Addressing the decline in wetland biodiversity

In this short piece, I highlight the alarming extent of the loss of wetland biodiversity globally, and outline some steps for addressing this destruction. Governments have been unable – or unwilling – to halt this loss, even though 170 national governments are Contracting Parties to the Ramsar Convention on Wetlands, which since 1971 has endeavoured to support efforts to stem the degradation of wetlands.

The increasing threats to wetlands have been widely recognized, and action plans drawn to address them (Ramsar Convention Secretariat, 2018). There have been some success stories, including the inventory by the Ramsar Convention of over 2300 sites, covering nearly 250 million km^2, as wetlands of international importance, representing 13–18% of the total area of the world's wetlands (Davidson and Finlayson, 2018).

However, wetlands now cover only a fraction of their original range. Where data exist, we know that 35% of wetlands have been lost since 1970, and up to 87% since 1700 CE (Davidson, 2014). The Wetland Extent Trends Index confirms that the decline of wetlands continues at a rapid rate (Dixon *et al.*, 2016). Unsurprisingly, many populations of wetland-dependent species are in long-term decline and threatened with extinction. According to the IUCN Red List (www.iucnredlist.org), 25% of the roughly 20,000 wetland-dependent assessed species are endangered or critically endangered. Moreover, 34% of inland species dependent on rivers and streams are globally threatened, as are 20% of those of marshes and lakes.

According to the Living Planet Index, 81% of populations of freshwater species have declined since 1970 – far greater than the decline of species depending on other ecosystems (WWF, 2016). Overall, tropical wetlands are more threatened than those of temperate regions (WWF, 2012).

Halting the loss of wetland biodiversity

Strong action is required to address the critical condition of wetlands and their species worldwide, as follows (Finlayson *et al.* 2018):

1 prioritizing the enactment of connected, well-funded and well-managed networks of protected areas for a significant proportion of the world's wetland habitats;
2 maintaining and re-establishing wetlands and halting their conversion to other land uses;
3 restoring wetland plant communities at large scales;
4 rewilding wetlands with native species, including apex predators, to restore ecological processes and dynamics;
5 developing and adopting adequate policy instruments to reverse the loss of wetland animals, especially from over-fishing and poaching, and the exploitation and trade of threatened species;
6 reducing, through education and better infrastructure, the wastage of wetland-derived food;
7 promoting dietary shifts to reduce the extent of overgrazing by cattle on wetlands;
8 increasing outdoor wetland education for children and adults, as well as the involvement of wider society – especially local and indigenous communities – in the management of wetlands;
9 encouraging positive environmental change in wetlands by supporting ecologically sound financial investments and divesting from ecologically destructive investments;

C Max Finlayson

About the author

Max is an internationally renowned wetland ecologist. He is a professor at the Institute for Land, Water and Society at Charles Sturt University (Albury, NSW, Australia).

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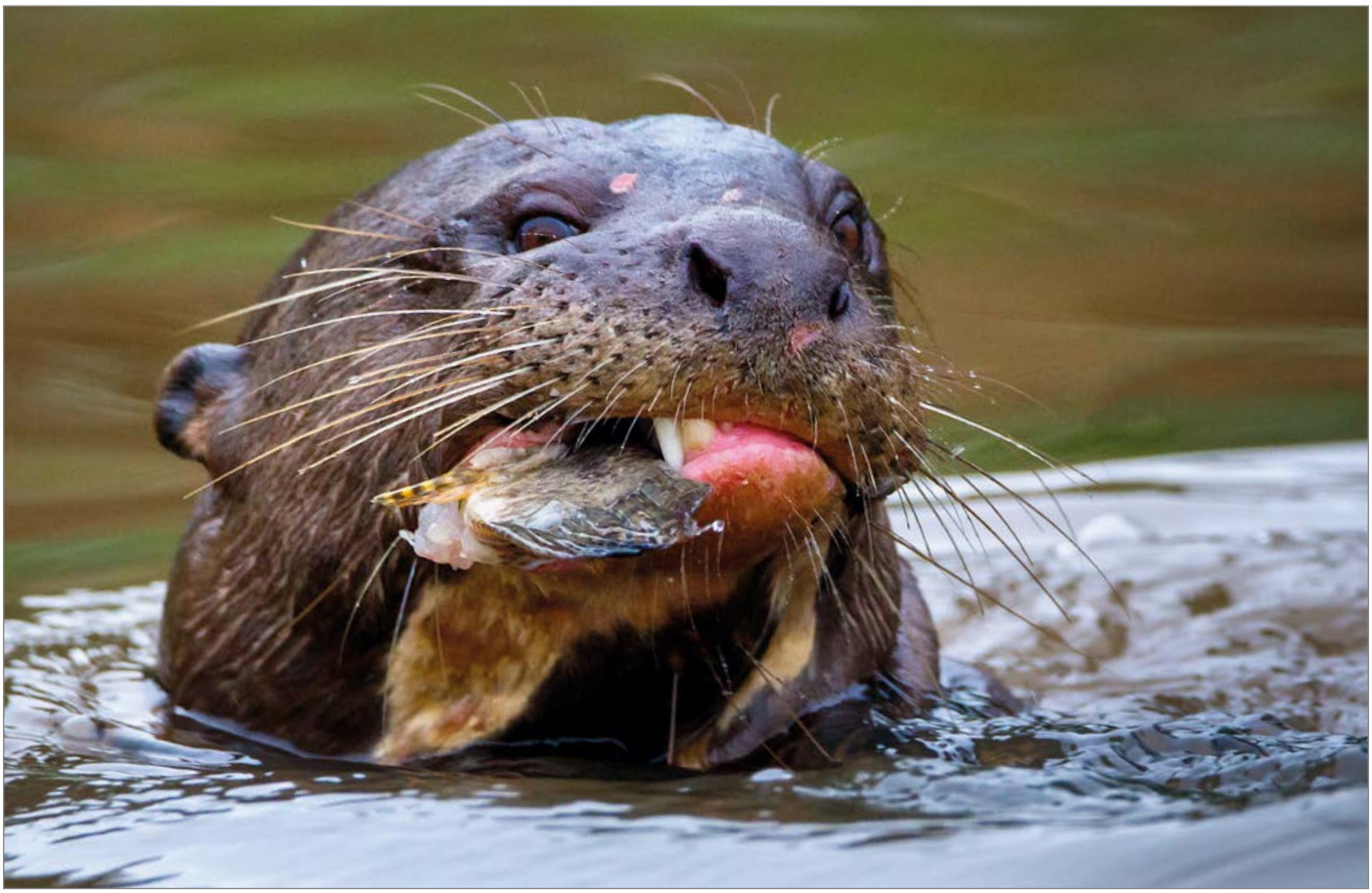

A giant otter (an endangered species) in the Pantanal wetland region of South America (Gerry Zambonini; CC BY-SA 2.0).

10 devising and promoting green technologies and adopting renewable energy sources that do not adversely impact wetlands;

11 shifting our economy to reduce wealth and inequality, and to ensure that prices, taxation and incentive systems take into account the real costs which consumption patterns impose on wetlands.

Successfully implementing these actions, or getting them underway, is needed to halt the dramatic declines in wetland biodiversity that are occurring. In particular, the effort needs to focus on stopping ongoing losses and restoring degraded wetlands. To help to achieve this, wetland scientists need to engage more effectively with civil society and non-governmental organizations, and encourage policy makers to enact appropriate decisions. It is also crucially important to consider the knowledge, and seek the input of, local and indigenous communities, who generally have a closer association with wetlands than many other members of our societies. ■

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