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WHEN THE EARTH IS SHAKEN: Ecocide in the Islamic Tradition

Wietske Merison

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*He sees a black ant
on a black stone
in the black of night
still on His land
death you have sown
have you no fright?¹*

How many ants have you killed in your lifetime?¹ You don't know - of course not. Only God knows how many unfortunate creatures may have met

1. In this paper, poetry will be braided through the text to honor the longstanding Islamic tradition of using poetry as a means for education and conveying sacred ideas. Poetry is not widely regarded as a serious form of writing within the limits of academia, which is why I felt the need to explain my choice for this genre in this footnote. The poem is best read as a part of the text, only to be revisited in its entirety after reading the paper, as it contains its core message.

their end under the soles of our shoes because, unlike Solomon, we did not hear their cries. But how many ants have you intentionally killed? Out of boredom, out of frustration, out of a sense of the superiority of your comfort over their futile being. How many have you mindlessly rushed to crush? Five? Twenty? One hundred? You don't remember. Why would you, right? But what if we were to live in a world where even if you forget, the earth remembers every single one of those lifeless bodies returned to her soil? What if she were to use that knowledge to testify against us to seek justice for that senseless waste? In fact, what if those very bodies you deemed to be insignificant would one day be risen to hold you accountable for cutting their life short without justification?

In *Sūrah al-Zalzalah*, the ninety-ninth chapter of the Qur'an, humankind is told that the earth will one day be shaken. On that day, her Creator will inspire her to testify of all that has occurred and people will be faced with the consequences of their actions, however small they may have been. For "whoever does an atom's weight of good will see it and whoever does an atom's weight of evil will see it".² Interestingly, the Arabic word used in the Qur'an that is commonly translated as 'atom', *'dharrah'*, was used in pre-Islamic times to refer to a very small type of ant that could barely be seen with the naked eye.³

A well-known narration (*ḥadīth*) reports the Prophet Muhammad telling the story of one of the earlier prophets who was bitten by an ant. As a result of the painful bite, this prophet ordered for the colony of ants to be destroyed, to which God revealed: "One ant has bitten you and you destroy one of the nations that praise God?"⁴ Ants are not so futile as they may appear to some of us at first glance. In addition to the important roles ants play in our environment, such as aerating the soil and controlling pest populations,⁵ the Qur'an teaches us that they are in a continuous state of worship of their Creator:

Have you not seen that unto God glorifies whosoever is in the heavens and the earth, and the birds with wings outspread (in their flight)? Each one knows its own (mode of) prayer and praise. And God is Aware of what they do. And unto God belongs the dominion of the heavens and the earth, and unto God is the ultimate return (of all). (Qur'an 24:41)

It's not just the ants. As can be seen from this verse, the Qur'an recognizes all of nature as a conscious, spiritual entity. It does so, except for the fact that the modern, abstract term 'nature' does not actually occur in the Qur'an. Instead, the Qur'an speaks of 'creation' (*khalq*) including both human and

2. Qur'an 99:7–8.

3. See e.g. Ibn Manẓūr's *Lisān al-ʿArab*. I personally first learned about this fact in Dr. Khaled Abou El Fadl's commentary on Surah al-Zalzalah as a part of the Usuli Institute's Project Illumine.

4. Ṣaḥīḥ al-Bukhārī 3019, Ṣaḥīḥ Muslim 2241.

5. Benckiser, G. (2010). "Ants and Sustainable Agriculture: A review." *Agronomy for Sustainable Development*, 30(2), 191–199.

non-human beings, or it refers to specific parts of creation, such as the sun, the moon, the earth, bees, humans, and - you guessed it - ants.⁶ The separation of creation with human beings on the one side and 'nature' on the other is not rooted in the Qur'an, but I suspect rather originates in the process of urbanization.⁷

The Qur'an teaches humankind that God created a natural balance (*mizān*) in all of creation.⁸ God created all on a carefully calculated measure that we ought not transgress - the natural order. Since Qur'anically, there is no division between the sphere of humans and the rest of creation, this balance potentially relates to all aspects of our earthly existence: from spirituality to waste, from biodiversity to marriage, and from emotions to ecosystems. Whereas most of creation naturally and instinctively aligns with the natural order,⁹ human beings hold a special position in the Islamic worldview. They are the ones who accepted 'the trust' (*al-amānah*).

Indeed, We offered the trust to the heavens and the earth and the mountains, but they (all) declined to bear it, being fearful of it. But humanity assumed it, (for) they are truly wrongful (to themselves) and ignorant (of the consequences).
(Qur'an 33:72)

Human beings accepted the trust, meaning that as the trustees of God they are burdened and blessed with the responsibility to uphold justice and conserve the natural balance in creation. They are burdened and blessed with a free will to choose either for or against God, to choose either to uphold the natural balance, or to transgress it.

The mountains refused, as did the heavens and the earth. Why? Perhaps their fear testified of a wisdom beyond our reach. Perhaps they understood the risks. A famous saying tells us that human beings at their best are like angels, but at their worst are like demons. Perhaps the mountains did not want to risk

6. Khalid Abou El Fadel, Islam and the Environment, *Encyclopedia of Global Environmental Change*, 5(1), 332–339.

7. It is my insufficiently developed theory that the separation of creation between 'culture' and 'nature' as found in many cultures today mainly consolidated during the process of urbanization. Of course, even before that, it finds its origin in the first agricultural practices of humankind and the 'culturing' of land. As larger urban spaces were created and urban ecosystems were formed, or rather evolved, human beings started to label these spaces as other than nature: culture. These spaces were 'created' by human beings and distinctly separate from the untouched or only slightly moderated wilderness beyond the city walls. Though human beings never seized to breathe air, drink water, and eat the fruits of the earth - at this moment I propose they started to see themselves as separate from the rest of creation and to see their buildings, though built by and from nature, as separate from it. Of course, urbanization is a process with a great diversity of practicalities and consequences depending on the contexts of the development, as there is also a great diversity in views of the relationship between humanity and nature.

8. Qur'an 55:7–9.

9. E.g. Qur'an 55:6.

their remembrance of God ever falling silent, as our remembrance often does, to the extent that it is unclear whether remembrance or ignorance is the natural state of humankind.

The role of the trustee is often linked to the role of the steward (*khali-fah*). The Qur'an speaks of the moment at which God announces the creation of humankind to the angels:

'Remember' when your Lord said to the angels, "I am going to place a steward (khalifah) on earth." They asked (God), "Will You place in it someone who will spread corruption there and shed blood while we glorify Your praises and proclaim Your holiness?" God responded, "I know what you do not know." (Qur'an 2:30)

The idea of humanity as God's stewards on earth is commonly used to justify the superiority of humankind over the rest of creation. However, one could argue that this is an interpretation that testifies of bad stewardship and little awareness. The position of the steward and the trustee is a unique position, but this does not necessarily connote superiority. In Sara Tlili's monumental work *Animals in the Qur'an* she proposes a non-speciesist reading of the Qur'an. That is, a reading that is not influenced by the presupposition that human beings are superior to the rest of creation. She argues that it is undeniable that humanity has a unique position and has been highly favored by God, but states that "the equation of this favour with superiority is an unsustainable leap, especially when the Qur'an itself resists precisely this conclusion and repeatedly emphasizes that God's favors in this life are not necessarily indicative of His preference to their recipients".¹⁰

The aforementioned Qur'anic verse on the creation of human beings as stewards on earth does not paint a pretty picture of the stewards. The angels ask God why He would place a steward that would spread corruption there and shed blood. God answers that he knows what the angels do not know. God only knows why humanity was granted the unique position and responsibility of the trustees and stewards of God. What is also knowable for us, however, is what this responsibility entails. It has been richly explored, debated and expressed in the Islamic legal tradition.

This paper aims to explore what this responsibility entails with regard to the conservation of the natural balance and the protection of non-human and non-human-made aspects of creation: the natural environment. In doing so, it will explore the possible common ground between the Islamic perspectives and the contemporary call for an international prohibition of the destruction of the natural environment, also known as the call for the prohibition of *ecocide*. In order to get a clear view of the definition of *ecocide* and to limit and frame the dive into the Islamic tradition, I will first explore the contemporary call for

10. Sarra Tlili, *Animals in the Qur'an*, Cambridge: Cambridge University Press, 11, (2012).

ecocide law. Then I will revisit the Islamic tradition with a specific focus on historical and contemporary Islamic discourses and practices on ecocide.

*some take a stand
in dark, alone
they reach for light*

I. THE CRIME OF ECOCIDE

In 1970 the American plant physiologist and bioethicist Arthur W. Galston was the first to characterize massive damage and destruction of ecosystems as ‘ecocide’ and call for an international agreement to ban it.¹¹ His contribution was an environmental milestone in a society of Western anthropocentric materialism. He first used the term ecocide specifically to describe the ecological destruction of Vietnam by the U.S. military, which he likened to the Holocaust. “The difference, between the two catastrophes is that in Nazi Germany, only the human society and the human ecosystem were attacked and a “human holocaust” took place, while in Vietnam, the natural society and plant-animal ecosystems were also destroyed.”¹² Galston argued that these ‘ecological holocausts’, which he termed ‘ecocide’ as opposed to ‘genocide’, must be criminalized under international law as a crime against humanity.

Ecocide at this point had no clear definition, yet in 1972 John Fried wrote that although ‘ecocide’ was not yet legally defined, “its essential meaning is well-understood; it denotes various measures of devastation and destruction which have in common that they aim at damaging or destroying the ecology of geographic areas to the detriment of human life, animal life and plant life.”¹³ Richard Falk drafted an Ecocide Convention in 1973 which recognized ecocide as a crime under international law both in time of peace and war, regardless of whether the damage is consciously or unconsciously afflicted.¹⁴ In 1993 ecocide was listed as a Crime Against Peace in the draft *Code of Crimes Against the Peace and Security of Mankind*, which was the precursor to the Rome Statute of the International Criminal Court. The inclusion of ecocide in the draft came with overwhelming support: only the Netherlands, The United Kingdom and the United States of America disputed its inclusion. However, in 1995 the ILC excluded ecocide and in the end, the 1998 Rome Statute did not include

11. Shamloo, B., & Gholipour, G. (2022). Galston’s Legal Legacy: Re-reading the Birth Process of the Concept of Ecocide. *Criminal Law Research*, 13(1), 225–254.

12. *Ibid.*

13. Fried, J.H.E. (1972). “War by Ecocide”. In: Thee, M. (ed.) (1973). *Bulletin of Peace Proposals*. Volume 1. Oslo: Universitetsforlaget.

14. Falk, R. A. (1973). “Environmental Warfare and Ecocide – Facts, Appraisal, and Proposals”. In: Thee, M. (ed.) (1973). *Bulletin of Peace Proposals*. Volume 1. Oslo: Universitetsforlaget.

ecocide.¹⁵ It is unclear why the crime of ecocide was not included in sight of the overwhelming support. Gauger et al. state that “the proposal was unilaterally removed overnight without record of why this occurred.”¹⁶ The thought that it could be related to the clear connection between the term ‘ecocide’ and the atrocities in Vietnam may enter a reasonable mind.

In the absence of action on an international level, many States have developed national laws prohibiting ecocide. The first of which was, unsurprisingly, Vietnam in 1990.¹⁷ The Soviet Union followed soon after Vietnam.¹⁸ After its collapse, many of the newly formed States also adopted national ecocide laws.¹⁹ Three Muslim-majority countries have adopted domestic law prohibiting ecocide: Kazakhstan,²⁰ Kyrgyzstan,²¹ and Tajikistan.²²

In November 2020 the Independent Expert Panel for the Legal Definition of Ecocide was launched in an attempt to revive the efforts to bring ecocide into the Rome Statute. In June 2021, the panel drafted a new definition of ecocide, which will be the leading definition used in this paper:

*For the purpose of this Statute, “ecocide” means unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts.*²³

The panel defines “wanton” as “with reckless disregard for damage which would be clearly excessive in relation to the social and economic benefits anticipated”.²⁴ The “environment” is furthermore defined to include “the earth, its biosphere, cryosphere, lithosphere, hydrosphere, and atmosphere, as well as outer space”.²⁵

These efforts for the criminalization of ecocide that have occurred ever since the seventies have been impactful in the contemporary international discourse on ecocide. However, to start the timeline of the condemnation of the

15. Gauger, A., Rabatel-Fernel, M. P., Kulbicki, L., Short, D., & Higgins, P. (2012). “Ecocide is the missing 5th Crime Against Peace.” *The Ecocide Project, Human Rights Consortium, School of Advanced Study, University of London*.

16. *Ibid.*

17. Penal Code Vietnam (1990): Art 278.

18. Criminal Code Russian Federation (1996): Art 358.

19. Criminal Code of the Republic of Armenia (2003): Art 394; Criminal Code Belarus (1999): Art 131; Penal Code Republic of Moldova (2002): Art 136; Criminal Code of Ukraine (2001): Art 441; Criminal Code of Georgia (1999): Art 409.

20. Penal Code Kazakhstan (1997): Art. 161.

21. Criminal Code Kyrgyzstan (1997): Art 374.

22. Criminal Code Tajikistan (1998): Art 400.

23. Independent Expert Panel for the Legal Definition of Ecocide, *Commentary and Core Text* (2021), available at <https://static1.squarespace.com/static/5ca2608ab914493c64ef1f6d/t/60d7479cf8e7e5461534dd07/1624721314430/SE+Foundation+Commentary+and+core+text+revised+%281%29.pdf>.

24. *Ibid.*

25. *Ibid.*

destruction of the natural environment at Galston is as ignorant and problematic as starting the history of North America in 1492. Many moral and legal traditions have historically condemned and banned the destruction of the natural environment, of which the Islamic tradition is a prime example.

*they understand
they do not own
harm as their right*

II. ISLAMIC DISCOURSES, PRINCIPLES, AND PRACTICES

The Islamic tradition is vast. There is no way this paper can do justice to its richness and diversity. Instead of claiming to be complete and as such diminishing the ocean to a drop, I prefer to focus on a few aspects of the Islamic tradition that relate to ecocide, without feigning that these aspects represent the entirety of the tradition. In short, though this section captures some core aspects of the Islamic tradition as it relates to ecocide, there is much more out there, and it's not just more of the same.

This part of the paper is split into five sections: Qur'an, Hadith, Legal Principles, Philosophy, and Contemporary Developments. Although the contemporary developments also build on and fit into multiple of the other sections, I have decided to include them as a separate section in order to highlight the fact that the Islamic tradition is a living and evolving tradition, and its study is not just a historical exercise. Furthermore, Islamic spirituality is not included as a separate section, because spirituality is at the heart of all sections.

A. Qur'an

A friend of mine once told me that when he is asked which of the verses of the Qur'an deal with the environment, he usually smiles and answers: "Which ones do not?" An analysis of all the many different environmental readings of the Qur'an is both beyond the scope of this paper and beyond my capability. Instead, in this section, I attempt to share a sufficient Qur'anic foundation that would lead any reasonable person to say: I can see how ecocide is not in line with the Qur'an.

Perhaps this task would already be achieved by simply sharing one verse:

And the (true) servants of the Most Compassionate are those who tread upon the earth lightly [hawnan] (Qur'an, 25:63)

What does it look like to be amongst those who tread upon the earth lightly? Other translations of the word 'hawnan' include humbly and lowly. Perhaps it is easier to define by opposite and ask ourselves the question: what does it not look like?

Does disrupting the natural balance look like treading upon the earth lightly? Does human-caused deforestation and desertification look like treading

upon the earth lightly? Does human-caused loss of biodiversity and pollution look like treading upon the earth lightly? I hope most would agree that that reminds rather of different verses in the Qur'an:

Do not spread corruption on earth after it has been set in order. (Qur'an 7:56).

Corruption has spread on land and sea as a result of what people's hands have done, so that God may cause them to taste (the consequences of) some of their deeds and perhaps they might return (to the Right Path) (Qur'an 30:41)

And when they leave (you), they strive on earth to spread corruption on it and destroy crops and cattle. God does not like corruption. (Qur'an 2:205)

This last verse even explicitly mentions the destroying of crops and cattle as a form of spreading corruption on earth, thus carrying the definition of 'corruption' beyond the scope of human-to-human relations. In relation to this and the earlier verse 2:195,²⁶ al-Qaradhawi proposes that humanity has a responsibility and obligation to show goodness (*ihsān*) towards all of its environment, human and non-human.²⁷

Of course, the concepts of the natural balance (*mizān*), the trust (*amānah*), and stewardship (*khalīfah*) and their related Qur'anic verses that were discussed in the introduction of this paper are also highly relevant for the exploring of a Qur'anic basis for the prohibition of ecocide. However, the verses prohibiting corruption and encouraging 'treading upon the earth lightly' should *an sich* already form a base strong enough for anyone who seriously considers the Qur'an as a moral guide to feel very uncomfortable about the idea of ecocide.

B. Hadith

There is one narration from the Prophet Muhammad that sets apart the Islamic approach to the environment from much of secular environmentalism. The Prophet saw a man named Said performing the ritual purification (*wuḍū'*) using an excessive amount of water. He approached the man and said, "What is this extravagance, Said?", to which Said responded: "Can there be such a thing as extravagance in ritual purification?" The Prophet answered: "Yes, even if you are on the bank of a flowing river."²⁸

For the Prophet, not even the intention to perform a religious ritual was a justification for using any more water than is strictly necessary. There are many other excessive, environmentally harmful religious practices we may link to this narration, to show how even today this message would be seen as strongly environmental. One may think for example of excessive slaughter to commemorate the story of the Prophets Abraham and Ishmael. Or of the enormous amounts

26. "Spend in the cause of God and do not let your own hands throw you into destruction (by withholding). And do good, for God certainly loves the good-doers." (Qur'an 2:195).

27. al-Qaradhawi, Y. (2001). *Ri'ayah al-Biah fi Shari'ah al-Islam*. Cairo: Dar al-Shuruq.

28. Sunan Ibn Mājah (419) Musnad Aḥmad ibn Ḥanbal (6768).

of plastic waste generated by handing out plastic water bottles and even plastic-wrapped dates for Ramadan. Said's response, questioning whether there is ever such a thing as extravagance when the intention is to perform an act of worship, may still be heard today with regard to these forms of ritual wastefulness. The Prophet's answer clearly indicates that even religious acts are not exempt from regular standards of morality and moderation.

But this is not what sets Islamic approaches to the environment apart from many forms of secular environmentalism. What sets it apart is the fact that the Prophet does not call for moderation because the water is scarce. The Prophet calls for moderation even in abundance - even on the bank of a flowing river. This points to the value of moderation *an sich*, and as such, to the value of water *an sich*. Creation does not suddenly become valuable because it is threatened, creation is valuable because God created it. Even if there are plentiful resources, the Prophet teaches humanity to use only the necessary, because we are a people of the middle way,²⁹ not a people who tread upon the earth arrogantly.³⁰

How does this relate to ecocide? I can hardly think of any form of ecocide that has not been caused by human extravagance and failure to recognize the intrinsic value of creation. How many animals have been threatened with extinction because we liked the extravagance of their beautiful furs or tusks, even though God gave us wool and rocks? We had horses, we needed cars. We had cars, we needed airplanes. We had airplanes, we needed spaceships. Progress can be good and even beautiful, but we must honestly ask ourselves whether we can justify the costs. Whether we are striving for a better world, or for a more extravagant life for ourselves at the cost of others, and ultimately ourselves.

*wasting was banned
force overthrown
even in fight*

C. Legal Principles

Certain of the principles of *fiqh*, the field of the interpretation and practical application of Islamic law, relate to the crime of ecocide and may be seen as a foundation for its prohibition under Islamic law. The most important of all is the principle that all harmful things must be abolished (*al-dararu yuzāl*). Certain jurists, such as Ibn al-Athir (630 AH/1233 CE) in his *al-Nihāyah*, have defined this legal maxim only as it applies in human-to-human relations, stating that it refers to a person not harming another person, so as to reduce their rights.³¹ However, as will be the focus of the final part of this paper, harm to human beings and harm to the non-human aspects of creation are often intertwined.

29. Qur'an 2:143; 17:27.

30. Qur'an 17:37.

31. Ibn Athir, *al-Nihayah fi Garib al-Hadith wa al-Athar*.

Therefore, even if one were to limit this principle to refer to human-to-human relations alone, which is not necessarily the only or best interpretation, it is still relevant for a discussion on ecocide.

The principle that all harmful things must be abolished goes hand in hand with the legal maxim that a harmful thing cannot be substituted for another harmful thing (*Al-ḍararu la yuzālu bil-ḍarar*). In other words, as relating to ecocide, this legal maxim could be taken to mean that ecocide cannot be used as a means to counter or stop other harms, such as the use of toxic leaded gasoline, causing various health and environmental problems, to eliminate the harm of engine knocking.

Two other relevant maxims are the principle that the prevention of harm caused by an unlawful deed takes precedence over the pursuit of public benefits (*dar' ul-mifāsīd muqaddamun 'ala jalb il-miṣāliḥ*) and the principle that public policies ought to be for the public good (*taṣarruf ul-imāmi 'ala al-ra'iyati manūṭun fil-maṣlahah*). These principles relate to ecocide for example as one looks at the use of certain highly toxic pesticides that cause mass extinction. Their use was long justified by pointing at the benefits they brought: less crops were lost to pests and human beings were better protected against diseases spread by insects. However, according to Islamic principles, the prevention of the harm caused by the use of pesticides should have taken precedence over the pursuit of these benefits. And in the end, it turned out the interests of people, the public good, and the interests of the natural environment were in fact aligned. More on this also in the last part of this paper, as we explore the interconnectedness of harms to humanity and harms to nature.

Let me give a specific example of a way in which these maxims practically resulted in legislation protecting the natural environment. In armed conflict, Islamic law prohibits the destruction of the natural environment and harvests as well as the mutilation of animals and their killing, except for food.³² Abu Bakr, the first Caliph, instructed his troops “do not cut down fruit-bearing trees; do not burn down palm trees and do not slaughter a sheep or camel except for food.”³³ Comparatively, only in 1977 was the destruction of the natural environment recognized as a war crime in the international humanitarian regime, through the adoption of the first Additional Protocol to the Geneva Conventions (Art. 55).

Once again, although there are many relevant opinions that may be discussed and more specific legal constructions like the *hīma* system, the *harīm* system, *awqāf and hisbah*, these principles of *fiqh* provide enough basis to clearly see that ecocide is not in line with Islamic morality and law. The way in which ecocide may provide a threat to the objectives of Islamic law (*maqāṣid*

32. Malekian, F. (2011). *Principles of Islamic International Criminal Law: A Comparative Study*. Brill.

33. Al-Dawoody, A. (2017), “Islamic Law and International Humanitarian Law: An Introduction to the Main Principles,” *International Review of the Red Cross* 99, no. 3.

al-sharī‘a) as defined by al-Ghazali will be further discussed in the last part of this paper.

D. Philosophy

Discussions on the rights of nature, specifically the rights of animals, have also found their way into philosophical explorations. Most importantly here I should mention the epistle of the Brethren of Purity (*Ikhwān al-Safā*) titled *The Case of the Animals versus Man before the King of the Jinn*.³⁴ The Brethren were a secret society of Muslim philosophers in Basra, Iraq, during the 10th century CE. In this epistle, written in the genre of a fable, animals work together to charge humanity with oppression and seek freedom from their slavery. Several representatives from the animals speak of the injustice and harm caused to them by humanity. The ox, for example, testifies: “Had you seen us, your Majesty, as prisoners in the hands of the Adamites, yoked or bound to a water wheel or mill, with muzzles to our face and blinders on our eyes, as they beat us with sticks and clubs about the face and flanks, you would have pitied us and shed tears. Where, then, is their mercy? Where is the compassion they speak of?”³⁵

The animals call out the lack of compassion and mercy with which humanity treats the natural world. Through assigning virtual subjecthood to the animals, as the translators note, “the fable breaks the barrier of their inarticulacy and gives voice to their desires and hurts.”³⁶ In various layers of the text the animals are presented as more well-mannered and wise than human beings, for example in their awareness of the importance of consultation (*shūrā*) and their respect for diversity and ability to collaborate and organize.³⁷ Yet, in the end, humanity wins the case. One of the animals expressed a fear that humanity would win: “Considering that humans are more eloquent and articulate than we are, I fear the case might go against us and favour them when the arguments are heard”.³⁸ However, this is not necessarily to be interpreted as a denial of animal rights, or a denial of the abuse. Instead, the victory of humanity may also be seen as a confirmation of the continuity of these practices as justified by eloquent arguments of superiority, cleverly employed to cover a more egalitarian truth, in the same way that other injustices and perceived superiorities in this world are covered up by lofty rhetoric. Either way, the epistle is monumental in the sense that it lets nature, in this case specifically animals, use Islamic sources to argue against the maltreatment it suffers from humanity and attempt to claim the rights it believes to be granted by

34. The Brethren of Purity. *The Case of the Animals Versus Man Before the King of the Jin*. (Trans.) Goodman, L. E. & Mc.Gregor, R. (2009). New York: Oxford University Press.

35. *Id.* at 117.

36. *Id.* at 117, footnote 63.

37. *Id.* at 149–150.

38. *Id.* at 149.

the Islamic sources. As such, as noted by Katharine Loevy, “the fable achieves its performative critique of institutionally driven acts of abuse and injustice”.³⁹

E. Contemporary Developments

In 1973, as the public concern about climate change was still in its infancy, Seyyid Hossein Nasr blamed the human destruction of the natural environment on the “destruction of harmony between man and God”.⁴⁰ In his groundbreaking *Man and Nature*, he claims that the environmental crisis is, at the heart, a spiritual crisis. He points at the European Renaissance, the Scientific Revolution, and the process of the desacralization of the cosmos as causes for this disrupted relationship between nature and humanity, and equally so between humanity and God.⁴¹ He brought the Islamic tradition, and in fact spirituality, into a space that was dominated by empirical science and engineering. In line with his presented worldview, we ought to explore ecocide as not only an environmental problem, but also a deep spiritual flaw, pointing at a wounded relationship between humanity and its Creator that ought to be a concern for every Muslim.

Nasr’s philosophical exploration found resonance amongst environmentally concerned Muslims. Since then, several Islamic reflections on sustainability and the environment have been written for the general Muslim public, of which *Green Deen* by Ibrahim Abdul-Matin has been the most influential.⁴² Islamic environmentalist movements sprouted throughout the world as a small group of Muslims became more vocal in denouncing the human destruction of the environment.⁴³ Slowly, a sense of urgency and responsibility also began to creep into bigger Islamic spaces and institutions. As a result of the 2015 International Islamic Climate Change Symposium the Islamic Declaration on Global Climate Change was launched. The Symposium was hosted by the Organisation of Islamic Cooperation, the Islamic World Educational, Scientific and Cultural Organization IWESCO), and the International Islamic Fiqh Academy and co-organized by Islamic Relief, the Islamic Foundation for Ecology and Environmental Science (IFEES) and supported by the Climate Action Network. The text was drafted by well-known scholars in the field of Islam and the environment, including Fazlun Khalid, Dr. Fachruddin Magunjaya, Dr. Ibrahim Ozdemir, and Dr. Azizan Baharuddin.

39. Loevy, K., “Literary Resistance to the Philosophy of Slavery: Al Farabi and the Ikhwan Al-Safa’,” *Philosophy and Literature* 44(2): 237, 254.

40. Nasr, S. H. (1973). *Man And Nature: The Spiritual Crisis of Modern Man* (Chicago: Kazi Publications) 20.

41. *Ibid.*

42. Abdul-Matin, I., *Green Deen: What Islam Teaches about Protecting the Planet* (Oakland: Berrett-Koehler Publishers, 2010).

43. See also, Wisdom in Nature (WIN) and Green Deen Tribe in the UK, Green Muslims in the US, Climate Change, Agriculture and Food Security (CGIAR) in East and West Africa and South Asia, Permaculteurs Musulmans in France, and Groene Moslims in the Netherlands.

The declaration starts off with a preamble affirming that God has “created the universe in all its diversity, richness and vitality: the stars, the sun and moon, the earth and all its communities of living beings”,⁴⁴ and that all of this reflects and manifests “the boundless glory and mercy of their Creator”.⁴⁵ The preamble gives a brief summary of the history of the problem of climate change and its attempted solutions, after which the declaration starts, declaring that “the present climate change catastrophe is a result of the human disruption of [the] balance [*mizān*]”.⁴⁶ The declaration recognizes “the corruption (*fasād*) that humans have caused on Earth in our relentless pursuit of economic growth and consumption” which has resulted in several forms of ecocide, including “global climate change”, “contamination and befoulment of the atmosphere”, “soil erosion, deforestation and desertification”, “destruction, degradation, and fragmentation of the habitats of the earth’s communities of life” and “damage to human health, including a host of modern-day diseases”.⁴⁷ Then, human accountability for these actions is established, on the basis of surah al-Zalzalah,⁴⁸ and the leading example of the Prophet Muhammad.⁴⁹

The declaration then calls particularly the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) and the Meeting of the Parties (MOP) to the Kyoto Protocol to develop an international framework in line with the Islamic responsibilities. It also especially calls out well-off nations and oil-producing states to play their part in the fight against the climate crisis. It lastly calls upon all Muslims, in positions ranging from heads of state to businesspeople and from religious leaders to activists, “to tackle habits, mindsets, and the root causes of climate change, environmental degradation, and the loss of biodiversity in their particular spheres of influence following the example of the Prophet Muhammad (peace and blessings be upon him), and bring about a resolution to the challenges that now face us”.⁵⁰

A declaration like this may have quite some political and social impact, but legally speaking it does not carry a lot of weight. This is not to say that there have not been more impactful contemporary developments within the field of Islamic law and the environment. Several contemporary Islamic legal institutions have issued legal opinions (*fatāwā*, sing. *fatwā*) explicitly prohibiting ecocide. The Indonesian Council of Ulama (MUI - *Majelis Ulama Indonesia*), which is the highest authority on Islamic law in Indonesia, has played a primary

44. Islamic Foundation for Ecology and Environmental Science (IFEES), *Islamic Declaration on Global Climate Change*, Art. 1.1 (2015).

45. *Ibid.*

46. *Id.* at Art 2.3.

47. *Id.* at Art 2.5.

48. *Id.* at Art 2.7.

49. *Id.* at Art 2.8.

50. *Id.* at Art 3.6.

role in this regard.⁵¹ It has issued several legal opinions declaring destructive mining operations,⁵² the killing of endangered animal species,⁵³ and the burning of forests⁵⁴ (e.g. for agricultural practices) strictly prohibited (*ḥarām*).

Recently, also Egypt's Dar al-Ifta announced the issuing of a number of legal opinions specifically prohibiting various environmentally harmful practices, labeled 'The Fatwa Charter for Combating Climate Change'. The Charter will contain opinions prohibiting the excessive consumption of energy, the misuse of agricultural land, the dumping of hazardous waste, and the irresponsible use of pesticides and compound chemicals.⁵⁵ As a prime example of the close interaction between law and politics, the Charter was announced within the larger context of Egypt hosting COP27. The fact that the Charter by many media outlets was incorrectly labeled as the 'first eco-friendly fatwa' shows the extent to which (1) Islamic developments in Muslim countries outside of the Middle East are not taken seriously and (2) there is a blatant disregard for the many environmental practices and discourses within the broader and historic Islamic tradition.⁵⁶

*the reprimand
is to your own
have you no sight?*

III. THE RIGHTS OF NATURE AND THE RIGHTS OF HUMANITY

This paper started off with the question how many ants you have killed in your lifetime. Perhaps now the time is ripe to introduce a second question: how many people have we killed through the killing of ants?

Although human beings have a unique talent for exceptionalism and convincing ourselves that we are separate from the rest of creation, we are far from that. "And We created from water every living thing", the Qur'an proclaims. More than half of what we are, physically speaking, is water.⁵⁷ More than half of

51. Mark E Cammack & R Michael Feener, "The Islamic Legal System in Indonesia," *Pacific Rim Law & Policy Journal* 21, no. 1 (2012): 13–42.

52. The Indonesian Council of Ulama, *Fatwa on Environmentally Friendly Mining*, Fatwa No. 22/2011 (2011).

53. The Indonesian Council of Ulama, *Fatwa on Protection of Endangered Species*, Fatwa No. 04/2014 (2014).

54. The Indonesian Council of Ulama, *Fatwa on the Burning of Forests and Land and the Control Thereof*, Fatwa No. 30/2016 (2016).

55. Aman, A., "First Climate-Related Fatwa Prohibiting Environmentally Harmful Practices Issued in Egypt," *Al-Monitor* (October 26, 2022).

56. Aman, A., "First Climate-Related Fatwa Prohibiting Environmentally Harmful Practices Issued in Egypt," *Al-Monitor* (October 26, 2022). Shahid, W., "First Eco-Friendly Fatwa Declares All Activities that Harm Climate Prohibited (Haram)," *The Islamic Information* (October 26, 2022).

57. Watson, P. E., Watson, I.D., Batt, R.D., "Total Body Water Volumes for Adult Males and Females Estimated from Simple Anthropometric Measurements". 33 *Am. J. Clin. Nutr*

our physical body is equal in nature to rivers, oceans, lakes, and also to more than half of the physicality of trees (50 percent water),⁵⁸ dogs (60 percent water),⁵⁹ and ants (75 percent water).⁶⁰ Naturally then, when we pollute water, we pollute all life on earth. When we pollute water, we pollute ourselves.

And not just water. All of creation sustains us, feeds us, houses us, gives us the air we need to breathe and the sunlight we need to survive. When we talk about preserving nature, we are truly talking about preserving all of creation, including ourselves. We are not doing some favor to some abstract thing for the sake of God. We are actively protecting human life, our religion, our intellect, our offspring, and our property. The reader with knowledge of the field of Islamic law will have recognized these five things worthy of protection as the objectives of Islamic law (*maqāṣid al-sharīʿa*) as defined by al-Ghazali (d. 505 AH/1111 CE). Al-Ghazali argued that the general purpose of Divine law is well-being (*maṣlahah*), which is more specifically channeled through the preservation of five things that he saw as essential to human well-being: religion, life, intellect, offspring, and property.⁶¹ In this final part of the paper we will explore how ecocide poses a threat to all of these objectives. I will attempt to illustrate this on the basis of two contemporary and widespread examples of ecocide: lead poisoning and pollution caused by toxic pesticides, specifically DDT. Also, reference will be made to a brutal example of ecocide in recent history: the mass slaughter that led to the near extinction of bison in North America. Through these examples, it will become evident how the rights of nature and the rights of humanity are inseparably intertwined, as a part of the same creation. Al-Ghazali deliberately ordered the five necessities of human well-being in order of importance,⁶² and as such, I will stick to this order in my discussion.

27–39 (1980) (noting that the average adult female body consists of 55 percent water as compared to the average adult male body consisting of 60 percent water).

58. Ralls, E. (2016). “Trees Play a Surprising Role in the Water Cycle”. *Earth.com*.

59. DiBartola, S., Wellman, M., Kohn, C. (2006). “Applied Physiology of Body Fluids”. In: DiBartola, S. (ed.) *Fluid, Electrolyte and Acid-Base Disorders in Small Animal Practice*, 3rd ed. St. Louis, MO: Saunders Elsevier. 3–26.

60. Sigal, M. D., & Arlian, L. G. (1982). Water Balance of the Social Insect Formica Exsectoides (Hymenoptera: Formicidae) and Its Ecological Implications. *Physiological Zoology*, 55(4), 355–366.

61. Al-Ghazali - *Al-Mustaṣfa min ʿIlm al-Uṣūl*.

Note: Al-Ghazali’s goals are widely influential and supported. Still, other scholars, both historically and in our modern age, have joined the conversation and defined other objectives of Divine Law. These different objectives are often still based on the overall goal of well-being, and include objectives such as the protection of human rights, justice, freedom and human dignity. See e.g. Duderija, A. (2014). “Contemporary Muslim Reformist Thought and Maqāṣid cum Maṣlahah Approaches to Islamic Law: An Introduction.” In: *Maqasid al-Shariʿa and Contemporary Reformist Muslim Thought: An Examination*. New York: Palgrave Macmillan: 1–11.

62. These necessities (ḍarūrāt) were first developed by al-Juwaini (d. 478 AH/1085 CE) and later ordered by al-Ghazali, who was his student.

A. The Protection of Religion

Rachel Carson started her classic work *Silent Spring* by describing an idyllic town in the heart of North America, where “in spring, white clouds of bloom drifted above the green fields”, and where “even in the winter the roadsides were places of beauty, where countless birds came to feed on the berries and on the seed heads of the dried weeds rising above the snow”.⁶³ She described how then, suddenly, “a strange blight crept over the area and everything began to change”.⁶⁴ Chickens fell ill, cattle died, many of the people of the town got sick, and several children died. The town was struck by an inexplicable silence. The birds that once in abundant numbers shared their many different songs had fallen still.⁶⁵

Although the town described by Carson was a fictional town, all the misfortunes mentioned in her fable had at the time of her writing in 1962 actually been reported in different towns around the United States. This led her to ask the question “What has already silenced the voices of spring in countless towns in America?”,⁶⁶ to which the rest of *Silent Spring* gave an answer: DDT.

Dichloro Diphenyl Trichloroethane, more commonly known as DDT, is a pesticide that was commonly used in the period from the Second World War until the 1970s and is still sporadically used in the fight against malaria. Paul Hermann Müller, who discovered the effectiveness of DDT as a pesticide, was awarded the 1948 Nobel Prize in Physiology or Medicine for his discovery.⁶⁷ During the Second World War DDT was used to limit the spread of malaria and typhus and to ensure maximum crop yields. “DDT is of great importance to all of us, both in helping to win the war and improving the country’s health after the war is over”, thus spoke Brigadier General James Stevens Simmons.⁶⁸

After the Second World War DDT became available for public use as an agricultural and household pesticide. At the same time, through human traveling, an invasive species of ants found its way to the fields of the South of the U.S.: fire ants. DDT was heavily employed in an attempt to irradiate the fire ants. Miraculously, it did little to eliminate the ants. But it somehow killed all other animals indiscriminately.⁶⁹ Next to DDT other even more toxic chemicals (dieldrin and heptachlor) were used as the U.S. Department of Agriculture grew

63. Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin, 1962), 2.

64. *Ibid.*

65. *Ibid.*

66. Carson, *supra* note 63, at 3.

67. “The Nobel Prize in Physiology of Medicine 1948”. Nobel Prize Outreach AB. Archived from the original on May 23, 2020. Available at: <https://www.nobelprize.org/prizes/medicine/1948/summary>.

68. Simmons, J. S. (6 January 1945). “How Magic is DDT?”. *Saturday Evening Post* 217: 18ff.

69. Daniel, Philip. “A Rogue Bureaucracy: The USDA Fire Ant Campaign of the Late 1950s.” *Agricultural History* 64, no. 2 (1990): 99–114.

desperate. One report of a study in Alabama reveals that after spraying fields to eradicate fire ants, 1573 birds were found dead.⁷⁰ An article published in 1960 refers to shockingly high numbers of various birds found dead containing DDT. And as the DDT contaminated the rivers, fish washed up dead as well, containing DDT.⁷¹ “Some streams already have been polluted with pesticides, and DDT has been found at the mouths of even the largest rivers, including the Mississippi and the Columbia.”⁷²

But how does any of this relate to the protection of religion? It is a well-known and widespread Islamic notion that God’s revelation is not limited to only the written Qur’an. Next to this Qur’an that we now know in its written form with 114 chapters (*suwar*, sing. *sūrah*), there is another Qur’an that we regard as the Word of God: the Qur’an of creation.

All it takes, when He wills something ‘to be’, is simply to say to it: “Be!” And it is! So glory be to the One in Whose Hands is the authority over all things, and to Whom (alone) you will (all) be returned. (Quran 36:82–83)

The Islamic tradition teaches that God has spoken creation into existence. God has carefully created every leaf on every tree, and every wrinkle on your skin, all in Wisdom. The verses of the written Qur’an are referred to with the Arabic word ‘āyah’ (plural: āyāt). This word also carries the meaning of ‘sign’, ‘miracle’, or ‘evidence’. The Qur’an instructs believers to not only read and reflect upon the verses of the written Qur’an, but similarly read and reflect upon the āyāt of creation:

Surely in (the creation of) the heavens and the earth are signs [āyāt] for the believers. (Qur’an 45:3)

Indeed, in the creation of the heavens and the earth and the alternation of the day and night there are signs [āyāt] for people of reason. (They are) those who remember God while standing, sitting and lying on their sides, and reflect on the creation of the heavens and the earth (and pray), “Our Lord! You have not created (all of) this without purpose. (Qur’an 3:190–191)

Imagine what outrage would be caused if the consequence of ecocide would be that certain verses of the written Qur’an were to disappear. Or if the written Qur’an were to be smudged and polluted. Or if its contents were to be permanently changed and corrupted. This is exactly what ecocide is doing to the Qur’an of creation.

When springs become silent, as Rachel Carson predicted, how can we hear the praises of the birds? When forests are cut down, how can we see the trees

70. *Ibid.*

71. O’Reilly, J. “The Deadly Spray: In the War Against His Insect Enemies, Man Has Reached the Point Where His Poisons Not Only Kill Birds and Animals But Threaten the Human Population As Well.” *Sports Illustrated Vault*, May 2, 1960.

72. *Ibid.*

prostrating before their Lord? When we have killed all the bees, how can God's healing reach us?⁷³

This is why certain scholars of eco-theology have mentioned that the destruction of the natural environment is much more than just ecocide. It is in fact 'epistemicide': "a spiritual as well as a physical massacre".⁷⁴ The destruction of a way of knowing God. As Seyyid Hossein Nasr said:

From the bosom of nature man seeks to transcend nature and nature herself can be an aid in this process provided man can learn to contemplate it, not as an independent domain of reality but as a mirror reflecting a higher reality, a vast panorama of symbols which speak to man and have meaning for him.⁷⁵

And there is yet another religious dimension to all of this. A narration of the Prophet Muhammad teaches humankind that "the earth has been made for me [and my followers] a place for praying [a mosque]".⁷⁶ Imagine what outrage would be caused if the consequence of ecocide would be that mosques would be torn down. Or if the carpet of the mosques would become as unclean as the fields infected by DDT. When our water becomes polluted, how can we use it for purification? If we truly believe in the Prophet Muhammad, then we cannot but see ecocide as a major threat to our religion. And we cannot but recognize that we have an obligation to preserve our Qur'an and keep our mosque clean.

B. The Protection of Life

The 1960 article on DDT referred to in the previous section was appropriately titled "The Deadly Spray: In the war against his insect enemies, man has reached the point where his poisons not only kill birds and animals but threaten the human population as well." As was illustrated by Rachel Carson's fable of the idyllic American village, DDT did not only harm non-human aspects of creation. It came back full circle back to harm humanity.

Short-term high-dose infection with DDT damages the nervous system. Severe poisoning can cause seizures, coma, and death.⁷⁷ The health impact of long-term low-dose exposure is a lot more difficult to determine and controversial. DDT has been linked to breast cancer, especially in women who were

73. A reference to the Chapter of the Bee (sūrah al-Nahl) in which God describes bees and their honey as an āyah and explains that in honey there is "a healing for people" (Qur'an 16:68–69).

74. Murad, A. "A Re-enchantment of Our Vision of the Natural World." In *Faith Voices for Ecocide Law* (Stockholm: End Ecocide Sweden, 2022), 41–46:43.

75. Nasr, S. H. *Man And Nature: The Spiritual Crisis of Modern Man* (Chicago: Kazi Publications, 1973), 95.

76. Ṣaḥīḥ al-Bukhārī 438.

77. Hill, W. R., & Damiani, C. R. "Death Following Exposure to DDT: Report of a Case." *New England Journal of Medicine* 235, no. 25 (1946): 897–899.

exposed to the chemical compound at a young age,⁷⁸ as well as to liver cancer,⁷⁹ and pancreatic cancer.⁸⁰ But results vary and there are also studies that have not found significant correlations between DDT and these types of cancer. Eating food is the primary way in which human beings are infected with DDT. This happens for example through eating contaminated fish and poultry, or through eating contaminated vegetables. Also breathing in contaminated air and drinking contaminated water may be a cause of DDT exposure.⁸¹ A great danger is posed by DDT dumping sites in oceans, such as the half a million barrels of DDT dumped into the ocean of L.A. County's coast.⁸² Once the water is contaminated, all of life is contaminated, for all of life is created from and sustained by water. I repeat the question: how many people have we killed through the killing of ants?

The discussion on the protection of life calls for the introduction of yet another modern example of ecocide: lead poisoning. Mass-scale lead poisoning occurred when lead was first added to gasoline by engineer Thomas Midgley Jr. to prevent engine knocking. First promoted and sold by General Motors, leaded gasoline soon found its way around the world, regardless of early warnings by scientists like Alice Hamilton, who rang all alarm bells when workers died of lead poisoning in the production of leaded gasoline and tried to get it banned. Like Rachel Carson, she would be defamed rather than acknowledged, and silenced rather than thanked. A government investigation was started, examining the health effects of leaded gasoline, but this investigation, funded by General Motors, concluded that there were no risks to public health. This even though the high toxicity of lead has long been known, in fact since Roman times.⁸³ But

78. Cohn, B. A., Wolff, M. S., Cirillo, P. M., & Scholtz, R. I. (2007). "DDT and Breast Cancer in Young Women: New Data on the Significance of Age at Exposure." *Environmental Health Perspectives* 115(10), 1406–1414.

79. Turusov, V. S., Day, N. E., Tomatis, L., Gati, E., & Charles, R. T. (1973). "Tumors in CF-1 Mice Exposed for Six Consecutive Generations to DDT." *Journal of the National Cancer Institute* 51 (1973): 983–99.

80. Garabrant, D. H., Held, J., Langholz, B., Peters, J. M., & Mack, T. M., "DDT and Related Compounds and Risk of Pancreatic Cancer," *Journal of the National Cancer Institute* 84 (1992): 764–771; Frizek, J. P., Garabrant, D. H., Harlow, S. D., Severson, R. K., Gillespie, B. W., Schenk, M., & Schottenfeld, D., "A Case-Control Study of Self-Reported Exposures to Pesticides and Pancreas Cancer in South-Eastern Michigan," *International Journal of Cancer* 72 (1997): 62–67.

81. Aamir, M., Khan, S., & Li, G. (2018). "Dietary exposure to HCH and DDT congeners and their associated cancer risk based on Pakistani food consumption." *Environmental Science and Pollution Research* 25(9), 8465–8474.

82. Xia, R. (October 25, 2020). How the Waters Off Catalina Became a DDT Dumping Ground. *Los Angeles Times*. Available at: <https://www.latimes.com/projects/la-coast-ddt-dumping-ground>.

83. Hardy, H. L. (1966). "What is the Status of Knowledge of the Toxic Effect of Lead on Identifiable Groups in the Population?" *Clinical Pharmacology and Therapeutics* 7, no. 6 (1966): 713–722.

once again short-term benefits were prioritized over largely unknown long-term effects of low-dose exposure.

Acute severe lead poisoning leads to death, such as the deaths of the workers in the leaded gasoline factory. Long-term exposure to smaller amounts of lead however also poses serious threats to human health. Lead poisoning especially heightens the risk of cardiovascular disease, heart failure, and cancer.⁸⁴ Lead poisoning through leaded gasoline is estimated to have caused around 1.2 million deaths worldwide per year during the period it was used, which was around 50 years. That totals 60 million deaths.⁸⁵ I repeat - 60 million deaths, to prevent engine knocking.

Algeria was the last country to ban leaded gasoline in 2021.⁸⁶ However, lead poisoning does not only occur through leaded gasoline. Poisonous lead is still widely used in paints, household items, and batteries. Also, old waterpipes often contain lead, which may lead to massive public health crises, such as in Flint. Environmentally speaking, lead poisoning through leaded gasoline has led to losses in biodiversity and decreased growth and reproductive rates in plants and animals. Lead contaminates the environment by accumulating in soils and on all sorts of surfaces, or by being discharged into bodies of water.⁸⁷

What causes death in nature, causes death in humankind. It's as simple as that. And for those who realize this truth, it becomes either a deep motivation for the conservation of human and non-human life, such as for Alice Hamilton and Rachel Carson, or it becomes a powerful weapon for the destruction of both human and non-human life. A powerful weapon is exactly what it became in the hands of federal American officials in their territorial fight against the Comanche native population.⁸⁸ The federal officials had realized that as long as the Comanches had bison to hunt, they had independence and power. As such, in 1872 federal officials attempted to convince the Comanches to stop hunting for environmental reasons - because the bison were about to go extinct. The real cause of the drop in the number of bison was however not the Comanches hunting them, which they had done for centuries without any issues. The real problem was the drastic increase of American settlers hunting into the central Plains due to a favorable market for bison hides and federal support. The hunt for bison was popularized and supported until the bison nearly went extinct, and

84. U.S. Department of Health and Human Services (2007). *Toxicological Profile for Lead*. Available at: <http://www.atsdr.cdc.gov/toxprofiles/tp13.pdf>.

85. Velicer, I. "Era of Leaded Petrol Over As Last Reserves Exhausted," *Global Health*, August 30, 2021.

86. Horton, H. "Leaded Petrol Era 'Officially Over' As Algeria Ends Pump Sales," *The Guardian*, August 30, 2021.

87. Casas, J. S., & Sordo, J. (Eds.). (2011). *Lead: Chemistry, Analytical Aspects, Environmental Impact and Health Effects*. Elsevier.

88. Hamalainen, Pekka. (2001). "The First Phase Of Destruction Killing The Southern Plains Buffalo, 1790-1840." *Great Plains Quarterly* 22, no. 27 (2001): 27.

with it, the Comanches went starving and lost their means of self-sufficiency.⁸⁹ “The destruction of the bison became a means of indigenous dispossession.”⁹⁰ Ecocide was used as a tool for genocide. Or some may even say that “ecocide is genocide”.⁹¹ An American Lieutenant wrote the following in his memoirs:

With my cavalry and carbine artillery camped in front, I wanted no other occupation in life than to ward off the savage and kill off his food until there should no longer be an Indian frontier in our beautiful country.⁹²

As clearly explained by Eichler: “Slaughtering the [bison] had a two-fold benefit. It cleared land for settlers and took care of the so-called “Indian problem”.”⁹³ Only after the Comanches had lost control of their territory and had nearly gone starving did the federal officials step in to truly make an effort to conserve the bison. Both ecocide and opportunistic environmentalism in this case were used as racist and colonial tools.

C. The Protection of the Intellect

Both the case studies of lead poisoning and DDT make clear how ecocide may pose a strong threat to the protection of the intellect. DDT is a neurotoxin, meaning that the way in which it kills insects is by causing irreparable and severe damage to their nervous system. Confirming Rachel Carson’s theory, a 2006 study showed that DDT damages the nervous system of songbirds by creating changes in brain structures associated with mating and song.⁹⁴ Human beings of course also have a nervous system and as such, it comes as no surprise that exposure to DDT has negative effects on the human nervous system. One study showed exposure to DDT heightens the risk of Alzheimer’s disease.⁹⁵ Another study of DDT-exposed workers concluded that there was a significant correlation between years of DDT exposure and deteriorated performance in several neuro-behavioural functions.⁹⁶

89. Hamalainen, Pekka. (2016). “Reconstructing the Great Plains.” *Journal of the Civil War Era* 6, no. 4 (2016): 481–509.

90. *Id.* at 503.

91. Eichler, L. J. (2020). “Ecocide Is Genocide: Decolonizing the Definition of Genocide.” *Genocide Studies and Prevention: An International Journal* 14, no. 2 (2020): 104–121.

92. Eichler, L. J. (2020). “Ecocide Is Genocide: Decolonizing the Definition of Genocide.” *Genocide Studies and Prevention: An International Journal* 14, no. 2 (2020): 116.

93. *Id.* at 104–121.

94. Iwaniuk, A. N. et al. (2006). “The Effects of Environmental Exposure to DDT on the Brain of a Songbird: Changes in Structures Associated with Mating and Song.” *Behavioural Brain Research* 173(1): 1–10.

95. Eid, A. et al. (2022). “Effects of DDT on Amyloid Precursor Protein Levels and Amyloid Beta Pathology: Mechanistic Links to Alzheimer’s Disease Risk.” *Environmental Health Perspectives* 130(8).

96. Van Wendel de Joode, B., Wesseling, C., Kromhout, H., Monge, P. Garcia, M. & Mergler, D. (2001). “Chronic Nervous-System Effects of Long-Term Occupational Exposure to DDT”. *The Lancet* 357(9261): 1014–1015.

Whereas this already is ample reason for great concern and definitely a threat to the protection of the intellect, it is child's play compared to the neurological impacts of lead poisoning. Lead corrupts the brain, impairing neurotransmitter signaling and as such impairing the processes of memory and learning. Lead poisoning is furthermore associated with a decrease in brain volume. As a result, lead poisoning may cause a variety of neurological problems, including "brain damage, mental retardation, behavioral problems, nerve damage, and possibly Alzheimer's disease, Parkinson's disease, and schizophrenia".⁹⁷

Lead poisoning especially has devastating and life-long consequences on the developing brains of children. A study on the American population indicates that childhood lead exposure caused by leaded gasoline has taken "a collective 824 million IQ points away from more than 170 million U.S. adults alive today",⁹⁸ with the average American having 2.6 IQ points less due to childhood lead exposure. The greatest deficits are for those born between 1966 and 1970, who due to the prevalence of leaded gasoline in their youth experience an average deficit of 5.9 IQ points per person.⁹⁹ Childhood lead exposure is additionally linked to several types of anti-social and delinquent behavior.¹⁰⁰ Increases in crime rates in various cities have been found to have a significant correlation with increases in blood-lead levels.¹⁰¹

Lead poisoning has increasingly become a problem of global inequality. Research indicates that blood-lead levels are the highest in children in middle- and especially low-income countries.¹⁰² The research specifically indicates dangerously high blood-lead levels for Palestinian children.¹⁰³ UNICEF's recent report states it clearly:

Hundreds of millions of children are poisoned by lead. Some of these children live in poor communities in rich countries, but the vast majority live in poor countries where they are exposed through multiple routes. Often unwittingly and with life-altering consequences, these children are growing up in harm's way, inhaling dust and fumes from informal used lead-acid battery recycling operations and open-air smelters, eating food contaminated by lead-glazed pottery

97. Sanders, T., Liu, Y., Buchner, V. & Tchounwou, P. B. (2009). "Neurotoxic Effects and Biomarkers of Lead Exposure: A Review. *Reviews on Environmental Health* 24(1) 15–45: 15.

98. JoJack, B. (2022). "Nearly Half of the US Population Exposed to Dangerously High Lead Levels." *Medical News Today*.

99. *Ibid.*

100. Needleman, H. L., Riess, J. A., Tobin, M. J., Biesecker, G. E., & Greenhouse, J. B. (1996). "Bone Lead Levels and Delinquent Behavior." *Jama*, 275(5): 363–369.

101. Stretesky, P. B., & Lynch, M. J. (2004). "The Relationship Between Lead and Crime." *Journal of Health and Social Behavior*, 45(2): 214–229.

102. Ericson, B., Hu, H., Nash, E., Ferraro, G., Sinitsky, J., Taylor, M. P., (2021). "Blood Lead Levels in Low-Income and Middle-Income Countries: A Systematic Review." *Lancet Planet Health* 2021(5).

103. *Ibid.*; the average blood-lead level of the samples far exceeds the point at which intelligence is permanently affected and neurological development is impaired.

*and lead-infused spices, living in homes with peeling lead paint, playing, and even working, in lead-laced electronic waste dumps.*¹⁰⁴

When children are affected, the future of society is affected. As the UNICEF report states “[w]idespread cognitive declines across large numbers in a city or country result in declines in creative and economic productivity across entire societies”.¹⁰⁵ In this way, the export of toxic e-waste becomes a potential form of both ecocide and genocide, echoing Liboiron as he stated that pollution is, in fact, colonialism,¹⁰⁶ and providing the perfect example of what Richard Nixon labeled “slow violence”.¹⁰⁷

D. The Protection of Lineage

This also brings us straight to the issue of the protection of lineage, since it already shows how future generations are impacted by present-day environmental destruction. Today, not a single mother’s breast milk is not contaminated with DDT,¹⁰⁸ and one in three children globally have blood-lead levels exceeding the limit at which intelligence is permanently affected and neurological development is impaired.¹⁰⁹ In addition to the developmental defects caused by DDT and lead poisoning, research indicates that both of these types of poisoning actually diminish fertility and cause genetic defects.

Studies have linked exposure to lead to reduced fertility potential in men and women, and increased chances of miscarriages and preterm birth. Additionally, hormonal regulations in both sexes may be impaired, as well as menstruation in women.¹¹⁰ This has led scientists to conclude that there is no safe dose of lead exposure, both for children and adults, that does not have a potential impairing effect on one’s fertility.¹¹¹ Especially pregnant women are at high risk since a high level of lead exposure during pregnancy is associated with miscarriage, stillbirth, premature birth, low birth weight, and minor malformations in the babies.¹¹² Miscarriages due to lead poisoning occur disproportionately often in developing nations.¹¹³

104. UNICEF, *The Toxic Truth: Children’s Exposure to Lead Pollution Undermines a Generation of Future Potential* (2020), 1.

105. *Ibid.*

106. Liboiron, M. (2021). *Pollution is Colonialism*. Duke University Press.

107. Nixon, R. (2011). *Slow Violence and the Environmentalism of the Poor*. Harvard University Press.

108. Carson, R. (1962). *Silent Spring*. Boston: Houghton Mifflin.

109. UNICEF, *supra* note 104.

110. Kumar, S. (2018). “Occupational and Environmental Exposure to Lead and Reproductive Health Impairment: An Overview.” *Indian Journal of Occupational and Environmental Medicine*, 22(3): 128–137.

111. *Ibid.*

112. World Health Organisation. (2017). “Lead Poisoning and Health”. *Fact Sheet*. Available at: <http://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>.

113. Amadi, C. N., Ingweze, Z. N., Orisakwe, O. E. (2017). “Heavy Metals in Miscarriages

Studies on the impact of DDT on male reproductive health found a significant decrease in male fertility caused by DDT exposure,¹¹⁴ as well as a risk of sperm deficiencies that may lead to failed pregnancies and birth defects.¹¹⁵ Another study found that women who were exposed to DDT whilst still in their mother's wombs are more likely to experience delays getting pregnant.¹¹⁶

E. The Protection of Property

Both the case study of lead poisoning and DDT pollution have by now been sufficiently examined to see how their use causes great harm to both human and non-human aspects of creation. The only missing puzzle piece then, to understand how these forms of ecocide connect to the protection of property, is to see how one person engaging in these forms of ecocide may violate the integrity of another person's property. Well, that is not too difficult.

Just imagine a scenario where I decide to spray my crops with DDT, which results in the death of your chickens and beloved songbirds. Or imagine a scenario where I decide to fuel my car with leaded gasoline, the fumes of which contaminate your soil, crops, and water and infect your family. Or imagine a scenario where one nation deliberately kills all bison, leaving another nation to starve and lose their property and self-sufficiency.

I think one needs not have a vivid imagination, but rather a sharp vision of reality, to understand how ecocide is inherently a threat to the protection of property. Environmental factors have, almost by definition, an impact beyond the property of one person or another, thus calling for a collective approach and solution.

CONCLUSION

There is no way to separate human rights from the rights of nature, just like there is no way to separate human flourishing from the flourishing of the rest of the creation. As such, a second, more historically developed field of Islamic law, is undeniably applicable to the question of ecocide: the rights of humankind (*ḥuqūq al-'ibād*). This paper is just a start, a first exercise to explore the great potential of the Islamic tradition in addressing contemporary issues of environmental justice. I hope some may be inspired to pick up where I left, and explore

and Stillbirths in Developing Nations.” *Middle East Fertility Society Journal* 22(2): 91–100.

114. Dalvie, M. A., et al. (2004). “The Long-Term Effects of DDT Exposure on Semen, Fertility, and Sexual Function of Malaria Vector-Control Workers in Limpopo Province, South Africa. *Environmental Research* 96(1): 1–8.

115. Perry, M. J., et al. (2016). “Sperm Aneuploidy in Faroese Men with Lifetime Exposure to Dichlorodiphenyldichloroethylene (p,p'-DDE) and Polychlorinated Biphenyl (PCB) Pollutants”. *Environmental Health Perspectives* 124(7).

116. Cohn, B. A., et al. (2003) DDT and DDE Exposure in Mothers and Time to Pregnancy in Daughters. *Lancet* 361(9376): 2205–6.

both the vast fields of the Islamic tradition and the many crises of our not-always-peaceful coexistence with the rest of creation.

If readers were to remember and internalize one aspect of this paper, I hope it would be to approach this world as the Qur'an of creation. To treat it with the respect and reverence that is due to the Word of God. To read its *ayāt*, notice its reminders, and reflect upon them. Maybe this is what Rachel Carson was expressing in her own vocabulary, as she said that “those who dwell among the beauties and mysteries of the earth are never alone or weary of life.”¹¹⁷ Carson may well go on to serve as an example to many Muslims in the way she not only bravely stood for justice, but also recognized the signs of nature, and learned her lessons from them. For even in a world contaminated by lead and DDT, how can we fail to learn the lessons from a lotus flower blooming forth from the mud, or the lonely moon shining her light from a sea of darkness?

One of the signs that may clearly be read in the Qur'an of creation is that every action inevitably results in a reaction. Humankind commonly accepts the validity of this natural law when it comes to human interactions. Believers commonly accept the validity of this law when it comes to divine interactions. How then have we so successfully managed to delude ourselves into believing that this basic law does not apply to our interactions with other parts of creation? When we shake the earth with injustice, pollute her waters and spread corruption on her grounds, she will remember. Just like she will remember if we bring justice, purify her waters, and fight corruption on her grounds. For on the day when the earth is shaken like never before, she will testify either for or against us. And she will remember every ant.

*still by your hand
life may be grown
plant your seeds right*

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