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EDITORIAL

COP 15: Crunch time for the world's biodiversity

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In the early hours of December 19, 2022, at the COP15 international biodiversity summit in Montreal, more than 190 countries agreed the *Kunming-Montreal Global Biodiversity Framework (K-M GBF)*. According to Steven Guilbeault, Canada's Minister of Environment and Climate Change and the host of COP15, the K-M GBF is "a great step forward in history" and "a bold step forward to protect nature."

Those who have long labored in the trenches to save Earth's rapidly vanishing biological heritage might perhaps be forgiven a certain skepticism. The *Strategic Plan for Biodiversity 2010–2020* attempted to accelerate what all agreed was woefully inadequate progress since the signing of the *Convention on Biological Diversity* in 1992 by setting out 5 goals and 20 associated targets (the Aichi targets[1]) that focussed principally on direct threats to biodiversity (e.g. climate change and habitat loss). Yet by 2020, although some progress had been made, none of these targets had been achieved.[2]

And here we are again. Despite early pessimism, over 190 countries have agreed a deal that includes ambitious commitments to "halt and reverse biodiversity loss" by 2030. These commitments include effective conservation and management of at least 30% of the global lands, waters, and oceans; and restoration completed or in progress for at least 30% of terrestrial, aquatic, and marine ecosystems. Developed countries – including Canada – have agreed to increasing financial support for least developed countries, small island states, and countries in economic transition to the tune of at least US$ 30 billion per year by 2030.

These are ambitious targets (**Table 1**). And the runway is short. Will the world stick the biodiversity conservation landing?

Time will tell, of course. But at this point, there are several grounds for guarded optimism.

First, unlike the 2010–2020 strategic plan, there is a detailed and explicit commitment to "mainstream" biodiversity conservation by fully integrating biodiversity into policies, regulations, planning, and assessment processes "within and across all levels of government and across all sectors" to ensure that all activities – both public and private – including fiscal and financial flows are aligned with the K-M GBF targets (Target 14).

Second, under Target 15, signatories to the K-M GBF must "encourage and enable business to regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on

[1]These goals and targets are summarized at: cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-EN.pdf
[2]cbd.int/gbo/gbo5/publication/gbo-5-en.pdf (accessed January 3 2023)

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Table 1. The 23 targets of the K-M GBF. In the descriptions, I have summarized what are, for me, the most important elements of the target. For the full text, readers should consult Section H, pp. 8–13, of the *Framework,* available at: cbd.int/doc/c/e6d3/cd1d/daf663719a03902a9b116c34/cop-15-l-25-en.pdf (accessed 22 February 2023).

K-M GBF target	Description
1	Loss of areas of high biodiversity importance and ecosystems of high ecological integrity "close to" zero by 2030
2	At least 30 per cent of areas of degraded ecosystems (both terrestrial and aquatic) are under effective restoration by 2030
3	At least 30 per cent of ecosystems (both terrestrial and aquatic) are effectively conserved and managed by 2030
4	Ensure urgent management actions to halt species extinction, for species recovery, to reduce extinction risk and maintain and restore the genetic diversity within and between populations of native, wild and domesticated species
5	Ensure that the use, harvesting and trade of wild species is sustainable
6	Reduce by at least 50% rates of introduction and establishment of invasive alien species by 2030
7	Reduce pollution risks and the negative impact of pollution to levels that are not harmful to biodiversity and ecosystem functions by 2030
8	Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions… while minimizing negative and fostering positive impacts of climate action on biodiversity
9	Ensure that the management and use of wild species are sustainable, … protecting and encouraging customary sustainable use by indigenous peoples and local communities
10	Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably
11	Restore, maintain and enhance nature's contributions to people, including ecosystem functions and services,… through nature-based solutions and (or) ecosystem-based approaches
12	Significantly increase the area and quality and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas sustainably, by mainstreaming the conservation and sustainable use of biodiversity
13	Take effective legal, policy, administrative and capacity-building measures to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources… as well as traditional knowledge associated with genetic resources
14	Ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes… within and across all levels of government and across all sectors,… progressively aligning all relevant public and private activities, fiscal and financial flows with the goals and targets of this framework
15	Take legal, administrative or policy measures to encourage and enable business to … regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity…
16	By 2030, reduce the global footprint of consumption in an equitable manner, … including through halving global food waste, significantly reducing overconsumption and substantially reducing waste generation…
17	Establish, strengthen capacity for, and implement in all countries biosafety measures as set out in Article 8(g) of the Convention on Biological Diversity…
18	Identify by 2025, and eliminate, phase out or reform incentives, including subsidies, harmful for biodiversity, … while substantially and progressively reducing them by at least 500 billion United States dollars per year by 2030 …
19	Substantially and progressively increase the level of financial resources from all sources… to implement national biodiversity strategies and action plans, … increasing total biodiversity related international financial resources from developed countries to developing countries to at least US$ 20B p.a. by 2025, and US$ 30 billion p.a. by 2030
20	Strengthen capacity-building and development, access to and transfer of technology, and promote development of and access to innovation and technical and scientific cooperation…
21	Ensure that the best available data, information and knowledge, are accessible to decision makers, practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity…

(*continued*)

Table 1. (*concluded*)

K-M GBF target	Description
22	Ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, and access to justice and information related to biodiversity by indigenous peoples and local communities… as well as by women and girls, children and youth, and persons with disabilities …
23	Ensure gender equality in the implementation of the framework through a gender-responsive approach where all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention,…

biodiversity." In the specific case of large transnational companies and financial institutions, K-M GBF signatories committed to *requiring* that these risks, dependencies, and impacts be disclosed. And perhaps most importantly, they must be disclosed not just for activities related to the production of goods or services but also for *upstream* ("supply chain," such as raw materials) and *downstream* ("value chain," such as marketing and post-sale service) activities.

Targets 14 and 15 explicitly recognize that successful mitigation of direct threats to biodiversity depends critically on the upstream drivers of these threats, in particular the activities of business, including the financial sector. Such activities have historically been "biodiversity negative": bending the biodiversity curve[3] requires that they become – in short order – biodiversity positive.

Third, the K-M GBF includes an explicit commitment by developed countries to provide financial, resource, and capacity support for nature conservation and restoration in developing countries. While the agreed level of funding support and associated delivery mechanisms are highly contentious, the commitment to provide US $30B annually by 2030 is an explicit recognition that conservation and restoration in many of the world's most biodiverse and vulnerable regions are doomed to fail without sufficient financial and human resources (Target 19).

While all the K-M GBF targets are important, saving and restoring the planet's biodiversity depends critically on the world's success in achieving Targets 14, 15, and 19: But how do we do so?

The Aichi targets were not legally binding. Nor are the K-M GBF targets. For this reason, Minister Guilbeault has proposed establishing federal *legal* accountability for biodiversity conservation following the example of the *Canadian Net Zero Emissions Accountability Act.*[4] Analogous legislation would enshrine national biodiversity conservation targets based on the K-M GBF, establish progress reporting mechanisms, and provide for independent third-party expert evaluation.

A *Biodiversity Conservation Accountability Act* must be informed by the best available scientific and Indigenous knowledge. Bending the Canadian biodiversity curve requires that the natural science and Indigenous Knowledge communities develop robust, transparent, scalable, replicable, and effective mechanisms for biodiversity monitoring; prioritize recovery and restoration actions; and evaluate the effectiveness and human welfare implications of conservation or management actions.[5]

Equally important will be the contributions of the behavioral science community. Bending the Canadian biodiversity curve also requires large-scale individual and institutional behavioral change through the transformation of domestic and international economic and financial sectors and

[3] nature.com/articles/s41586-020-2705-y
[4] laws-lois.justice.gc.ca/eng/acts/c-19.3/fulltext.html
[5] science.gc.ca/site/science/en/office-chief-science-advisor/statements-and-commentary/cop15-international-science-advisors-statement

commodities supply chains; incentivizing the protection, restoration, and sustainable use of wildlife populations and ecosystems; disincentivizing activities that undermine biodiversity conservation efforts; and fully integrating natural capital accounting into Canada's system of national accounts.

Scientists have at least two critical roles to play in assisting Canada – indeed the world – in achieving the K-M GBF targets. One is as evidence producers. To be effective in this role, scientists must engage with decision-makers in identifying the hypotheses whose validity is crucial to the success of candidate interventions designed to bend the biodiversity curve. Once these hypotheses are identified, scientists can then provide an impartial and comprehensive assessment of the evidence supporting, or inconsistent with, each of them. In doing so, scientists must ensure that decision-makers understand what the best available evidence says, and – equally importantly – what it does not say.

Scientists can also play an important role in public communication. As with climate change, the role of science has evolved from informing the public about the nature, scope, and magnitude of the problem, to what can be done to resolve it. In particular, the public will increasingly look to science to provide insights into the critical issue of the effectiveness and efficiency of "biodiversity positive" actions at both the individual/household and institutional scales.

The participation of Canada's biodiversity science community and Indigenous Knowledge communities is critical to the success not only of Minister Guilbeault's proposed legislative undertaking but indeed to all undertakings – public or private – pursuant to Canada's commitments to the K-M GBF: were there ever a time for biodiversity conservation enterprises of great pith and moment, that time is now.

Data availability

This manuscript does not report data.