



**How to destroy the world
a user manual for lawmakers**

Guillaume Chapron

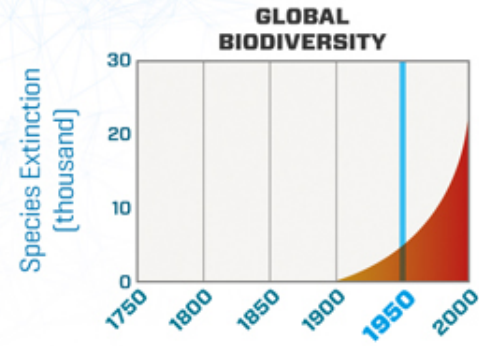
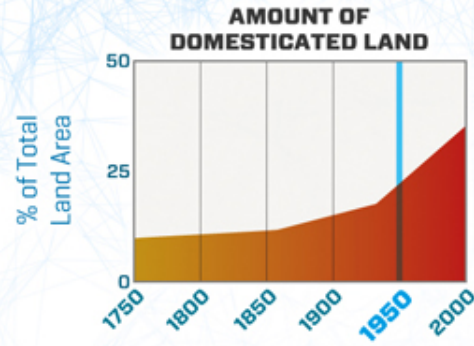
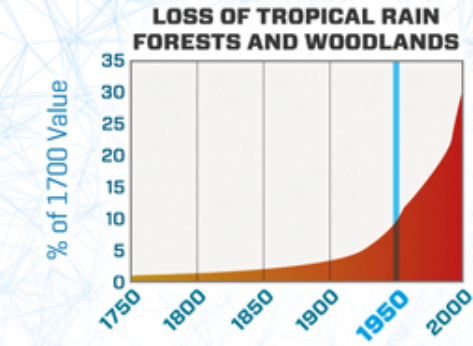
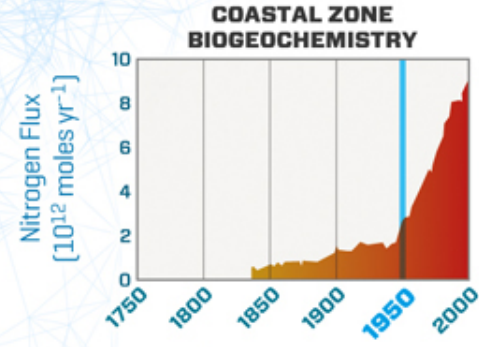
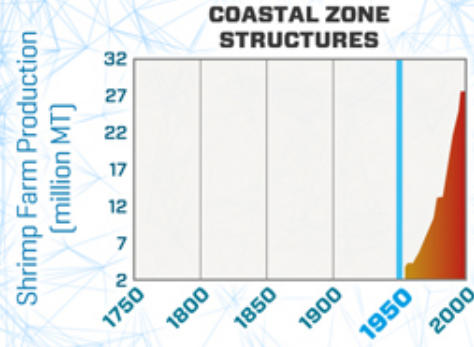
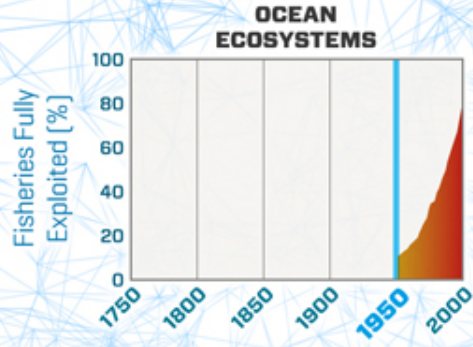
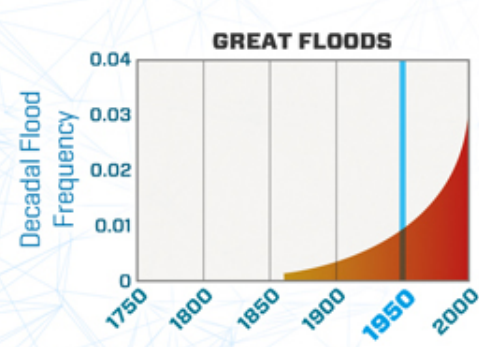
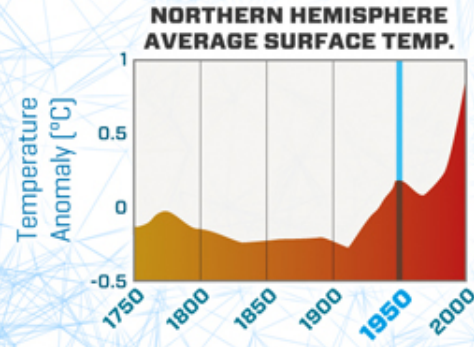
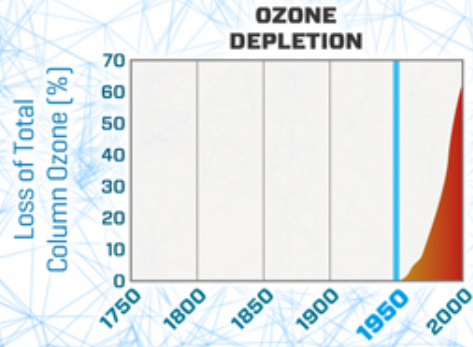
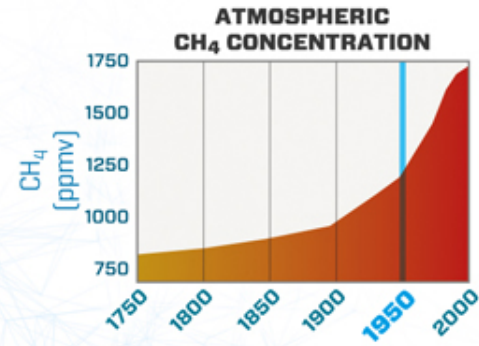
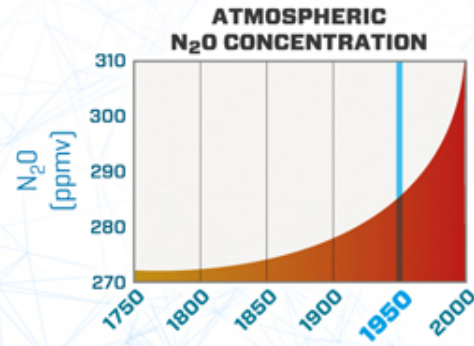
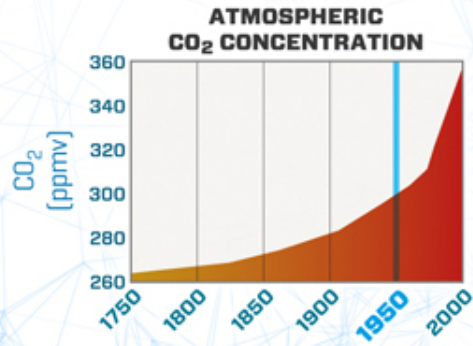
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Great acceleration



Great acceleration





Message to students:

**If you fasten your seat-belt,
do not smoke and do not eat
junk food...**

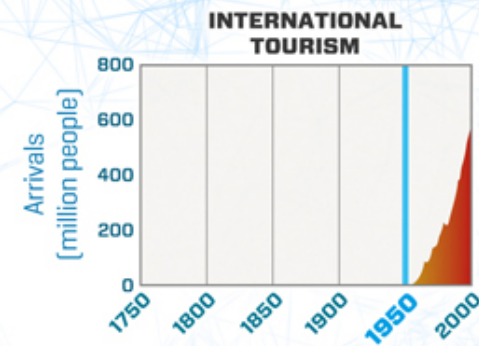
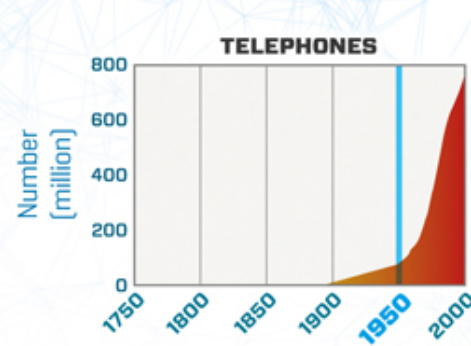
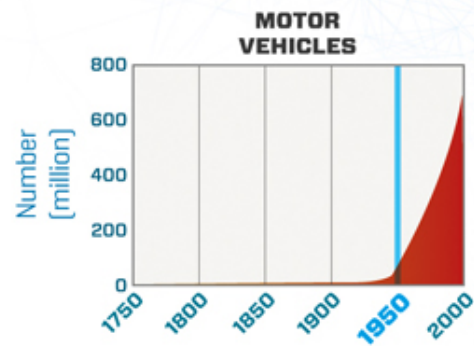
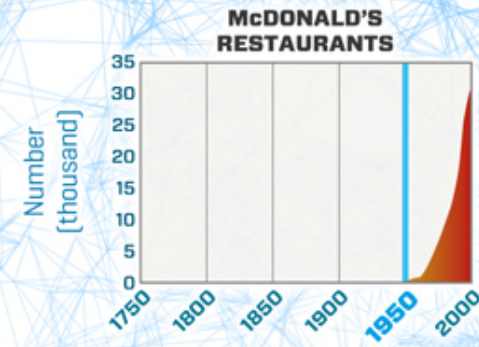
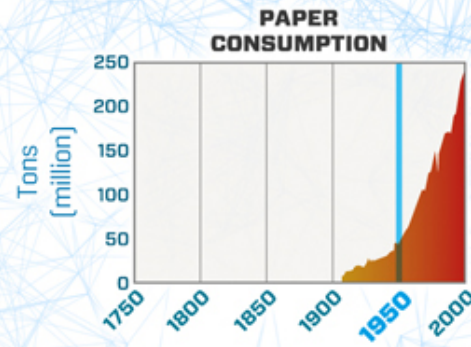
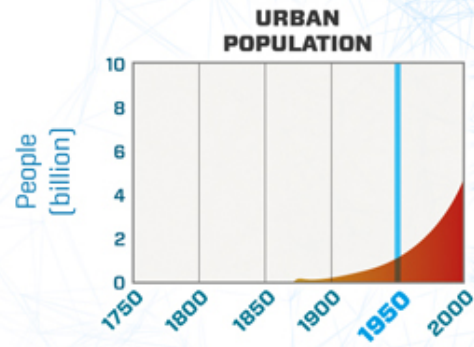
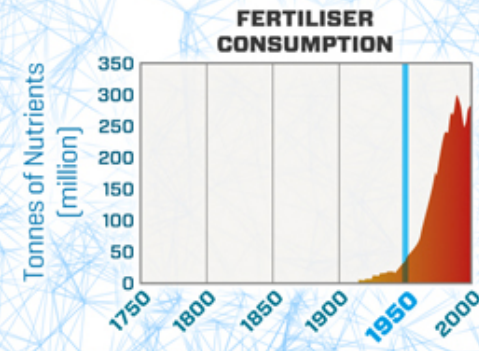
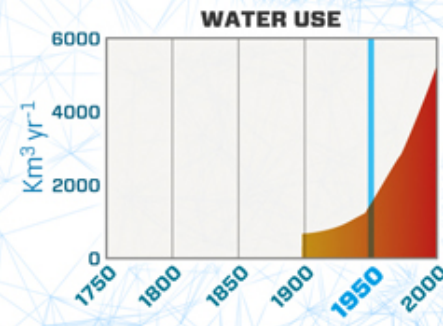
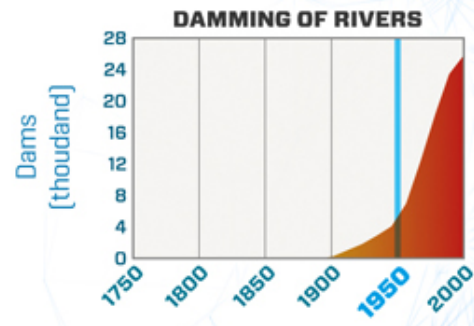
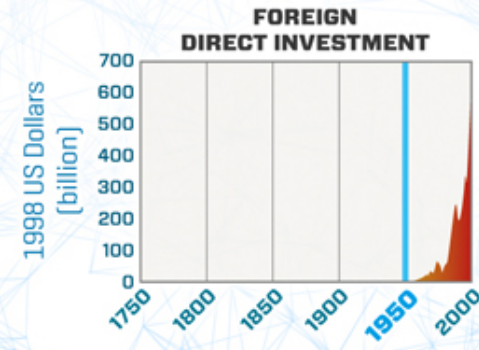
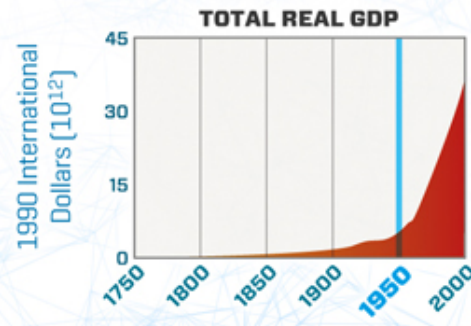
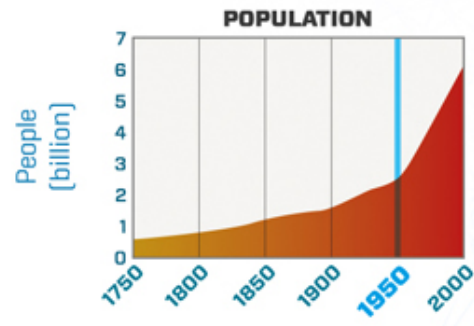
**If you fasten your seat-belt,
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junk food...**

**...you will live
long enough to see
large parts of the world
inhabitable.**

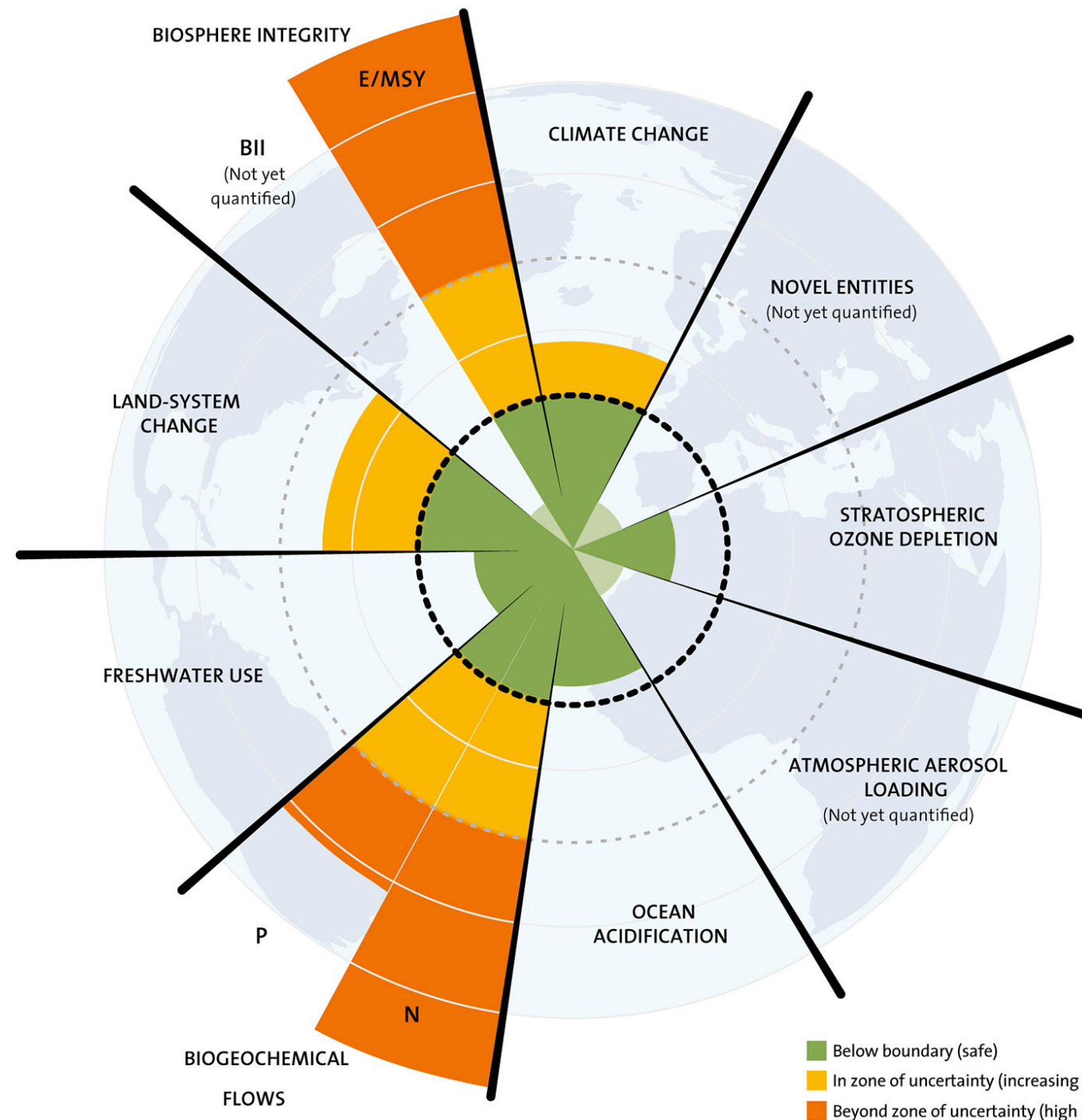
Great acceleration



Great acceleration



Planetary boundaries



Legal boundaries

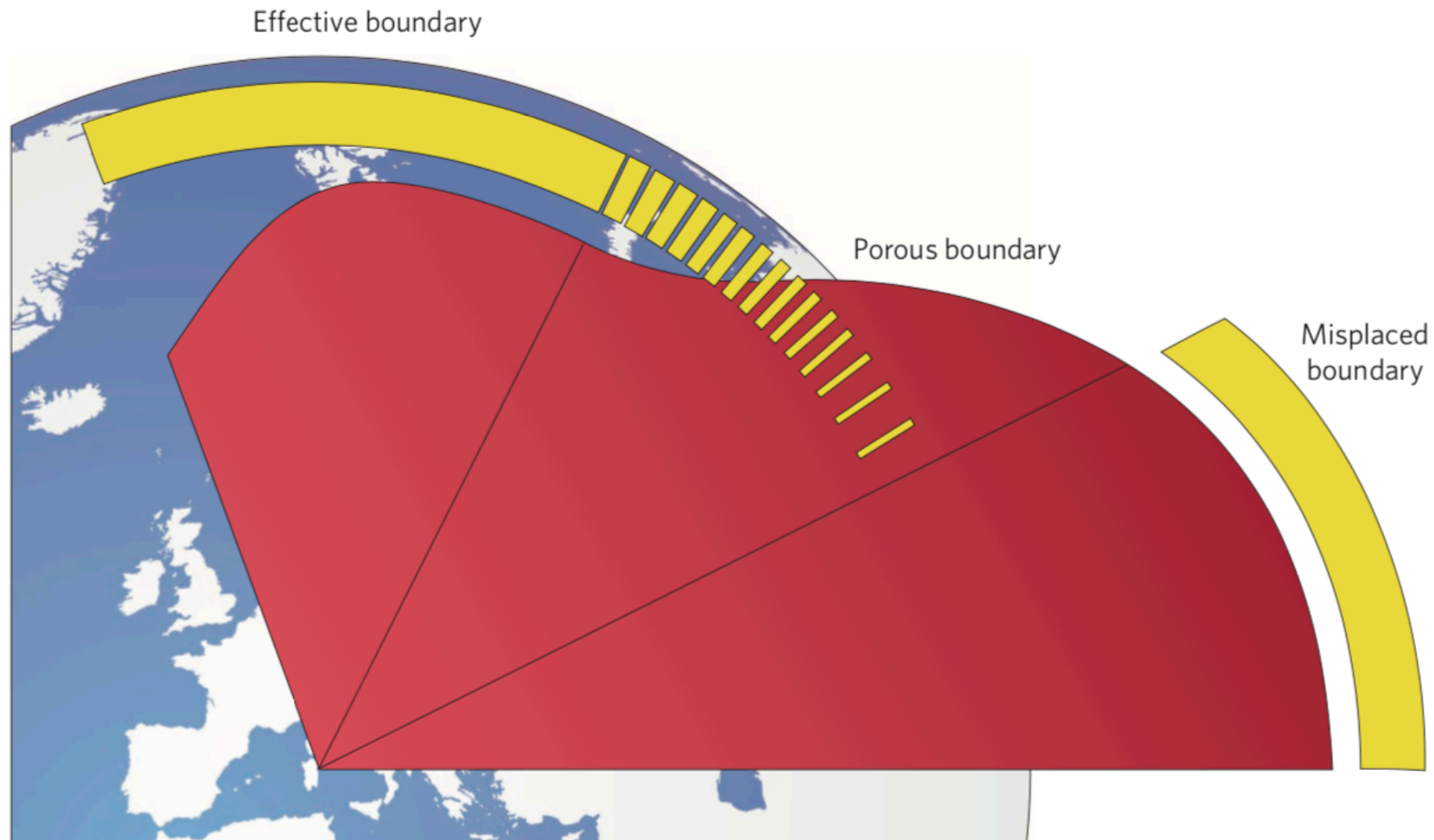
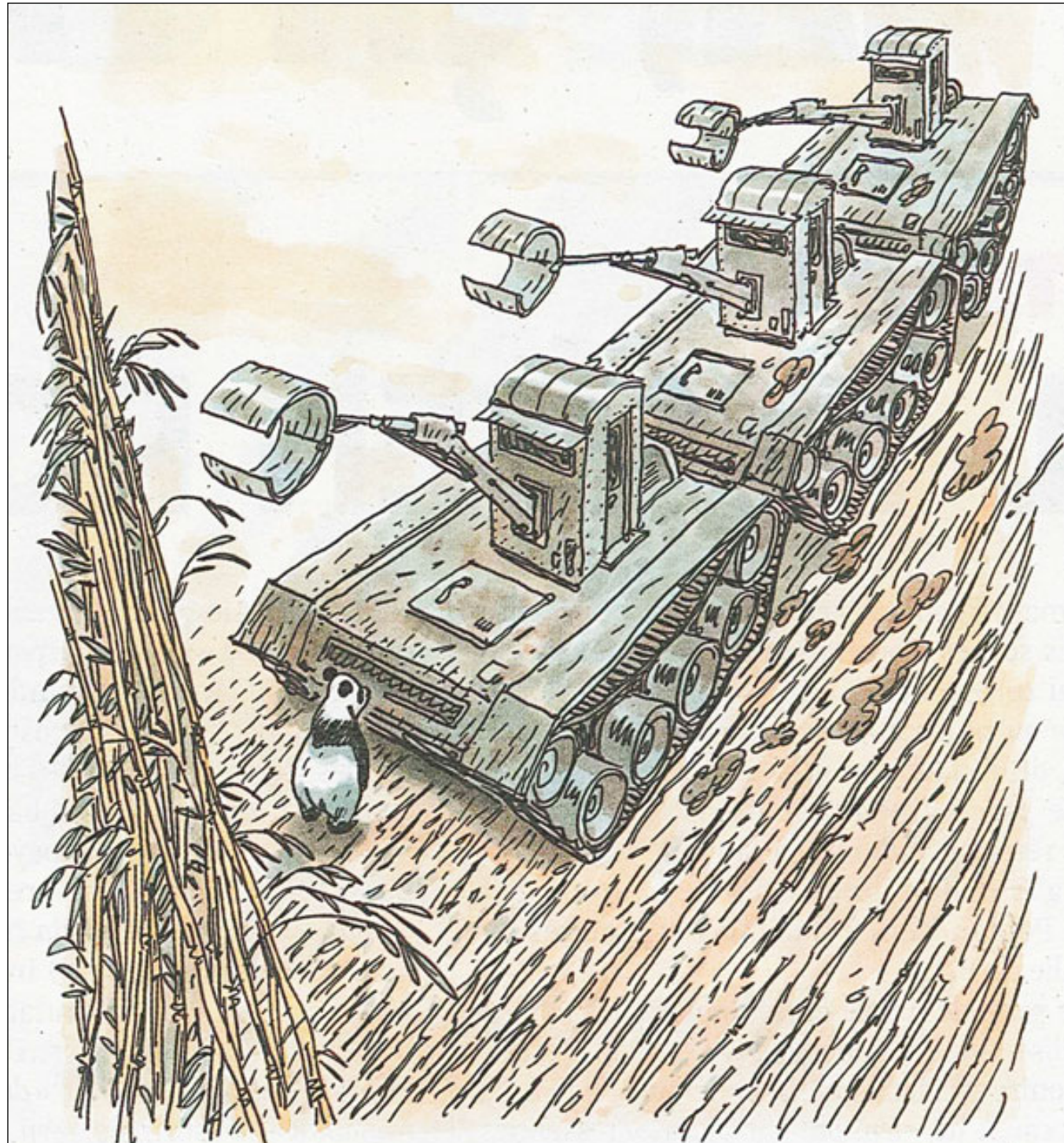


Figure 1 | Feedbacks between human activities (red area) and legal boundaries (yellow bands) relative to planetary boundaries (Earth). Legal boundaries may be effective when constraining growing human activities and preventing transgression of planetary boundaries. Increasingly porous boundaries, on the contrary, will let human activities grow and eventually transgress planetary boundaries. Misplaced boundaries are farther away than planetary boundaries and ineffective in preventing their transgression, and may be constantly pushed further by colliding human activities.

Can legal boundaries hold?



Methods

- Aim to assess what happens to environmental laws when human activities collide with them.
- Monitor legal changes through systematic mapping. Cross-jurisdictional and inter-disciplinary approach.
- The goal is not to focus in details on a single case and to discuss what are its implications in a specific jurisdiction. The goal is to draw a pattern of strategies.
- The study presented here is qualitative and not quantitative. We compiled a portfolio of strategies and not data on how often they have been used.

Portfolio of strategies

- 1. Change targets of protection (7)**
- 2. Change mechanisms of protection (11)**
- 3. Change importance of biodiversity relative to other considerations (11)**
- 4. Limit access to justice (4)**
- 5. Abuse political power and weaken rule of law (7)**

We exclude legal strategies that do not specifically pertain to biodiversity laws, such as censorship on government scientists or use of national security and anti-terrorism laws to crack down on environmental advocates.

strategy 1

**Change
targets of
protection**

S:1.1

God clause: permit extinction of species under protection law



Western Australia's Biodiversity Conservation Act 2016 allowed for exemptions, including allowing species to become extinct, if ordered by the Minister and approved by the Parliament.

Western Australia. Biodiversity Conservation Act section 271. [https://www.slp.wa.gov.au/pco/prod/FileStore.nsf/Documents/MRDocument:29149P/\\$FILE/Biodiversity Conservation Act 2016 - \[00-a0-01\].pdf](https://www.slp.wa.gov.au/pco/prod/FileStore.nsf/Documents/MRDocument:29149P/$FILE/Biodiversity%20Conservation%20Act%202016%20-%20%5B00-a0-01%5D.pdf) (2016).

S:1.2

Bypass ordinary standards to remove protection



United States budget rider
stripped Endangered Species Act
(ESA) protections from gray
wolves (*Canis lupus*) in
Montana and Idaho.

Barringer, F. & Broder, J. M. Congress, in a First, Removes an Animal From the Endangered Species List. The New York Times <http://www.nytimes.com/2011/04/13/us/politics/13wolves.html> (2011).

US House of Representatives. H.R.1473 - Department of Defense and Full-Year Continuing Appropriations Act, 2011. <https://www.congress.gov/bill/112th-congress/house-bill/1473> (2011).

S:1.3

Redefine terms



US HR 1042 proposed to declare a species extinct if its population status has not substantially increased 15 years after being listed as endangered.

US House of Representatives. H.R.1042 - DELIST Act. <https://www.congress.gov/bill/112th-congress/house-bill/1042> (2011).

S:1.4

Remove species protection through taxonomic change



Indian state of Goa amended law forbidding the felling of certain trees without permission by including only woody plants of a certain size that have branches, which excluded the coconut tree (*Cocos nucifera*) from protection.

Associated Press. Indian state decides coconut trees are no longer trees but palms. The Guardian <https://www.theguardian.com/environment/2016/jan/20/indian-state-decides-coconut-trees-are-no-longer-trees-but-palms-farming> (2016). BBC. [Why has Goa decided the coconut palm is no longer a tree?](http://www.bbc.com/news/world-asia-india-35417168) BBC News <http://www.bbc.com/news/world-asia-india-35417168> (2016).

Legislative Assembly of Goa. The Goa Preservation of Trees (Amendment) Bill. http://www.goavidhansabha.gov.in/uploads/bills/440_draft_BN030F2016.pdf (2016).

S:1.5

Weaken species protection through taxonomic ambiguity



US “McKittrick policy” makes criminal prosecution of individuals who killed protected species impossible unless knowledge that the animal was a protected species can be proven.

Newcomer, E., Palladini, M. & Jones, L. The Endangered Species Act v. The United States Department of Justice: How the Department of Justice Derailed Criminal Prosecutions Under the Endangered Species Act. *Animal Law* 17, 251-415 (2011).

Wood, J. Overcriminalization and the Endangered Species Act: Mens Rea and Criminal Convictions for Take. *46 Environmental Law Reporter*, 10496 (2016).

S:1.6

Restrict protection to economically valuable species



Canada Fisheries Act (2012) conferred protection only against serious harm to fish that are part of a commercial, recreational or aboriginal fishery (including non-native).

Favaro, B., Reynolds, J. D. & Côté, I. M. Canada's weakening aquatic protection. *Science* 337, 154 (2012).

Hutchings, J. A. & Post, J. R. Gutting Canada's Fisheries Act: no fishery, no fish habitat protection. *Fisheries* 38, 497-501 (2013).

S:1.7

Remove natural habitat protection



New Brazilian Forest Code decreased forest protections along riverbanks and hills and relieved landholders of the obligation to reforest illegally cleared land.

Tollefson, J. Brazil revisits forest code. *Nature* 476, 259-260 (2011).

Tollefson, J. Brazil set to cut forest protection. *Nature* 485, 19 (2012).

strategy 2

**Change
mechanisms
of protection**

S:2.1

Moving targets: make requirements for protected status more difficult to meet



US Fish and Wildlife Service (FWS) issued new interpretation of 16 USC Section 1532(6) species "significant portion of its range" potentially restricting protection only to small and isolated populations.

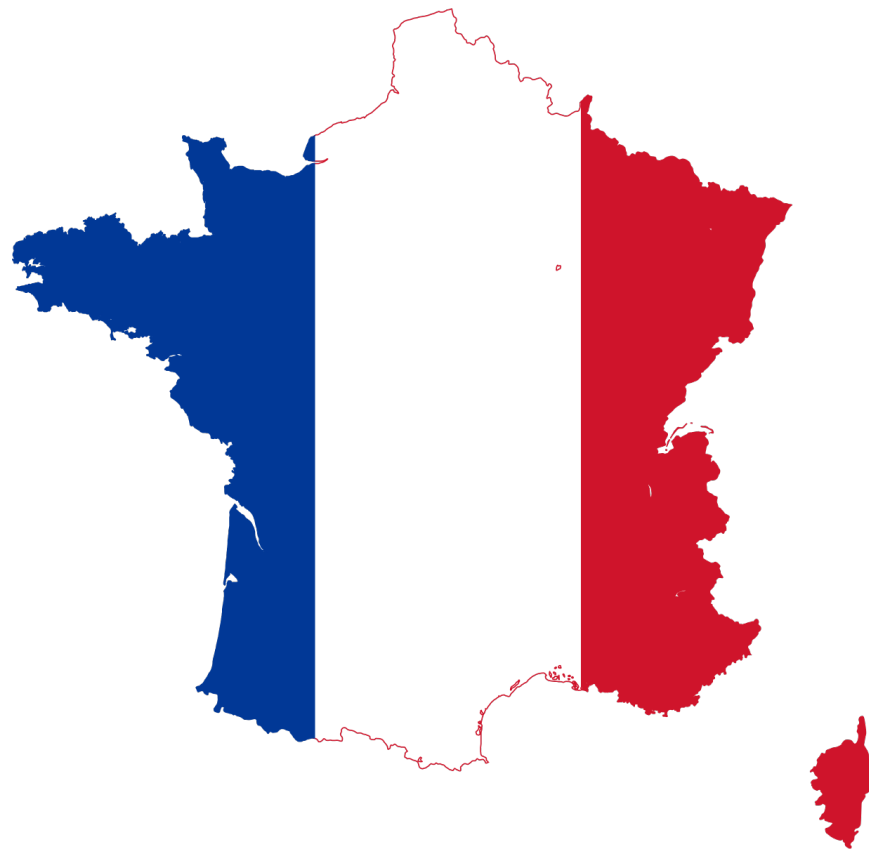
Greenwald, D. Effects on species' conservation of reinterpreting the phrase "significant portion of its range" in the US Endangered Species Act. *Conservation Biology* 23, 1374-1377 (2009).

Vucetich, J. A. & Nelson, M. P. Conservation, or Curation? *The New York Times* <http://www.nytimes.com/2014/08/21/opinion/conservation-or-curation.html> (2014).

US FWS. Final Policy on Interpretation of the Phrase "Significant Portion of Its Range" in the Endangered Species Act's Definitions of "Endangered Species" and "Threatened Species". *Federal Register* 79, 37578-37612 (2014).

S:2.2

Increase requirements to regulate industrial activity



French MPs proposed to increase size at which industrial pig farms need a specific assessment to operate.

Fontant, C. Des députés veulent faciliter l'installation d'élevages de porcs en Bretagne. Le Monde http://www.lemonde.fr/planete/article/2010/06/29/des-deputes-veulent-faciliter-l-installation-d-elevages-de-porcs-en-bretagne_1380425_3244.html (2010).

S:2.3

Fast-track environmental approval of development projects



Brazilian bill 654/2015 proposes to fast-track environmental approval of development projects considered strategic for the country.

Fearnside, P. M. Brazilian politics threaten environmental policies. *Science* 353, 746-748 (2016).

S:2.4

Preempt protection



US 2016 Consolidated Appropriations Act prevented consideration of protection for the sage grouse (*Centrocercus urophasianus*) during that year.

Consolidated Appropriations Act. Public Law 114–113, Sect. 117 (2015). <https://www.congress.gov/bill/114th-congress/house-bill/2029> (2016).

S:2.5

Sunset provisions: give protection an expiry date



US S 855 proposes to automatically remove species from protected list after 5 years.

US Senate. S.855 - Endangered Species Management Self-Determination Act. <https://www.congress.gov/bill/114th-congress/senate-bill/855> (2015).

S:2.6

Shield specific threats from regulation



Canada Fisheries Act (2012) removed prohibition on harmful alteration, disruption or destruction of fish habitat.

Favaro, B., Reynolds, J. D. & Côté, I. M. Canada's weakening aquatic protection. *Science* 337, 154 (2012).

Struzik, E. Oh Canada: the government's broad assault on the environment. *The Guardian* <https://www.theguardian.com/environment/2012/jul/02/canada-government-assault-environment> (2012).

Casselman, A. Changes to Canada's fisheries law alarm biologists. *Nature* 10.1038/nature.2013.14234 (2013).

S:2.7

Weaken environmental licensing



Brazilian constitutional amendment PEC 65/2012 proposes to remove the possibility to cancel development projects due to anticipated negative environmental impacts.

Wade, L. With Brazil in political crisis, science and the environment are on the chopping block. *Science* 10.1126/science.aaf5746 (2016).

Almeida, R. M., Lovejoy, T. E. & Roland, F. Brazil's Amazon conservation in peril. *Science* 353, 228 (2016).

S:2.8

Transfer of powers



South African National Environmental Management Act (2009) amended to empower Minister of Minerals and Energy Affairs (instead of the Minister of Environmental Affairs) to implement all environmental matters in relation to mining.

Ridl, J. & Couzens, E. Misplacing NEMA? A consideration of some problematic aspects of South Africa's new EIA Regulations. PER: Potchefstroomse Elektroniese Regsblad 13, 80-121 (2010).

S:2.10

Remove oversight from higher authorities



Canadian 2012 budget bill C-38 replaced Canadian Environmental Assessment Act by a regulation removing numerous industrial and development projects from federal assessment.

Reynolds, J. D., Côté, I. M. & Favaro, B. Canada: a bleak day for the environment. *Nature* 487, 171-171 (2012).

S:2.11

Race to the bottom



Netherlands reformed its biodiversity legislation, based on express policy to reduce protection to minimum standards, resulting in deletion of entire categories of protected areas and severe decrease of number of protected species.

Arcadis. De Wet natuurbescherming op hoofdlijnen. <https://www.arcadis.com/media/3/4/9/%7B349C7E92-EA84-4AD4-AD7D-CED3B42AFB19%7DDe-Wet-natuurbescherming-op-hoofdlijnen.pdf> (2016).

strategy 3

**Change importance of
biodiversity relative to other
considerations**

S:3.1

Remove independent scientific advice



Canadian 2012 budget bill C-38 closed National Round Table on the Environment and the Economy which provided non-partisan advice on federal environmental policies.

Reynolds, J. D., Côté, I. M. & Favaro, B. Canada: a bleak day for the environment. *Nature* 487, 171-171 (2012).

S:3.2

Preclude consideration of certain scientific data



US S 3071 proposed to amend ESA to prohibit considering climate change in the determination as to whether a species is threatened or endangered.

US Senate. S.3071 - A bill to amend the Endangered Species Act of 1973 to temporarily prohibit the Secretary of the Interior from considering global climate change as a natural or manmade factor in determining whether a species is a threatened or endangered species, and for other purposes. <https://www.congress.gov/bill/110th-congress/senate-bill/3071/text> (2008).

S:3.3

Change definition of scientific data



US S 736 proposed to amend ESA so that any information submitted by a State, tribal, or county government qualifies as best available science.

US Senate. S.736 - State, Tribal, and Local Species Transparency and Recovery Act. <https://www.congress.gov/bill/114th-congress/senate-bill/736> (2015).

S:3.4

Suspend protection under particular circumstances



US HR 1668 proposed to suspend ESA for water management in case a drought is declared.

US House of Representatives. H.R.1668 - Save Our Water Act. <https://www.congress.gov/bill/114th-congress/house-bill/1668/text> (2015).

S:3.5

Prioritize industry



Swedish expropriation law amended to require any restriction on a landowner's ongoing land use (such as forestry) that led to "significant difficulties" (generally an economic loss of more than 10%) to be compensated at 125% of the total loss, making biodiversity protection more expensive and in some cases not possible.

Forsberg, M. Skogen som livsmiljö: En rättsvetenskaplig studie om skyddet för biologisk mångfald. <http://www.diva-portal.org/smash/get/diva2:544926/FULLTEXT01.pdf> (2012).

S:3.6

Prioritize trade



Australian government proposes to repeal section 487(2) of the Environmental Protection and Biodiversity Act to avoid negative impacts on free trade agreement negotiations with India.

Associated Press. Andrew Robb: Carmichael mine 'skink is a patsy' and risks India trade talks. The Guardian <https://www.theguardian.com/environment/2015/aug/12/andrew-robb-carmichael-mine-skink-is-a-patsy-and-risks-india-trade-talks> (2015).

Clark, C. The government vs the environment: lawfare in Australia. The Conversation <https://theconversation.com/the-government-vs-the-environment-lawfare-in-australia-46205> (2015).

S:3.7

Prioritize military activities



US S 2410 (Sec. 353) allowed incidental take of California southern sea otters (*Enhydra lutris*) during training for military readiness activities.

US Senate. S.2410 - Carl Levin National Defense Authorization Act for Fiscal Year 2015. <https://www.congress.gov/bill/113th-congress/senate-bill/2410> (2014).

S:3.8

Prioritize anti-immigration measures



US 2005 Real ID Act ensured that ESA and other environmental legislation is not applied to construction of Mexican border fences.

Doyle, P. Unintended consequences: the environmental impact of border fencing and immigration reform. *Arizona Journal of Environmental Law and Policy* 3, 1047-1051 (2014).

S:3.9

Prioritize diplomacy



Pakistani Supreme Court lifted ban on Houbara bustards (*Chlamydotis undulata*) hunting after government argued it harmed relations with Arab states.

BBC. Pakistan court lifts Houbara bustard hunting ban. BBC News <http://www.bbc.com/news/world-asia-35380706> (2016).

S:3.10

Prioritize “national interest”



Mauritius 2015 biodiversity law opened for possibility to cull a species in the “national interest”, used to cull >20,000 Mauritius fruit bat (*Pteropus niger*).

Florens, F. B. V. Mauritius culls threatened fruit bats. *Sci. Bull* 58, 2262-2268 (2013).

IUCN. Position statement on the culling of the Mauritius Fruit Bat *Pteropus niger*. <http://www.batconafrika.net/wp-content/uploads/2015/10/IUCN-SSC-Position-Statement-Planned-Cull-Mauritius-Fruit-Bat1.pdf> (2015).

S:3.11

Investor-State Dispute Settlement (ISDS) Mechanisms

ABENGOA

Mexico ordered to pay 40 millions USD in compensation for losses and lost future profits, plus 50% of litigation costs, to Abengoa, a Spanish multinational corporation, after revoking a permit for a waste facility in an environmentally vulnerable area.

Abengoa S.A. y COFIDES S.A. v. United Mexican States. ICSID Case No. ARB(AF)/09/2. <http://www.italaw.com/sites/default/files/case-documents/italaw3187.pdf> (2013).

strategy 4

**Limit
access to
justice**

S:4.1

Reduce access to justice



Netherlands eliminated the *actio popularis*, which allowed anybody to challenge environmental permits, limiting access to parties deemed to have an interest in the case.

Tolsma, H., De Graaf, K. & Jans, J. The rise and fall of access to justice in the Netherlands. *Journal of environmental law* 21, 309-321 (2009).

S:4.2

Shield government decisions from judicial review



Swedish government modified law to make large carnivore hunting decisions appealable only to the government authority issuing them and not to court.

Darpö, J. & Epstein, Y. Thrown to the Wolves--Sweden Once Again Flouts EU Standards on Species Protection and Access to Justice. *Nordic Environmental Law Journal*, (2015).

S:4.3

Increase financial risk when litigating



British government proposes to increase financial liability of NGOs if they lose public interest environmental litigation.

Howard, E. Legal battles to protect the environment 'easier to fight in China than the UK'. The Guardian <https://www.theguardian.com/environment/2015/nov/11/legal-battles-to-protect-the-environment-easier-to-fight-in-china-than-the-uk> (2015).

Ministry of Justice. Costs Protection in Environmental Claims – Proposals to revise the costs capping scheme for eligible environmental challenges. https://consult.justice.gov.uk/digital-communications/costs-protection-in-environmental-claims/supporting_documents/costprotectioninenvironmentalclaimsonconsultationpaper.pdf (2015).

S:4.4

Litigate to intimidate and silence critics



Canadian timber company engaged in Strategic Lawsuit Against Public Participation (SLAPP) against US NGOs after sustainability certificates are suspended.

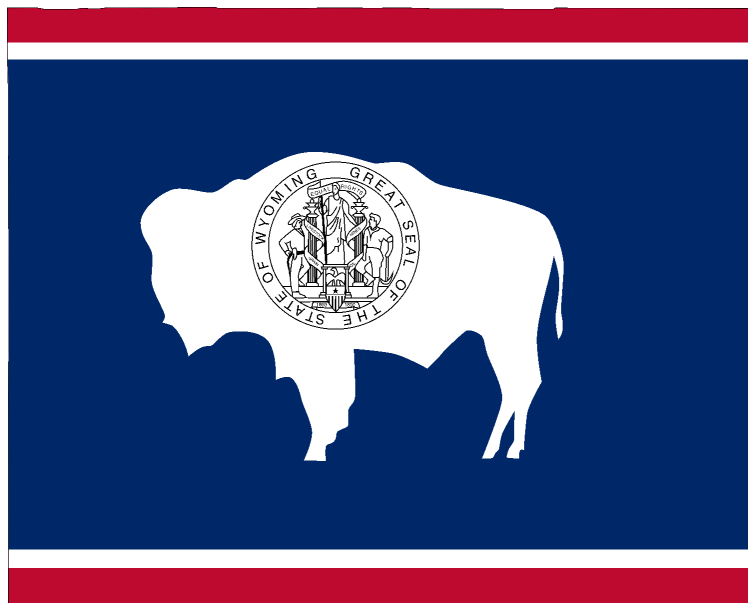
Gaworecki, M. Canadian logging company sues Greenpeace for racketeering and defamation. <https://news.mongabay.com/2016/06/canadian-logging-company-sues-greenpeace-for-racketeering-and-defamation/> (2016).

strategy 5

**Abuse political power and
weaken rule of law**

S:5.1

Criminalize data collection and sharing



Wyoming data trespass law made it illegal to collect ecological data on private land or to cross private land for the purpose of collecting data on other land.

Gannon, E. Wyoming Criminalizes Citizen Science. Courthouse News Service <http://www.courthousenews.com/2015/05/18/wyoming-criminalizes-citizen-science.htm> (2015).

Guo, J. Wyoming doesn't want you to know how much cow poop is in its water. The Washington Post <https://www.washingtonpost.com/blogs/govbeat/wp/2015/05/20/wyoming-doesnt-want-you-to-know-how-much-cow-manure-is-in-its-water/> (215).

S:5.2

Sleeping beauties: silently neglect enforcement of strong laws



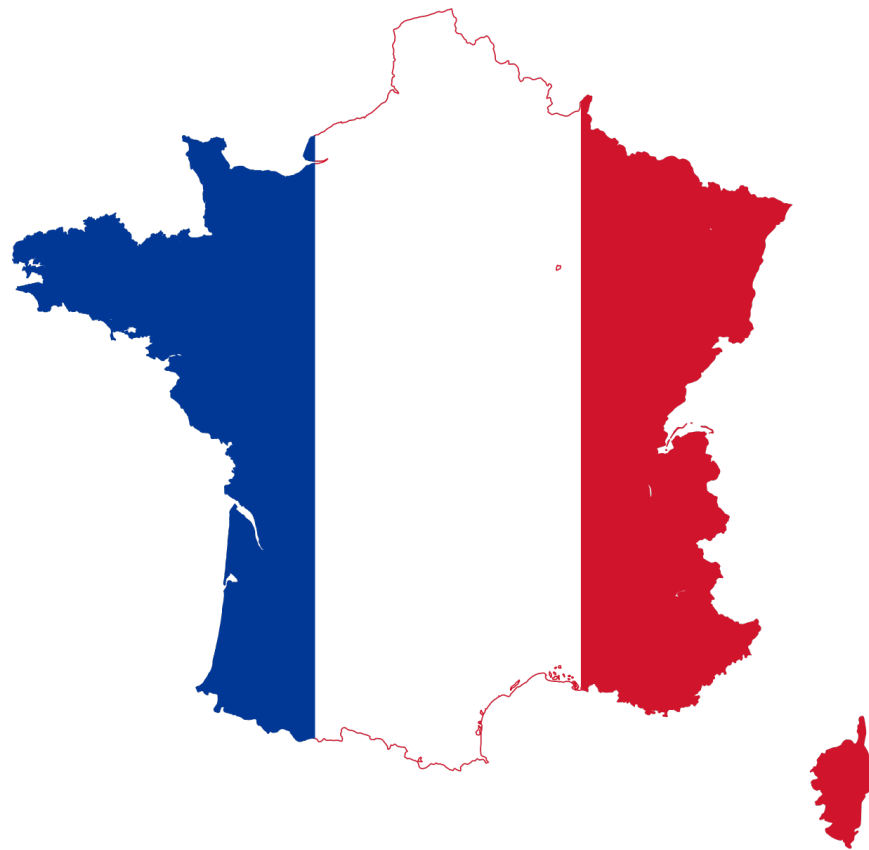
Spanish authorities failed to enforce EU strict protection regime for the Sierra Morena wolf population, resulting in disappearance of population due to widespread illegal killing.

López-Bao, J. V. et al. Toothless wildlife protection laws. *Biodiversity and Conservation* 24, 2105-2108 (2015).

Trouwborst, A. The EU Habitats Directive and wolf conservation and management on the Iberian Peninsula: a legal perspective. *Galemys: Spanish Journal of Mammalogy* 26, 15-30 (2014).

S:5.3

Expressly weaken law enforcement



French environment minister ordered law enforcement forces to not arrest illegal hunters of migratory birds.

Radisson, L. Chasse à l'oie : Ségolène Royal envoie un mauvais signal avant la loi biodiversité. Actu-Environnement <http://www.actu-environnement.com/ae/news/oies-chasse-Segolene-Royal-loi-biodiversite-LPO-FNE-23779.php4> (2015).

S:5.4

Deny apparent violation of law



Australian authorities culled sharks despite apparent violation of Convention on Migratory Species.

Trouwborst, A. Aussie Jaws and International Laws: The Australian Shark Cull and the Convention on Migratory Species. 2 Cornell International Law Journal Online, 41-46 (2014).

S:5.5

Defund law enforcement



**US HR 2822 (Amdt. 634)
proposed to prohibit use of
funds by USFWS to enforce
the ESA with respect to
certain mussels.**

US House of Representatives. Amendment 634 to Department of the Interior, Environment, and Related Agencies Appropriations Act 2016. <https://www.congress.gov/amendment/114th-congress/house-amendment/634> (2015).

S:5.6

Ignore court ruling



Greece failed to curb uncontrolled management of a landfill affecting a sea turtle (*Caretta caretta*) breeding site.

Watson Farley & Williams. The new Greek national waste management plan. Briefing <http://www.wfw.com/wp-content/uploads/2015/09/Greece-National-Waste-Management-Plan-September-2015.pdf> (2015).

Court of Justice of the European Union. By not prohibiting the uncontrolled management of a landfill site in the National Marine Park of Zakynthos (Zante), Greece has infringed European Union environmental legislation. Press Release 104 (2014).

S:5.7

Regulatory chill



Several mining companies won exemption from Indonesian law banning open-pit mining in protected forest areas following threats of costly ISDS litigation.

Hamby, C. The Secret Threat That Makes Corporations More Powerful Than Countries. BuzzFeed <https://www.buzzfeed.com/chrishamby/the-billion-dollar-ultimatum> (2016).

Tienhaara, K. What You Don't Know Can Hurt You: Investor-State Disputes and the Protection of the Environment in Developing Countries. *Global Environmental Politics* 6, 73-100, doi:10.1162/glep.2006.6.4.73 (2006).

Bolster legal boundaries to stay within planetary boundaries

Guillaume Chapron, Yaffa Epstein, Arie Trouwborst and José Vicente López-Bao

Environmental laws are binding and enforceable tools that constrain human impacts on the environment, but how effective are they at keeping humanity away from critical planetary boundaries?

Environmental laws are intended to prevent environmental degradation, protect and enhance environmental quality, or promote sustainable development. Taking the example of biodiversity, the functions of legislation include: designation and protection of sites, strict protection of vulnerable species populations from a range of threats, and regulation of the sustainable use of more robust populations. Enacted over the past several decades following the rise of environmental movements in the 1970s, environmental laws are credited today with numerous successes. For biodiversity conservation in Europe, Directive 2009/147/EC on the conservation of wild birds and Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora have had a positive impact on species conservation status¹⁻³. In the USA, the Endangered Species Act (ESA)

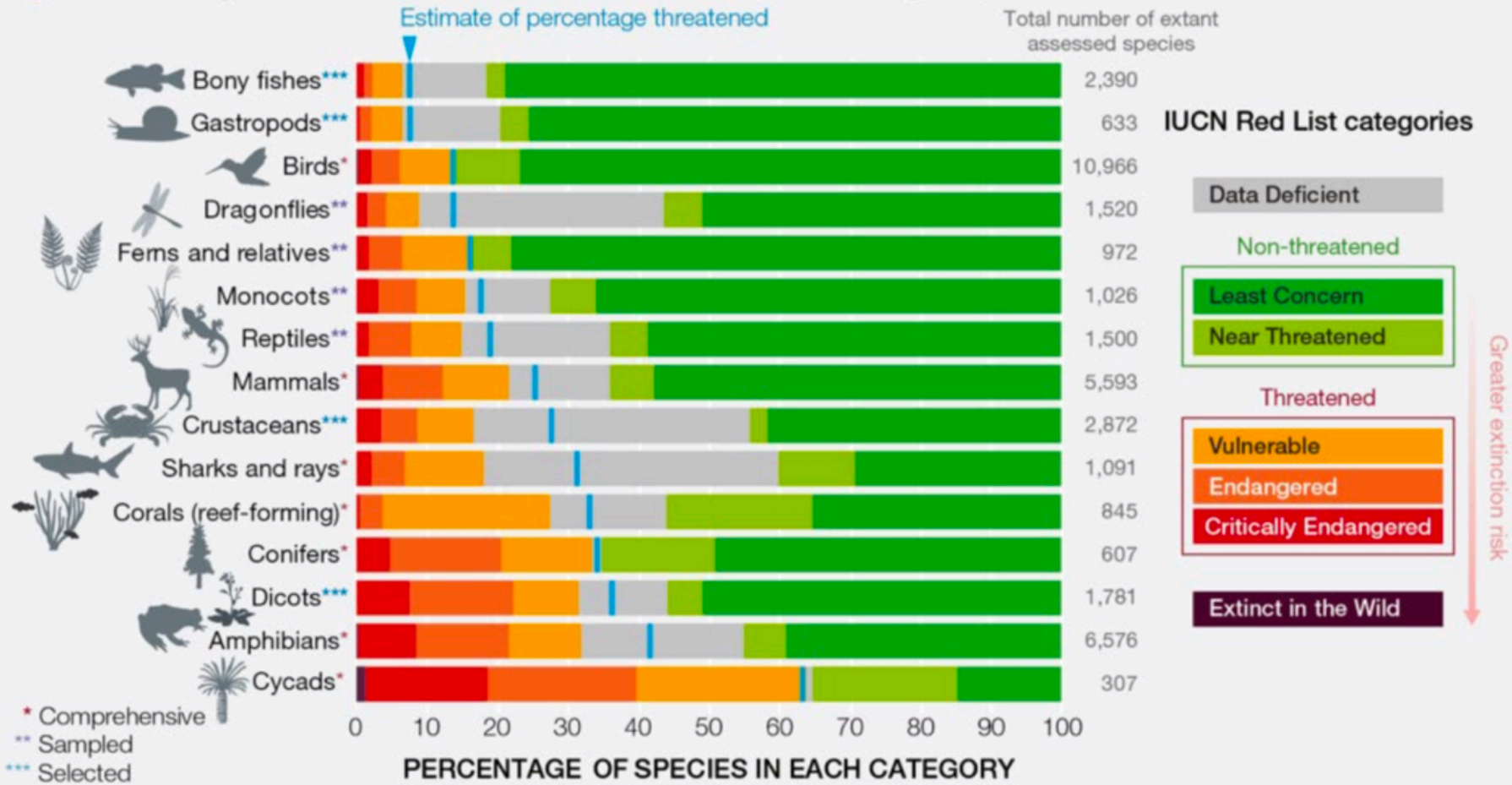
used in connection with legal instruments (for example, the ESA requires use of the “best available science”⁶). Finally, and crucially, the judiciary has the far-reaching responsibility and power to ensure the rule of law and to hold governments as well as private actors accountable for violations of environmental law. Laws that are effective in protecting the environment can, because of that very effectiveness, become vulnerable to political pressure.

Here, with a particular focus on biodiversity legislation, we argue that effective environmental legislation must at a minimum act as legal boundaries that prevent human activities from reaching and breaching planetary boundaries, defined as the safe space for mankind to operate within^{7,8}. States have agreed many times to protect the ecological integrity of

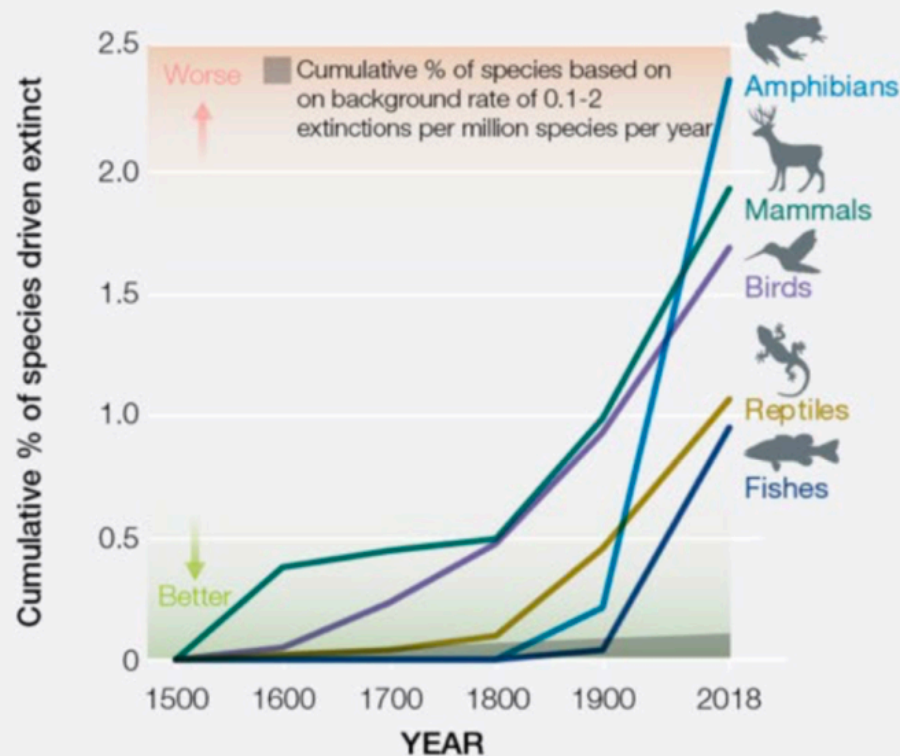
the planet (for example, the Convention on Biological Diversity), and law can be a very effective means towards actually ensuring that this duty is observed. In other words, legal boundaries must translate the physical reality of a finite world into law and thereby delimit acceptable levels of human activity. However, because laws are political constructs created by human societies, they are — for good or bad — amenable to adjustments, modifications or suppression according to social and political changes and interests: what a law can do can be undone by another law. Planetary boundaries on the contrary have a fundamentally different nature: they are immutable facts emerging from the bio-geophysics of planet earth and are immune to political pressure. The scope and functioning of legal boundaries become therefore fundamental to ensure that

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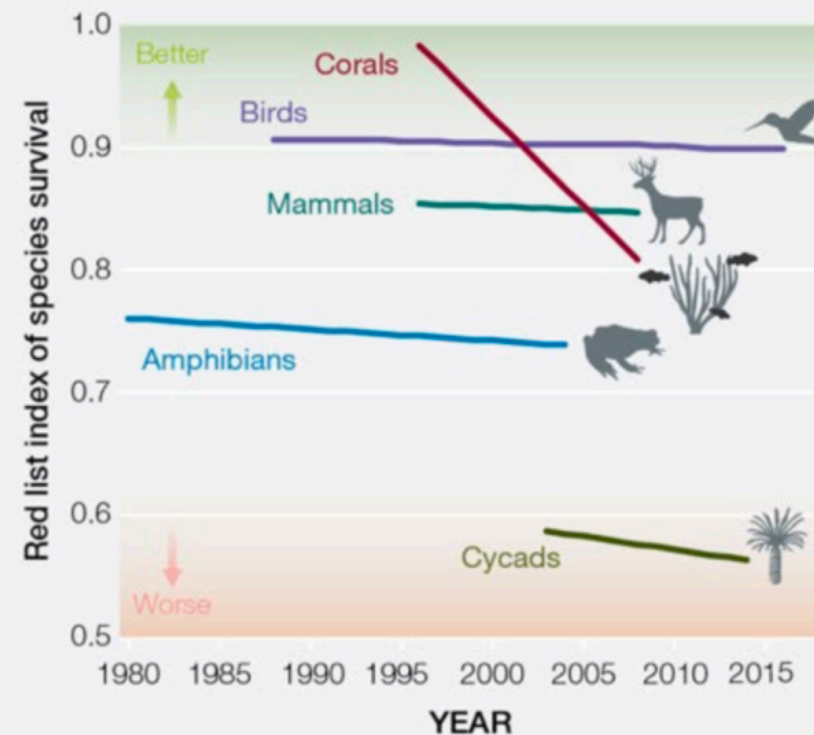
A Current global extinction risk in different species groups



B Extinctions since 1500

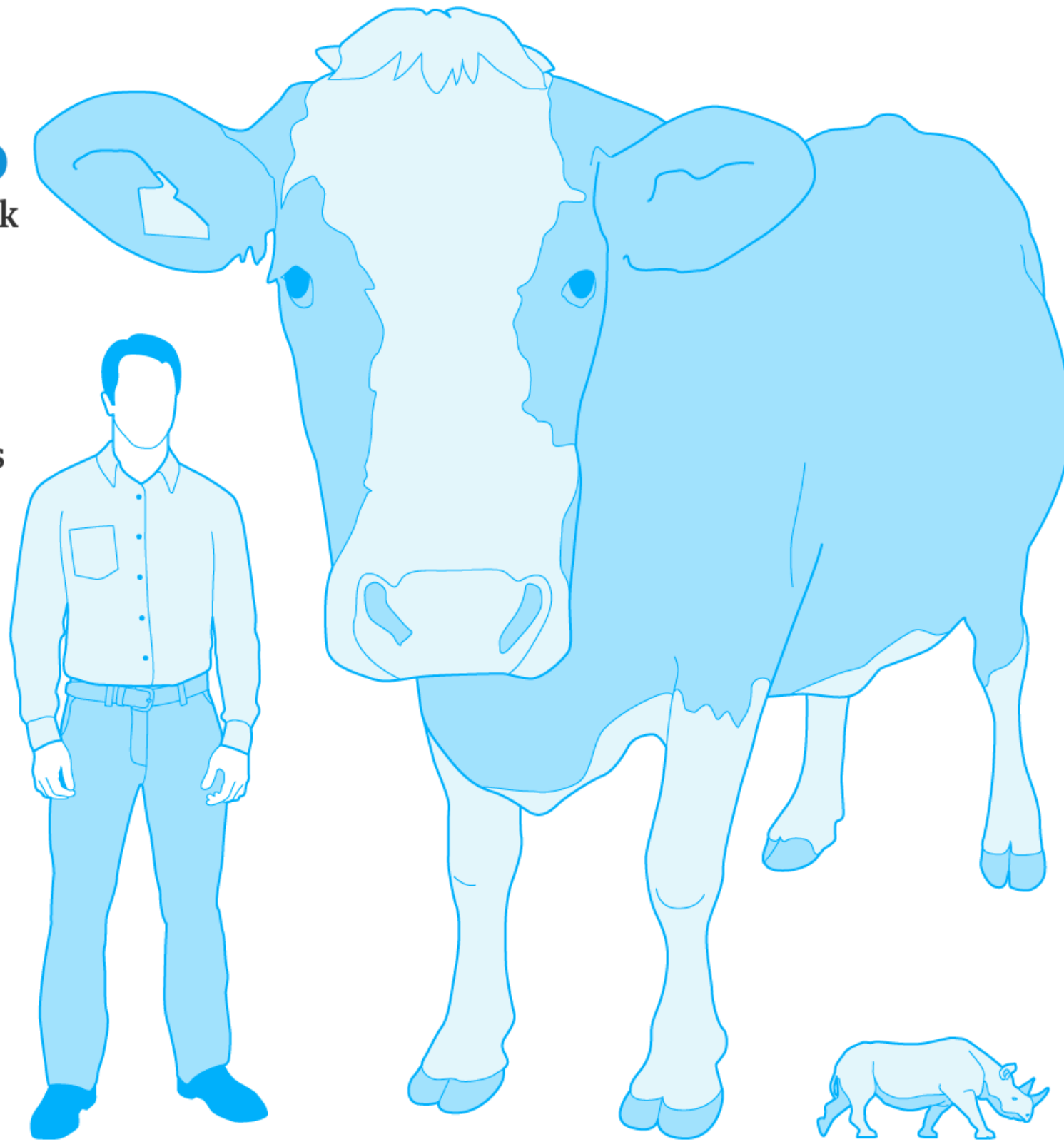


C Declines in species survival since 1980 (Red List Index)



60%
are livestock

36%
are humans



4%
are wild
mammals

Still, laws can be effective when implemented

CONSERVATION

Recovery of large carnivores in Europe's modern human-dominated landscapes

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The conservation of large carnivores is a controversial and challenging goal. Using a data set on the past and present distribution of lynx (*Lynx lynx*), gray wolves (*Canis lupus*), and brown bears (*Ursus arctos*) show that roughly one-third of European populations with stable or increasing abundance have been protected by this overall conservation success. This success is due to a variety of practices making conservation more effective in the European situation reveals that

Large carnivores are among the most controversial and challenging groups to conserve in our modern and human-dominated landscapes. There is a deeply rooted hostility towards large carnivores in human history and cultural perceptions of their negative impacts on human livelihoods (1). Large carnivore abundance and distribution have historically been restricted, and their present conservation has become more complex with broader emotional, political, and social issues that further complicate this conservation goal. In addition, large carnivores live at low densities and have large spatial requirements (2).

it has been deemed a priori to fail because of the existing conflicts between large carnivores and humans. This dichotomy of large carnivore conservation models is analogous to the land-sharing versus land-sparing debate, which is ongoing in a wider biodiversity conservation context (7).

We compiled data about the status (i.e., current and past occurrence and abundance) of large carnivores [brown bears (*Ursus arctos*), Eurasian lynx (*Lynx lynx*), gray wolves (*Canis lupus*), and wolverines (*Gulo gulo*)] in Europe (8). We show that the European continent (considering all continental European countries excluding Belarus

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LETTER

Assessing the Performance of EU Nature Legislation in Protecting Target Bird Species in an Era of Climate Change

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Keywords

Conservation policy; European Union; population trends; climate change; Birds Directive; migration.

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International Conservation Policy Delivers Benefits for Birds in Europe

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Conservation of the planet's biodiversity will depend on international policy intervention, yet evidence-based assessment of the success of such intervention is lacking. Poor understanding of the effectiveness of international policy instruments exposes them to criticism or abandonment and reduces opportunities to improve them. Comparative analyses of population trends provide strong evidence for a positive impact of one such instrument, the European Union's Birds Directive, and we identify positive associations between the rate of provision of certain conservation measures through the directive and the response of bird populations. The results suggest that



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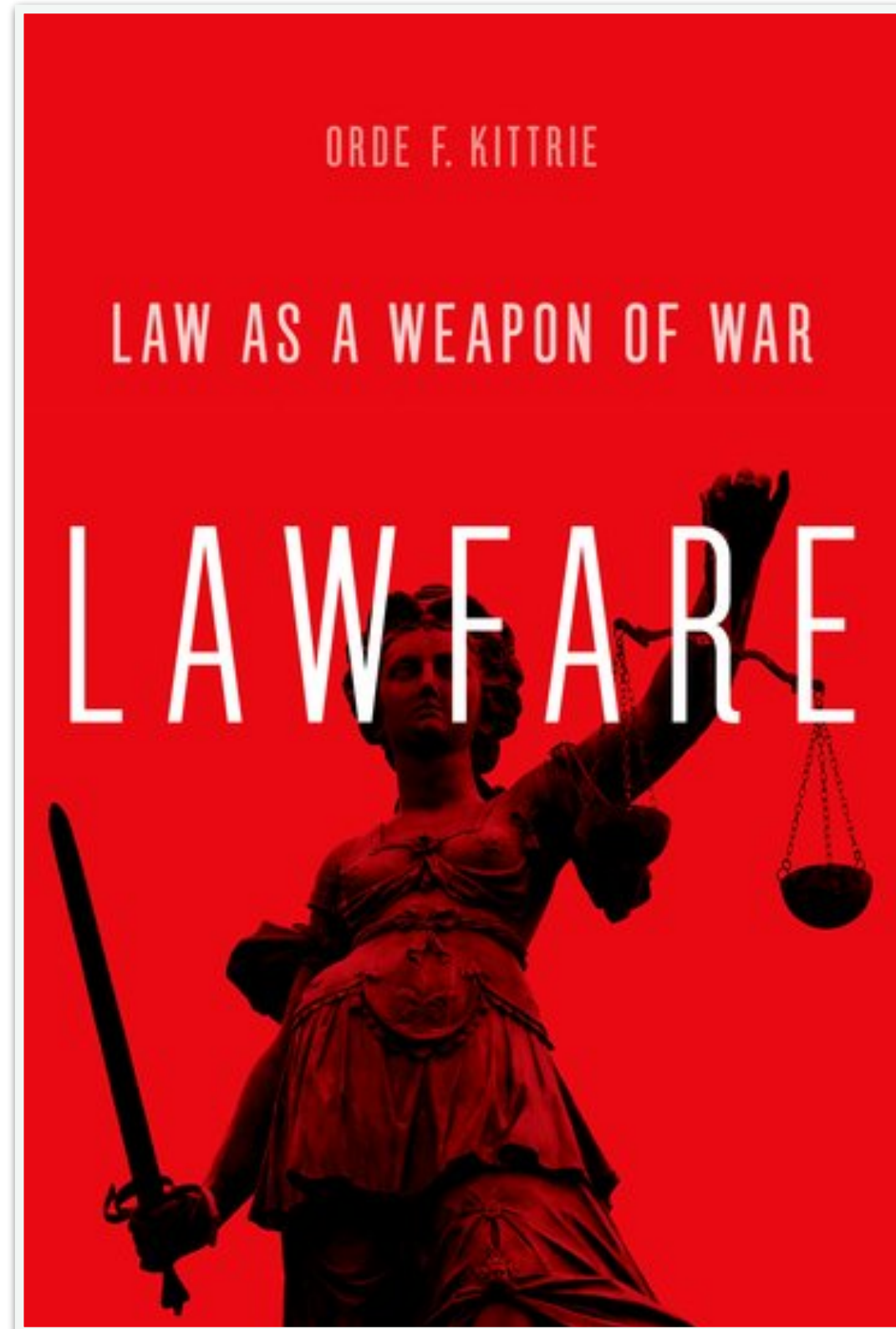
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a way forward

Conservation lawfare

Law as a weapon of war



Principles of conservation lawfare (1)

- Have presented a systematic mapping of strategies of law-un-making.
- We now need a systematic mapping of litigation. Understand what kinds of arguments are more likely to win, what kinds of arguments are more likely to lose and in which contexts. Quantitative, cross-jurisdictional and inter-disciplinary approach.
- Litigation is a weapon that needs to be modelled from data to develop optimisation strategies adapted to a changing legal landscape. Analogy with antibiotics against infections.
- Litigational education for NGOs and the public. Access to justice is useless if nobody enters a court or without winning arguments.

Principles of conservation lawfare (2)

- Need to be bolder. The window of opportunity to prevent civilisational collapse will close soon, and is about to close for climate and biodiversity. This will be understood only when the window is closed and cannot be re-opened (fundamental difference with social issues).
- The world is being destroyed by a diversity of organisations, whether nation states, companies or interest groups. Every organisation has vulnerabilities and faces risks it tries to minimize. We need disruptive lawfare to escalate vulnerabilities and amplify risks to make these organisations struggling. Litigation may be completely unrelated to environmental law.
- A movement always needs a simple and unifying ideological message. Rights of nature can be this message. Don't look down at this, it is the moral complement to legal work with existing laws whom implementation is political.

LAW

A rights revolution for nature

Introduction of legal rights for nature could protect natural systems from destruction

By **Guillaume Chapron,¹ Yaffa Epstein,² José Vicente López-Bao³**

Scientific evidence indicates that the global environmental crisis is accelerating and that environmental laws have not been able to reverse the trend (1). A movement to recognize nature as a rights holder argues that existing laws regulate, rather than stop, the destruction of the natural world (2). Instead of incrementally reforming such laws, a growing number of jurisdictions around the world have recognized rights of nature (see the box). This may better protect natural systems, though questions remain and contributions from various disciplines will be necessary to implement this rights revolution and ensure its effectiveness.

Ideas about rights have changed over time. The modern idea that there exist some universal human natural rights that do not come from governments and cannot be taken away emerged during the Enlightenment. For example, the 1776 American Declaration of Independence held that the rights to life, liberty, and the pursuit of happiness were self-evident. The 1789 French Declaration of the Rights of Man and of the Citizen announced that the purpose “of all political associations is the preservation of the natural and imprescriptible rights of man,” such as the right to liberty. These expressions of natural human rights provided a vocabulary for arguing that slavery and other rights violations were wrong. Following the devastating human rights violations of World War II, the United Nations adopted the Universal Declaration of Human Rights, recognizing the inherent dignity of all humans and a broad array of rights. Many of these rights are not yet a reality for many people, but the declaration provides a moral blueprint for more-just societies.

Rights-of-nature advocates posit that environmental devastation is a moral wrong that ought to be stopped. This claim is not grounded in scientific evidence but is no less valid than the assertion that harming humans is a moral wrong. Neither human

rights nor nature rights can be demonstrated through a scientific process, but we can make inferences about what justice requires on the basis of what we know to be necessary for the flourishing of humans or of nature (3).

The rights-of-nature movement is similar to the animal rights movement in that it seeks to promote the rights of nonhuman life (4). However, animal rights, like human rights, traditionally prioritize the individual. According to Regan (5), all individual living beings have inherent value and, therefore, rights by virtue of being alive. Rights of nature go beyond the animal rights discourse. Proponents have focused on rights of natural communities, ecosystems, or other natural entities that are alive or sustain life, such as mountains or Mother Earth. Parallels can be made with collective rights, such as the rights of nations to self-determination or a right to cultural protection (6).

GROUNDS FOR RIGHTS OF NATURE

Rights for collectives, rights for animals, and rights of nature may be most easily grounded in the interest theory of rights. According to Raz, a person or other entity has a right if and only if they are capable of having rights, and some aspect of their interest or well-being is “a sufficient reason for holding some other person(s) to be under a duty” (7). Some interests of nature that have been argued to be sufficient to produce rights include existence, habitat, and fulfilling ecological roles (8, 9). The interest theory itself does not resolve whether nature is capable of having rights, but Raz suggests that entities that have value for their own sake, rather than for the value they provide others, can have rights (7). Rights-of-nature advocates make a moral assertion that nature does have this intrinsic value.

Other rights arguments stem from religion or spirituality. Enlightenment human rights theories often identified the biblical God as a source of human rights, but non-Western religions and especially indigenous spiritualities have influenced the rights-of-nature discourse. Rights-of-nature thinking frequently blends Western rights concepts with non-Western spirituality, sometimes as a means to remedy a previous usurpa-

tion of nature from another people's use. For example, New Zealand's recognition of the Whanganui River and surrounding area as the legal person Te Awa Tupua arose out of a treaty settlement with a Maori tribe and that tribe's spiritual connection to the river. Similarly, the Ecuadorian constitution recognizes the rights of Pacha Mama, an indigenous earth goddess. Ecocentric laws can also be compatible with monotheistic spirituality, as illustrated by Pope Francis's encyclical *Laudato si*, which condemns “tyrannical anthropocentrism” and calls for a new legal framework to protect ecosystems.

A rights discourse does not rely on economic or utilitarian approaches to valuing nature that aim to maximize some aggregate utility. Rights language has often provided a moral bulwark to defend the vulnerable against such calculations. For instance, child labor is no longer considered the right thing to do even if it would make society wealthier overall. Nevertheless, utilitarian arguments may also support the enactment of rights for nature, if they provide an efficient way to protect the environment for the greater good.

LEGAL RIGHTS FOR NONHUMANS

Whether nature has moral rights is likely to remain debated, but nature clearly can have legal rights—and does so in jurisdictions that have recognized, granted, or enacted them. Legally recognized rights of nature have stemmed from sources including constitutions, laws, and court decisions (2).

The granting of legal rights to nonhumans is not in itself revolutionary or even unusual. Although moral considerations often influence the development of legal rights (and vice versa), legal rights need not have a moral basis. The law can give rights to all kinds of entities if it finds reason to do so.

Corporations, trade unions, and states are all nonhuman entities that have rights and duties under the law. They have rights to litigate if they are injured and duties not to violate the rights of others. The legal system has no difficulty adjudicating nonhuman rights.

Rights of nature may offer benefits lacking in other types of legal protection for the environment. For example, human rights to a healthy environment would not protect species whose existence may conflict with human activities. Conservation laws such as the Endangered Species Act can protect species but do not give them a right to exist. This protection can therefore be removed at the whim of the legislature (10). If instead species rights were recognized, species or their representatives could seek restitution when harmed even when they are not ex-



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