Artificial Intelligence in Service to Life on Earth

Ecocide law as a framework for governance
Special Thanks

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END ECOCIDE SWEDEN
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Ecocide law and artificial intelligence can both make a huge difference to the future of life on Earth.

At the moment, damaging and destroying the living world on a vast scale is still permitted in practice, because there are hardly any sanctions for doing so. Ecocide law - making ecocide a crime within the jurisdiction of the International Criminal Court – can change that, criminalising severe damage and destruction to the Earth.

In itself, artificial intelligence has no morals: it can be used for good and bad. Its power is to get to whatever the objective is more quickly and efficiently.

With ecocide law in place, artificial intelligence can get us to our new objectives faster, and more accurately, because it is much better than humans at taking in vast amounts of information and processing it much quicker and better than we do.

Together, ecocide law and artificial intelligence can get us to a sustainable future faster.
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Artificial Intelligence (AI) and Ecocide Law (EL) are two phenomena which will change society in profound ways as well as affect our impact on the living world. The most salient promise of the two conjunct forces is that together, they can change how we govern ourselves vis-à-vis nature.

In June 2021, an independent panel of 12 leading experts in international law, convened by the Stop Ecocide Foundation, proposed a definition of ecocide as an additional crime within the Rome Statute of the International Criminal Court in The Hague. The Rome Statute currently contains four crimes: genocide, crimes against humanity, war crimes and crime of aggression. War crimes includes a mention of damage to the natural environment, but the definition is so weak that in practice, it is almost impossible to convict. Making large-scale and wanton contribution to climate change, large-scale pollution, and environmental degradation a crime in its own right under the Rome Statute establishes a legal framework and binding rules to contain human activities within the boundaries of what global ecological systems are capable of carrying. The support for such a law - ecocide law - is growing very fast.

Ecocide law would provide a safety rail for living systems which is currently missing. Making ecocide a crime, with a definition sufficiently powerful to bring those who cause ecocide to account, brings a number of benefits, including supporting international peace-keeping, protecting human rights, protecting the ecosystems which sustain life on Earth and adding a moral baseline to the world economy, helping mitigate climate change and directing the power of tools like artificial intelligence toward the service of life.

This paper explores the risks and benefits of AI and argues that ecocide law can provide a necessary safety rail for our future trajectory, including constituting an ethical framework guiding the development and use of AI. Within this framework, AI can help us find better, safer, ways ahead and be a force in service to life.

See the section on the definition and the process to amend the Rome Statute to include a crime of ecocide.

1 https://www.stopecocide.earth/legal-definition or https://static1.squarespace.com/static/5ca2608ab914493c64ef1f6d/t/1624721314430/SE+Foundation+Commentary+and+core+text+revised+%281%29.pdf
3 Higgins, P. 2014. I dare you to be great. Clink Street Publishing
The largest challenge of our time is how we manage our natural environment - or actually that is not entirely true - the challenge is really how we govern ourselves vis-à-vis the living world, which is not ours at all. Indeed, we are a part of it.

This magical, fragile blue-green planet we inhabit has done just fine without us for billions of years. She does not need to be managed. Unless we manage ourselves better in relation to the living world, however, we risk destroying the very fabric of life that sustains us. For billions of years, nature has improved conditions for life, by purifying water, land and air whilst developing rich, abundant and thriving ecosystems of interconnected life forms. We would do well to learn from nature and to mimic Mother Nature’s designs.

Fortunately, we have powerful transformative tools coming to our aid. One of these tools is Artificial Intelligence. Another is ecocide law.

Ecocide law provides a firm guardrail that empowers national environmental legislation and constitutes a missing piece in international law and policy that aims to protect the living world. This is the framework within which AI needs to be developed. AI can empower us to expedite the shift to a sustainable society, while increasing transparency as we go. Without a governance model which protects life on Earth, any technology which makes humans more efficient could - or would - take us in the opposite direction.

Donella Meadows, an environmental scientist and a pioneering systems thinker, studied how systems shift and how to intervene in systems. She distinguished between factors that have small impact - or leverage - on shifting the system, and factors with powerful leverage.

Imagine that you wish to move a large boulder by hand. It is considerably easier to get the job done with a long iron crowbar than with a short one, because the longer one gives you greater leverage.

AI interventions can have lesser as well as greater leverage, as can Ecocide law.

Ecocide law can complement and direct artificial intelligence into a direction that is conducive to life on Earth and it can apply power at those of Donella Meadows’ points that offer the greatest leverage.

Ecocide law also shifts the moral baseline and the mental models. See Figure 1.

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**Figure 1.** The illustration above is based on Donella Meadows’ seminal work on systems shifts.

AI and ecocide law are transformational forces for our ability to manage ourselves on the global scale in which we now operate.

Ecocide law brings about a shift in direction whilst AI super-charges our capacity and intelligence.

Artificial Intelligence (AI) and Ecocide Law (EL) are two phenomena - transformational forces - which will change society in profound ways as well as affect our impact on the natural world. The two forces are different in nature but reinforce each other: ecocide law brings about a shift in direction whilst AI super-charges our capacity and intelligence.

The most salient promise of the two conjunct forces is that together they can change how we govern ourselves vis-à-vis the natural living world. See Figure 2.

Figure 2. AI and EL are foundational forces for a transition that puts the wellbeing of people and planet first. The two forces are different in nature but reinforce each other.
Artificial Intelligence & Ecocide Law

AI and the future it brings about

There are many fears and graphic science fiction movies about AI gone out of control. As with all tools, AI can be - and is being - applied for uses that are benevolent as well as malevolent. As W. Brian Arthur notes,6 “we have to be clear about what sort of society we want and not shy away from regulating or discouraging the things that we don’t want. Otherwise, things like particular algorithms or methods that artificial intelligence uses may be deeply embedded in society and very hard to get rid of. We might get societies that we simply don’t want to live in”.

Freedom on the Net index 2021 ‘Democracy under siege’7 covers trends such as manipulation of social media in democratic processes, shutdowns of mobile and internet service, and attacks on online activists. The trends are not positive. Given the scale of risks and harms to human rights associated with IS/IT and AI, the United Nations Special Rapporteur on freedom of opinion and expression, David Kaye, called for an immediate moratorium8 on the sale, transfer and use of surveillance technology until human rights-compliant regulatory frameworks are in place.

Since AI is essentially an enabling technology, AI can be seen to supercharge existing, Earth and democracy destroying norms, system incentives and decisions.

Despite the incredible potential for tech to harm individuals, there are very few laws placing limits on the ways in which tech is put to use by companies, institutions and states to monitor, gather data and make decisions.9 Furthermore AI is easily manipulated by the influence of dark money, which encourages the spread of dis- and misinformation.10

There are many vital areas where legislation is essential to safeguard a desirable development, for instance transparency and accountability of AI, as well as to decide the ethical standards to which AI-based technology should be subjected. This debate is being pushed forward by initiatives such as the IEEE (Institute of Electrical and Electronics Engineers) ethical aligned design11 and the new EU (European Union) ethical guidelines for trustworthy AI.12

It is worth remembering that when it comes to the capacity to safeguard a fair, inclusive and environmentally sound development, there is a world of difference between soft law and hard, international criminal law. The checks and balances13 need to be strong enough to do the job.

Ecocide - the missing crime

In this paper, “ecocide law” means adding a crime to the Rome Statute of the International Criminal Court, so that top decision-makers could be personally liable and be prosecuted for causing, or risking causing, mass destruction of the environment. The process for adding such a crime is straightforward and set out in the Rome Statute.

The term ‘ecocide’, the extensive destruction of the environment, has been around since the 1970s when it was first recorded at the Conference on War and National Responsibility, in Washington in February of that year. During the 1970s, 80s and 90s making ecocide an international crime was also considered by the United Nations International Law Commission (ILC) for inclusion in the Code of Crimes Against the Peace and Security of Mankind (‘the Code’), which later became the Rome Statute. Ecocide, a concept that was familiar and supported by many as one that should be enshrined in international law, was dropped somewhat mysteriously by the ILC in 1996. Even to this day the worst environmental crimes are still not outlawed, but more and more voices are now advocating for ecocide law.

At the request of two Swedish parliamentarians, the Stop Ecocide Foundation convened an independent expert drafting panel (EDP) of experts in international law and in June 2021, the panel presented a proposal for a definition of this missing crime, to be added to the Rome Statute of the International Criminal Court.

The amendment proposed by the EDP is based in legal precedent and reads as follows:

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.

Thus, the proposal covers acts which risk causing mass destruction: the damage does not need to have occurred.

Criminal law has a strong deterrent effect, stopping many crimes before they even happen. It is one thing to risk a fine for harming the environment; it is a completely different thing to be seen as a criminal, and risk going to jail. In many cases, fines are insufficient deterrents, because if profits are large enough, the risk of fines can be discounted for in the business case.

Per Olsson Fridh, the then Swedish minister for International Development Cooperation, observed in a seminar about Ecocide Law and Fair Transition that we have plenty of frameworks and agreements, like the Paris agreement and like the Sustainable Development Goals. Such frameworks and agreements, however, only tell us what is desirable. They do not tell us to stop - as soon as possible - what is harmful. He went on to say that “these types of crimes should not be allowed to continue” and that “it should certainly not be a competitive advantage either!”

15. https://static1.squarespace.com/static/5ca260dab914935c6ae9f64d/1/60d7479c8e7556d1534dd07/1/6247271354430/5E+Foundation+Commentary+and+core+text+revised+%281%29.pdf
16. For the full definition, including definition of key terms, refer to https://static1.squarespace.com/static/5ca260dab914935c6ae9f64d/1/60d-7479c8e7556d1534dd07/1/6247271354430/5E+Foundation+Commentary+and+core+text+revised+%281%29.pdf
The absence of ecocide law creates unfair conditions, not only for the people left with polluted rivers, forests laid to waste and destroyed habitats. It is also unfair for the vast majority of companies who do try to make their business sustainable. The companies ignoring environmental safeguards and legal systems gain a competitive edge on the international market, making the shift to sustainable practices very difficult to achieve in virtually every industry.

There is the need for a brake on our use of the Earth’s resources. A key driver of climate change and environmental destruction is our unsustainable appetite for natural resources, and resource efficiency will not stop this. One essential insight that many, even most, proponents of circular economy overlook is that of Jevons’ paradox, which states that higher resource efficiency leads to faster depletion of resources - unless, of course, there is a hard stop.

Ecocide law provides this hard stop and hence can enable a circular economy that is also within planetary boundaries. AI will play an essential role to assist decision makers in choosing trajectories of prosperity within these constraints.

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Artificial Intelligence & Ecocide Law

The booming environmental crime sector

UNEP-Interpol reports the rise of environmental crimes as a serious risk to natural resources, peace, development and security. See Figure 3 for an overview of factors that contribute to environmental crimes.

An additional by-product of environmental crime is that it undermines peace and human rights. It is not surprising that the UN Security Council has recognised the serious threat to security posed by environmental crime, with UN reports pointing to armed groups and potentially even terrorists sustained through the spoils of this rising criminal industry.

The UNEP-Interpol report estimates that natural resources worth as much as USD 91 billion to USD 258 billion annually are being stolen by criminals, depriving countries of future revenues and development opportunities. This industry is growing at an “astounding rate” and has become the world’s fourth largest crime sector.

Some of these criminals are high ranking government officials, others are in offices in countries far away from where the crimes take place. Environmental crime has impacts beyond those posed by regular criminality. It increases the fragility of an already brittle planet. The resulting vast losses to our planet rob future generations of wealth, health and well-being on an unprecedented scale.

If we were to describe - in one word - what this is doing to the natural living world, on which our lives depend, that word is ecocide. See Figure 3.

An international criminal law – ecocide law – that addresses the most severe and wanton crimes will be a powerful start to curb eco crime. Ecocide law fills the gaps in law on an international as well as on a national level. Ecocide law enables the International Criminal Court to act as a court of last resort when the national legal and law enforcement systems are too weak.

Figure 3. Overview of environmental crime and some key contributing factors. Adapted from: UNEP-Interpol.
AI in service of the planet

AI holds powerful promise to help tackle environmental crime and make greenhouse gas emissions and destruction of the natural living world take a nosedive.

W. Brian Arthur observes\(^2\) that AI makes Intelligence widely available, and compares this with when Gutenberg book printing technology made knowledge widely available, which was foundational for the Renaissance, development of science as well as for our modern society. AI - or algorithms - are becoming increasingly good at things only we humans were good at, and AI does it much, much faster.

As Michael Gell ponders in his review of Planet positive AI\(^2\), some people argue that AI could bring about a scary future in which the machines take over and reveal little about their workings to humans. Perhaps. But is such a future scarier than a planet for which the climate change we are driving ensures ecocide and makes it impossible for most species, including humans, to live?

There are many areas where AI can be - or already is - in service of the planet. One of these major areas has to do with pattern recognition and visual intelligence. AI connects the dots between our choices and their consequences, and does it very fast. When knowledge was made readily available by Gutenberg’s printing technology, it laid the foundation for the Enlightenment.

Satellite and drone imagery combined with AI is already being used to identify energy, water and materials usage in industrial sites without information from the sites\(^27\). This allows insurers to rank sites according to energy, water and other performance metrics and guides risk-based pricing. It also allows faster compilation of case files for environmental crimes. New forms of actuarial indices are emerging which help companies, authorities as well as insurers and banks to make more informed decisions faster.

As Microsoft chief environmental officer Lucas Joppa notes,\(^28\) legal case file creation for environmental crime can now be done in a fraction of the time and at decimated costs with AI support. There are also several AI platforms already in use that increase efficiency – and reduced time to justice - in the legal system,\(^29\) which could expedite the legal processes. Satellites and drones are being used with AI to identify sources of methane emissions on industrial sites.

AI is already applied in a wide range of ways that is creating a visual intelligence about our interaction with the Earth: (i) to identify leaks in utility distribution systems, (ii) to track changes in forests and verify that timber has been sourced responsibly, (iii) to monitor construction sites to confirm that building work conforms to the planning consent, (iv) to monitor for flooding and predict how facilities will respond, (v) to create what-if scenarios of complex situations and with high accuracy predict disasters and costs, used for instance in Catastrophe bonds.

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\(^{25}\) Ibid, note 1.
\(^{26}\) Ibid.
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Police authorities in the US use AI to track the movement patterns of perpetrators of crimes in real-time as well as to back-track their movements and behaviour. As previously alluded to, for individuals this raises important questions on human rights, largely due to the imbalance of power. This concern is not as relevant when it comes to companies perpetrating serious crimes, and AI’s capacity of predictive policing could make a positive difference in protecting life on the planet before crimes are committed.

Thus, with AI we get intelligence – knowledge about what is happening, how things are related, and what is about to happen. With ecocide law we will shift the behaviour before risky or destructive decisions are made. Together they reinforce a benign shift. Ecocide law simply directs AI to contribute to a safe future, instead of contributing to increased vulnerability.

EL as governance framework, AI as pathfinder and accelerator

Criminal and civil sanctions can push actors to make decisions – and algorithms – that benefit Life on Earth, rather than the opposite. Hard (criminal) law is especially important when the benefits of cooperation are great but the “potential for opportunism and its costs are high … and when violations would impose significant externalities on others”\(^\text{31}\). This is of course the situation with ecocide today: it creates a competitive advantage to externalise costs and to use gaps in international law to capitalise on natural resources.

With ecocide law we will shift the behaviour before risky or destructive decisions are made.

Having curbed much potential harm through making ecocide an international crime, we can look to AI for guidance in better ways to progress. In addition to speeding up the justice processes and increasing knowledge of potential environmental damage, AI can be a powerful tool to guide us, to find better, more environmentally friendly ways.

For corporations, the value of AI is clear: at a time when public care for the environment is growing exponentially, AI will enable corporations to protect their good name by controlling supply chains, ensuring they keep a safe distance from contributing to environmental destruction.

By 2030 each entity in the supply chain may be fully transparent in terms of greenhouse gas emissions and environmental impact.\(^\text{32}\) By then, many of the key components should have been put in place for an enterprise logic bounded by planet-wide rules for carbon emissions and ecosystems. There will be greater understanding of how societies and cities must be aligned with nature, and striving for climate (and therefore public) safety. The role of ‘licence to operate’ that societies offer companies will have transformed into new mechanisms, often guided, perhaps even controlled, by AI systems.

Both when it comes to AI and environmental crimes, many scholars and representatives from think tanks seem to put their faith in either more information, or better policies, standards or ethical guidelines. In order for any of these to work, hard law is a prerequisite. A governance framework has to be designed for those who do not follow the guidelines. Accountability is needed; law strong enough to lead to convictions for those who are not interested even in trying.

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\(^{31}\) Abbott, K.W. and Snidal, D., (2000), Hard and Soft Law in International Governance MIT.

Ecocide law closes the door on the harmful practices that destroy the living world on which our lives depend. The right to clean water, air, and a planet that supports your health and well-being is arguably the most important human right of them all. In the end, it boils down to very basic values of survival, freedom and access to the wonders, teachings and delights of the living world. By closing a door to ecocide, the law opens up the door wide for solutions, investments and AI that are in service to life on Earth as a whole.

The connection between nature and human health is increasingly recognised. The first-ever UN report addressing the relationship between human rights and biodiversity states that biodiversity is necessary for the ecosystem services that support the full enjoyment of a wide range of human rights, including the rights to life, health, food, water and culture. In order to protect human rights, States thus have a general obligation to protect ecosystems and biodiversity, and the lack of fulfilling this obligation is proving increasingly catastrophic.33

34 The right to a healthy environment is recognized by more than 80 per cent of the UN’s member states (156 out of 193).35 In October 2021, the UN Human Rights Council also recognised that a clean, healthy and sustainable environment is a human right.36

Ecocide law isn’t just another legal regime, but a pathway for transitioning into a society in which all technologies are in service to life on Earth. Polly Higgins, who started the global movement for ecocide law, captured it well: "Laws can restrict or they can enable. What matters is what they serve. Many of the laws in our world serve property - they are based on ownership. But imagine a law that has a higher moral authority ... a law that puts people and planet first. Imagine a law that starts from first do no harm, that stops this dangerous game and takes us to a place of safety."

There is a big difference between on the one hand trying to control or manage nature, and on the other viewing nature as a teacher and trying to manage ourselves. Apart from arrogance and lack of respect for the systems that have given us life and still sustain us, trying to control and manage nature whilst not managing ourselves is also a dangerous path. Fortunately, AI and ecocide law can help us to be better at managing ourselves, and be of service to something greater - more important - than ourselves.

With all this said, can one hope that ecocide law and Artificial Intelligence might propel us to become more human, not less? "We have become what we behold, we shape our tools then they shape us" as the saying goes.37 What will it take for us to ascend higher into our potential as sentient human beings? What is required of our tools and support? Can they propel our aspirations to ascend, rather than to descend and become more like our tools; artificial, less sentient, less present and relational in and with the here and now? What will be required for us as a global society to wake up into a deeper relationship with the natural, sentient, living planet with which we already are deeply interwoven?

What if AI - steered by ecocide law - might get back to us with clues of how to apply the lessons from nature38 into the fabric of our society and our awareness?

34. Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment.
37. The quote come from John Culkin, some background can be found here: https://mcluhangalaxy.wordpress.com/2013/04/01/we-shape-our-tools-and-thereafter-our-tools-shape-us/
The practical process for making ecocide a crime

Making ecocide an international crime is a straightforward process. Any state which has ratified (officially agreed to) the Rome Statute of the International Criminal Court (ICC) may propose an amendment. A simple 50% majority of those present and voting at the next annual assembly of the ICC is needed for the amendment to be considered.

A Crime Review Conference is likely to be convened, where the final text of the amendment will be discussed and agreed amongst States Parties. When the amendment is put to the vote, at least a 2/3 majority of States Parties (currently 82/123) need to be in favour of the amendment. One state, one vote.

States Parties can then ratify (officially submit their agreement), and must enforce the law in their own country one year later.