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Please cite as:

Favor citar como:

Fearnside, P.M. 2021. **The intrinsic
value of Amazon biodiversity.**
Biodiversity and Conservation 30:
1199–1202. <https://doi.org/10.1007/s10531-021-02133-7>

DOI: 10.1007/s10531-021-02133-7

ISSN: 0960-3115 (Print) 1572-9710 (Online)

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The original publication is available at:

O trabalho original está disponível em:

<https://doi.org/10.1007/s10531-021-02133-7>

<http://link.springer.com/article/10.1007/s10531-021-02133-7>

The Intrinsic Value of Amazon Biodiversity

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Amazon biodiversity has utilitarian value for supplying products for human consumption, such as timber, fish and compounds for pharmaceutical use (Fearnside 1999). It also provides environmental services or “regulating” ecosystem services, such as storing carbon and recycling water (Fearnside 1997a, 2008). But there is another dimension to the value of Amazon forest: its intrinsic value. Scientists generally shy away from this aspect, and I have often been guilty of this, pivoting from interviewers’ questions to talk about the forest’s role in global climate and the like. The Amazon forest does indeed have intrinsic or “existence” value, including both its biodiversity and the right to existence of the hundreds of indigenous and other traditional peoples that inhabit the forest. The fact that many people recognize this at an emotional level, whether or not they also articulate it in intellectual terms, is one of the keys to changing the course of history here so that the forest with all its functions continues to exist.

Biodiversity is often seen as less compelling than climate change as a motivation for maintaining tropical forest. Mitigating climate change will require hundreds of billions of dollars, and there is obviously much more money on the table in the negotiations under the Climate Convention than those under the Biodiversity Convention. However, the vast expanse of protected areas created in Brazil and other Amazonian countries has been justified on the basis of maintaining biodiversity, not avoiding climate change.

Keeping Amazonian biodiversity from being destroyed sparks tremendous interest in people in other parts of the planet, such as Europe and North America – and in Rio de Janeiro and São Paulo – even though very few of these people will ever know the Amazon forest firsthand. Just as people can be highly motivated to protect iconic African wildlife such as elephants and gorillas, even though they will never see one in the wild, they can be passionate about Amazon forest as an ecosystem even if they can’t name a single species that lives here.

Maintaining the carbon stocks in both the vegetation and soil in Brazil’s Amazon forest is critical to containing global warming (Barros and Fearnside 2019; Fearnside 2018). Discourse on why Amazon forest should be maintained concentrates on avoiding global warming, but the same passion does not arise for keeping other carbon stocks intact, such as oil under the sands of Arabian deserts. This reflects the fact that there is more at stake in Amazonia than carbon.

The intrinsic value of biodiversity can be translated into actions to protect Amazonian ecosystems in various ways. Brazil forbids deliberately causing the extinction of a species, which results in environmental impact assessments for development projects going to some length to evaluate potential impacts on endangered species. However, this is not necessarily effective in preventing extinctions. Brazil’s Belo Monte Dam was built despite knowing that it threatened several species of fish only found in the reservoir area and in the 100-km river stretch from which 80% of the water flow was diverted (Fitzgerald et al. 2018). One of these species is the zebra pleco (*Hypancistrus zebra*), a famous ornamental fish that is expected to go extinct in the wild (Gonçalves 2011). Unlike the other species threatened by Belo Monte, the zebra pleco will survive in aquaria around the world.

Biodiversity can motivate Amazonian countries to take measures such as restricting deforestation and creating protected areas. Brazil's SNUC (National System of Conservation Units) is one reflection of this. Another example is offered by some of Brazil's decisions on what to export. Before 1965 Brazil exported jaguar skins, but halted this trade even though the world was more than willing to buy this commodity. There can be interplay between national and international views on such decisions, as illustrated by Brazil's export of mahogany (*Swietenia* spp.). In 1996, Brazil instituted a moratorium on export of this the most valuable species of Amazonian timber (and the moratorium was renewed it in 1998, 2000, 2002 and 2003, albeit with insertion of some loopholes). At the 1997 meeting of the Convention on International Trade in Endangered Species (CITES) Brazil refused to accept any listing of mahogany as endangered (Fearnside 1997b), but in 1998 Brazil listed its mahogany populations in CITES Annex III, which has the lowest level of restriction, and in 2002 it would add mahogany to the more-restrictive Annex II (CITES 2020). Between 1971 and 2001 Brazil's mahogany exports totaled US\$ 3.9 billion (Brazil, MMA 2003). Brazil's moratorium on mahogany began before any CITES restrictions on this species, and the participation of both the exporting and importing countries in CITES appears to be largely motivated by concern over species extinctions rather than by maximizing monetary returns.

Countries are free to decide both what they will export and what they import. For example, if an African country wants to export ivory from elephant tusks, this doesn't mean that other countries are obliged to import them. Brazil should not be surprised if countries put restrictions on imports of Brazilian commodities that drive Amazonian deforestation. Countries can either halt imports of Amazonian commodities entirely or condition their imports on demonstrating that the supply chains do not provoke deforestation either directly or indirectly. Avoiding "indirect" impact on deforestation is essential, for example in the case of Brazilian soy planted in former cattle pastures inducing the migration of ranchers to rainforest areas (Arima et al. 2014; Fearnside 2017; Richards et al. 2014).

Concern for Amazon biodiversity can motivate countries in other parts of the world to contribute financially to efforts by the governments of Amazonian countries to contain deforestation, and this concern can motivate companies and private citizens to contribute to maintaining Amazon forest, both financially (through non-governmental organizations) and through their power as consumers. In short, the intrinsic value of Amazon biodiversity is a key to maintaining Amazonian ecosystems with all of their environmental functions.

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