book review

Everything changes – especially on islands

Island Environments in a Changing World, by Lawrence R. Walker & Peter Bellingham, 2011, Cambridge University Press, 324 pp. £70 (Hardback) / £30 (Paperback) ISBN: 9780521519601 / 9780521732475; http://www.cambridge.org/

'Fog in Channel – continent cut off'

Are we not all islanders, after all, holding our own off-continent perspective of the world? Whether it is the Earth in the cosmos or Africa between the oceans, or even a tiny islet where a lonely shepherd attends his goats, humans are everywhere surrounded by non-inhabitable territories. It is thus not surprising that islands exert a special allure to us all. At the same time, typical islands, i.e. relatively small bodies of land surrounded by water, provide a huge set of natural laboratories for the study of numerous biological and physical phenomena. This is mostly because they are relatively small, simple and well-delimited open systems. The story of MacArthur and Wilson's (1967) clever choice of islands as model systems for their theory is definite evidence in support of this.

After an early start through Wallace's seminal book, Island Life (Wallace 1881), the ecological literature on islands grew tremendously but has been mainly of a rather technical flavour, focusing on island biogeography, evolutionary dynamics and invasions of alien species (see Losos and Ricklefs 2010). A recent attempt of almost monumental dimensions, the Encyclopedia of Islands (Gillespie and Clague 2009), tried to bring the ecological view of islands closer to the lay person, but its very size and breadth of scope may also be its weak point. At the same time, there are several other books accessible to the public that examine island life from an evolutionary perspective or at a local geographical scale (e.g., Grant 1997, Quammen 1997, Samways et al. 2010). The special properties of islands, i.e. finiteness and small size, act as timeline intensifiers, enabling a perception of the constantly changing environment which may be more difficult to grasp in the vast expanses of continental areas.

This Heraclitean view of nature is the main theme of this recent book on island environments by two plant ecologists, L.R. Walker (Univ. of Nevada, USA) and P. Bellingham (Landcare Research, New Zealand). These authors present a concise account of almost all the important aspects of insular environments, using simple language without loss of scientific rigour. Nearly 150 figures including diagrams and photos (unfortunately most in black and white, while those in colour plates could have been printed in better quality) are inserted in the text, assisting the reader in capturing concepts, processes and visualising examples. The scope of the book might have merited a larger volume, but the authors aimed for a much shorter text, adopting a clever strategy that helps them keep the length within the readable limit of around 300 pages. Out of the thousands of insular systems around the globe, they select nine island groups that exhibit a good sample of crucial insular features. These groups exemplify all three categories of islands identified by biogeographers, namely oceanic, continental fragments and continental shelf islands, as well as a variety of geographical zones, from tropical to temperate, even subarctic. This way, the authors are able to examine a vast array of insular features with concrete examples from each island group. They also use the nine island groups to provide a vivid account of major causes of 'natural disturbances', such as volcanic activity, earthquakes, erosion, fire, floods and so forth, affecting different island systems at varying rates. Processes affecting the biota of islands, most importantly dispersal and extinction, are offered a chapter of their own, with a short discussion on general richness and endemicity patterns. Here again, selected examples are inserted in text boxes giving a solid form to abstract concepts.

Almost half of the book explores the role played by humans in changing the environment of islands, placed in a historical framework, from first human colonisation, through gradually intensified effects, up to the present day. The complexity of human interactions with insular environments is revealed through a balanced examination of the often contradictory effects of activities like tourism and agriculture. Sustainability comes up again as the holy grail of management and

conservation planning, and the authors are clear-cut in their final chapter about the future: 'the fate of island ecosystems rests in the hands of humans' (p.305).

This is definitely a book that can reach the lay reader, decision-makers and administrative bodies, offering a clear view of the major problems that need to be amended without delay. The professional ecologist and the island biogeographer also have much to gain from this compilation of data and examples, as well as from the firmly dynamic view of insular environments.

There are a few points that may raise some eyebrows though. The lack of citations in the text is one, although a list of selected reading is offered at the end of each chapter. The bias in favour of a historical time scale is another, but this can be ascribed to the need for prioritising the account of intensive human effects on islands. A more contentious point might be found in the selection of examples, which are not quite representative of the actual diversity and heterogeneity found within island types. Continental shelf islands, in particular, with all their variety in physical and historical characteristics, are exemplified by a single group, the British Isles, hardly the most typical example of its kind. This under-representation of continental shelf islands leads to a slightly distorted account of historical effects on island environments. Factors such as agriculture, grazing and fire have played quite variable roles on continental shelf islands of different geographical regions. A rich and relatively well-studied example is offered by the more than 10,000 Mediterranean islands, with a strong interest for both conservation and theoretical studies (Blondel et al. 2010). Furthermore, due to their recent isolation, biotic components of continental shelf islands are under the strong influence of oversaturation and relaxation processes, or source –sink dynamics, which may blur our perception of environmental change. The importance of oceanic islands, and to some degree also continental fragments, in understanding island environments and in the construction of general models (Whittaker et al. 2008) is beyond dispute, but the time has probably come for similar work on continental shelf islands too. The dynamics of constant change may be more complex there, rendering their study a tougher challenge.

These critical remarks do not intend to diminish the contribution of Walker and Bellingham to island ecology and biogeography. The authors have accomplished a great achievement, explaining such a broad range of concepts, processes, patterns and problems in an easy-to-follow text, keeping track of recent developments in the fields of island biogeography and conservation biology, in addition to global and local economics, history and culture. Their work will become standard suggested reading for students of islands in all respective fields. Books like this are valuable triggers for further work in our struggle to understand and wisely manage our natural environment, and can also help us establish the often elusive paradigm of nature in continuous flow. Islands will be our guide for many years to come.

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Spyros Sfenthourakis

Department of Biological Sciences, University of Cyprus.
sfendour@ucy.ac.cy

Edited by Markus Eichhorn

