involve diverse value systems, counter-hegemonic politics, and social scientists capable (sometimes) of translating these incongruent knowledges into the process in a meaningful and robust way, those traditionally wary of the perils of ecosystem services face a conundrum: whether and how to engage this experiment. Does participation risk co-optation, perpetuating the underlying power relations and reinforcing the political-economic conditions that have so effectively disciplined the conservation movement in recent decades and contributed to the turn to ecosystem services? Or, does the institutional expression of ecosystem services constituted by IPBES perhaps represent something more mutable and ripe with possibility: a conjunctural window of opportunity that can be jumped through and leveraged toward something more transformative—a laboratory where ecosystem services can come unmoored from its neoliberal articulations and might hitch itself to other, non-market logics, counter-hegemonic struggles, and still-to-be forged political-ecological projects?

The recognition that people benefit from and depend on more-than-human nature in specific ways, and that this fact can be systematically explored and subjected to rigorous analysis,

is a slippery thing that can serve a panoply of possible purposes and political projects. To what extent does the framework of ecosystem services—given its polyvalent political meanings and the deep ambivalence of those applying it—remain contestable and subject to struggle, re-negotiation and operationalization into non-neoliberal applications and counter-hegemonic politics? My experiences in the Platform suggest that ecosystem services is susceptible to all of these possibilities.

Yet to be blunt, the Platform as a whole was nowhere near the kind of Left anti-capitalist radicalism speculated by Castree. Nevertheless, I saw many openings—several of which I observed being seized on by heterodox and critical scholars—for engaging in the "hand-to-hand combat" and "micro-politics" inherent to wrestling with the apparatus (Braun 2014, 62): the braid of logics that has been uneasily entwined in ecosystem services and whose institutional crystallization gave us IPBES. As Braun writes of contestation through the dispositif (Agamben 2009; Foucault 1980), amidst such a tangle, the "politics" represented by ecosystem services could take a worthwhile form "not as the 'overturning' of one system and its replacement with another, nor in terms of positing a utopia whose inspiration lies elsewhere, in another time and place," but rather "in terms of imminent social transformation, seizing the potential for alternatives within existing practices" (Braun 2014, 62). As Castree (2017b, 69) acknowledges, radically-oriented scholars will likely perceive "a none-too-radical pluralism" in his proposals. Indeed, such a position was about where I saw the Platform currently wobbling. Recall, for instance, the diagram shown in Figure 38 (Chapter 6), where the re-envisioned alternative to "GLOBAL FAILURE" and its depiction of a giant Finance Minister was simply "all ministers sitting around a table." A reasonable improvement, perhaps, but hardly a radical re-imagining of social relations. As Swyngedouw (2010, 227) cautions, in a post-political condition, "[d]iscussion and dispute are tolerated, even encouraged, insofar as the general frame is not contested and "the necessity to continue […] to sustain the state of the situation" remains intact. Notwithstanding Pacheco's rhetoric regarding the green economy, IPBES is not at any risk of adopting an avowedly anti-capitalist stance anytime soon.

The question then becomes: does that make the enterprise a waste of time? The same can be asked of the Natural Capital Project. I would argue that it is not only worthwhile but eminently plausible to try to re-direct ecosystem services—as well as the vast sprawl of scientific communities trying to figure out what to do with it—from its more obviously problematic tendencies. There *are* more stereotypically neoliberal, market-fundamentalist politics that are now enrolling ecosystem services in hegemonic, colonial-capitalist projects that must be resisted. And it seems to me that the broad majority of ecosystem services scientists—and an overwhelming majority of the experts brought into the Platform—are ready to participate in that resistance. In this regard, I would not hesitate to argue that the Platform provides a useful vehicle for cajoling the discourse out of its more outrageously dangerous articulations and toward more benign forms. However, I should also reiterate that most of the many epistemic skirmishes I observed in the Platform along these lines fell far short of the kinds of struggle and radical, systemic political-economic change that I (and Castree) have come to believe is urgently necessary to confront already catastrophic and accelerating socio-environmental crises. Yet even if it is not avowedly about overthrowing capitalism, I suspect ecosystem services is capable of becoming something that is not a necessary impediment to projects seeking to do so—and that it may even be helpful under certain circumstances to such efforts.

Moreover, while not pervasive, I did also find resonances between this much more radical, anti-capitalist vision imagined for global change science and the sorts conclusions expressed by an unexpected number of the Platform's experts, after some prodding. As Castree notes, there is a kind of radicalism *already* suffused in their findings and in the increasingly dire predictions they are synthesizing—findings which seem to make such alliances not only plausible but vital.

As I moved through more and more of the expert spaces constituted by the Platform, I began to fantasize about how useful it would have been to have one our world-leading political ecologists, critical political economists, or other radically-oriented scholars in the room to show them—earnestly, patiently, and methodically—the richness of these literatures: to establish for them the reasons why our analyses make sense but also how those literatures help *their* analyses make more sense. Indeed, I became increasingly convinced that the natural scientists tasked (and at times floundering) with perennial humanistic questions and fundamental social scientific concerns which they had, somewhat absurdly, been assigned to address—requiring theories of politics, power, political economy, justice, knowledge, "root causes," "transformational change," and so on—would in fact *welcome* serious contributions from critical scholars willing to put up with the Platform's more trying aspects and engage them in frank discussion about nature, people, and socio-ecological relations. The urgency for both parties is clear, and the tamping down of radicalism among a world of disintegrating ecosystems has become less and less tenable.

As Castree recognizes, in all likelihood the "politicization of their work will only occur if it is initially cautious and catholic," requiring delicate forms of engagement that will not immediately trigger scientists to "retreat behind the shield of value-free science that remains such a barrier to progressive change" (Ibid). The micro-social practices of "institutional bricolage" implicating ecosystem services in broader institutional re-alignments in conservation are, somewhat convergent with this suspicion, rooted in "historical contingency and path dependence," where "the nature of change" is understood as "evolutionary rather than revolutionary since novel artifacts embody remnants from the past" (Christiansen and Lounsbury 2013, 203; 204). This "creative syncretism" (Berk and Galvan 2009) of available logics to produce novel assemblages—although currently entangling ecosystem services in processes of hegemonic accommodation (Hardy and Maguire 2008) and aligning conservation to better 'fit' with dominant discursive, institutional, and political-economic orders—could conceivably come to serve more subversive functions. Scholars have increasingly started to observe PES schemes, for instance, overflowing neoliberal rationalities and market-based logics as they are hybridized with other logics: as they are re-worked by the "witches brew" of idiosyncratic locales, historical particularities, and situated politics, and as they are contested, and re-purposed, through the embedded agencies and everyday practices of diverse bricoleurs (Van Hecken et al. 2017; Van Hecken, Bastiaensen, and Windey 2015; Shapiro-Garza 2013). As suggested earlier, the "crazy quilt of logics" (Robertson 2006) patched together through ecosystem services is hardly sewn up: it has remained continually and contextually subject to re-arrangement in politically consequential ways.

Based on what I saw in the intimate, liminal spaces of the Platform—that is, natural scientists (over a thousand of them by now) hovering around dry-erase boards, engaging in frank and open discussion, and occasionally being tasked with questions which they tended to recognize as almost farcically beyond their own areas of expertise (e.g. "where do concepts come from?",

"how are they formed?", "how do they have an impact?", "what kinds of impact?" etc.)[204]—I perceive definite openings for critical scholars to meaningfully and constructively shape the Platform's ostensible synthesis of human knowledge about nature, nature's contributions to people, a good quality of life, and the institutions that mediate their relations (Díaz, Demissew, Carabias, et al. 2015). As I have described throughout this dissertation, the politics of ecosystem services are rooted in the circumscribed yet improvisational nature of organizational change,[205] whose dynamics, Weick (1998, 551) argues, requires thinking about an "ontology of becoming, using images already familiar to process theorists and musicians alike, images such as emergence, fragments, micro-practices that enact order, reaccomplishment, punctuation, recursion, reification, relations, transience, flux," and a "sociology of verbs rather than a sociology of nouns" (Chia 1996, 49 as quoted in Weick [1998]).

As I will conclude, the Platform has just begun a more systematic campaign to more robustly engage the social sciences. In line with decisions made to this effect in Plenary, the current Executive Secretary, a member of the MEP, and the current Chair of IPBES put out the call for "more social scientists" (Larigauderie, Stenseke, and Watson 2016, 313), announcing that "a strong collective effort is necessary to reach scholars outside the natural sciences," and that IPBES was now "reaching out" to scholars "of sociology, economics, geography, anthropology, political science, among others" (Ibid). Elsewhere, they elaborate that such expertise should include a focus on "power structures," while also identifying emphases on "livelihoods, values, power, behavior, discourses, and conflicts" (Stenseke and Larigauderie 2017, 4).[206] As another expert put it to me more pointedly, "this is a crucial entry point for social scientists. We can push back on the domination by narrow economic understandings. We are poised to make an important contribution and change the conversation."

Most striking, perhaps,[207] was a recent paper published by a sitting member of the MEP which makes the case for the Platform's radicalized potential. It argues, "IPBES offers a unique opportunity to orchestrate transdisciplinary efforts to integrate power relations in ecosystem assessments" (Berbés-Blázquez, González, and Pascual 2016, 134). Provided that the Platform (or elements of it) seize this opportunity to utilize the small box (i.e. "indirect drivers") that had been formally inserted into its Conceptual Framework, IPBES can become the means of analyzing the "power relations that mediate the access, use, and distribution of ecosystem services," and "the associated distribution of benefits and burdens" (Ibid, 135). They identify how IPBES is now

[204] This is a reference to an extended, multi-day chapter group discussion during one assessment process with a single self-identified social scientist, which I mentioned in the previous chapter.

[205] Weick (1998, 551) writes that "[i]mprovisation is a mixture of the pre-composed and the spontaneous, just as organizational action mixes together some proportion of control with innovation, exploitation with exploration, routine with nonroutine, automatic, with controlled."

[206] As one expert commented during a meeting: "We have a problem in most regional assessments: a lack of social scientists, not just experts in valuation, but those with the understanding and intuitions to see *why* the key messages of the valuation guide are important […]. Unless we have a critical mass of experts with the ability to say 'here we have an issue where we need help from the valuation team', if we don't have that critical mass of *those* people, it will be very difficult to provide even basic support even with the Task Force [i.e. the continuing values expert group] running. It has to be demand driven. We can explain, 'look it's not that difficult, here's how to do it'. But if there's no demand there will always be that bottleneck and we'll never progress. I think it's just a matter of the human mix in these expert groups." Personally, I believe that critical scholars could easily fit into this category of "those people."

[207] Especially relative to the anti/post-political (Ferguson 1997; Swyngedouw 2010) 'agnosticism' that marks much of the rest of the ecosystem services literature as discussed in Chapter 4

positioned to grapple, finally, with questions of access and control over ecosystem services (Ribot and Peluso 2003), the commodity fetishism concealing the labor relations entwined in the production of ecosystem services (Kosoy and Corbera 2010; Peluso 2012), "the historically-carved interests of actors that manage landscapes," and "the struggles and negotiations that have resulted in the current distribution of ecosystem services" (Berbés-Blázquez, González, and Pascual 2016, 139; Garmendia and Pascual 2013). These are all questions profoundly defined by power relations and foundational to political ecology. In obtaining its mandate to truly tackle "root" causes, the Platform is now mobilized to follow its chains of explanation (or webs of relation, as per Rocheleau 2008) outward to confront "indirect drivers," to extend its analysis from the status and trends of biodiversity and ecosystem services (MA 2005) to confront such processes as "how transnational agribusiness through landgrabbing, and financial organizations through speculative commodity trading, can regulate access" (Berbés-Blázquez, González, and Pascual 2016, 138).

I would contend that making headway on these questions requires the services, as Castree puts it, of "people like me and readers of Antipode—work[ing] with geoscientists toward progressive ends 'on the compromised and reformist terrain of the possible'" (Castree 2017b, 61; quoting Ferguson 2012, 181). I will conclude by noting that in my final interview with Pacheco, he asked explicitly for help. He asked for more political ecologists and other critical scholars to join the Platform—to invite them to populate its expert groups and to help steer IPBES away from the framework's more dire expressions and toward what he believed were its still-worthwhile possibilities. What would happen if we filled the Platform with political ecologists? I raise this question as an intriguing thought experiment but also as a timely and practical question. Having seen the consequences of too many assessment chapters comprised largely of life scientists forced to consider the nature of value, the meaning of a good life, and the political-economic implications of uneven capitalist development without representation from the scholars trained to speak to exactly these kinds of questions, the Platform has recently renewed its efforts to include them. The door has been left tantalizingly ajar—and, I suspect, not just in IPBES. What would happen if we walked through it? On the final day of my ethnographic work with the Secretariat, I was given this symbolically multifarious cookie (Figure 45). Gazing into it, I thought to myself, ecosystem services was indeed not perfect, but maybe the contested knowledges and ambivalent scientific subjects it was producing were worth the struggle and not yet beyond redemption. It will take hard work to keep it that way.

Figure 45 - A symbolically multifarious gift given to me by the IPBES Secretariat on the last day of my ethnographic work in the Platform.

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APPENDICES

APPENDIX I

Narration of NatCap's mainstreaming work in Sumatra. This is an extended comment provided by one NatCapper which serves to illustrate a characteristic project and how they talk about their work more broadly.

[T]he overarching policy question was: how can we use ecosystem services to inform spatial planning in Sumatra? The Indonesian government was interested in exploring spatial planning that could preserve ecosystem services but also help in targeting specific investments like payments for ecosystem services and zoning and reforestation and sustainable management of plantations and logging operations in a way that hopefully harmonizes amongst economic and conservation objectives. The audience here was district government officials and investors, by which in this case we mean multilateral government donors from the US amongst others.

The project was spearheaded by our colleagues at WWF-Indonesia who worked closely with government partners on the ground. Having seen a clear hunger for this information from their government colleagues, they wanted to be able to provide such information and we at WWF-US and our colleagues here at Stanford were able to assist in doing some of these analyses. We had many different people working in complementary roles, which I think was really critical to the momentum that we gathered in this project.

So, WWF-Indonesia, as I mentioned, were really plugged into their ground level partners. They had the right connections. They knew the policy window to target. They very critically accessed local data that we would not have been able to get from our colleagues in ministries or other organizations in the region. They were able to provide some of the information we used in the InVEST analysis. And very critically they helped guide us to connect us to key stakeholders. We were of course not the primary people connecting to local stakeholders. They knew what local information would resonate.

WWF US provided a lot of the technical support and input, and also some of the intellectual leadership in terms of thinking about how to frame the analysis, and we also did a lot of the spatial analysis. Here in the US in collaboration with scientists in Indonesia, we helped to build capacity among our Indonesian partners to use these tools themselves, and we played a crucial role in connecting the brains here in Stanford to our colleagues on the ground, so we could get the best analytical support and modeling expertise that we could, to connect to local priorities on the ground. Stanford helped us a lot with framing the analysis. They helped us to think about how to frame it, they visited the field sites, they helped parameterize these models by actually going out to the field with their insights on how certain land use and land covers impact ecosystem services. They helped us fine-tune and tweak these models and they helped us to communicate the results to stakeholders.

APPENDIX II

Natural Capital Symposium, March 2016. The text below represents rough field-notes typed / transcribed simultaneously as the story (discussed in Chapter 3) was being told. There are minor errors and omissions, and it should not be considered as verbatim. The comment serves to illustrate the dynamics of natural capital mainstreaming and institutional entrepreneurship broadly and how practitioners deploy ecosystem services in conservation contexts in particular.

There are more Stanford freshman than there are gorillas. Half of the population, 400, live there. […] In a sea of ag, these fertile volcanic hills, the boundaries of the forest are razor sharp, with coffee and tea and other things planted right up to the edge. A guide from there visited a training [regularly hosted by his organization]. He then decided to do a total economic valuation of Bwindi. He did this because a road was being proposed into the forest. If we could show the value of water, that it absorbs CO2, if we could show value of gorillas, if we could show variety of ecosystem services, we could convince planners not to put road there. We advised him, [name], to slow down. Lets think about money and scarcity. Which of these is scarce? a lot of places absorb CO2. Water is not locally scarce. pollination, too: ag land stretches far away from the park. Intuitively, people might not buy notion, if 99% of folks not next to park anyway. The gorillas, however, are like walking ATM machines. They produce lots of revenue. They are both scarce and produce a kind of economic benefit . Getting use values out of these creatures! The permit to visit for one hour is $650. Eight groups have been habituated for visits. Eight tourists can go at a time to visit them. If you do the numbers, those eight groups, at full capacity, would be producing 50 million just in permit revenues. Put aside lodging, guides, other economic values. This is just what economists call rent. Think also about local incomes. Now, the park is not operating at full capacity yet. But what economists are not interested in economic value of all the gorillas, but marginal values. Changes. Road would take one group out of equation. This would result in $2 million of loss per year. Came up with number, millions of dollars, as a result of one group not participating in ecotourism. [Has an aside of net present value, explaining what this is. Came up with even larger number in this formulation.] Then all of Uganda: gorillas are the only thing unique to Uganda that competing neighbours don't have. Calculated numbers for alternative route for the road. Would cost 3 million extra dollars, if put somewhere else, but had other knock-on benefits that needed to be factored in. That 3 million is paid for when these things factored in. So, our allies at the Gorilla Conservation Program are right now, as we speak, taking those economic results around and using them in their campaign and in their dialogue with the road planners about building the alternative road instead of this one. Now, will they succeed? I don't know.