Assessing Biodiversity under the *Impact Assessment Act*

Principles and Guidance for Safeguarding Biodiversity Through Project Assessment

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This report is dedicated to the memory of Meinhard Doelle, who made this project happen and whose knowledge, expertise and spirit continue to guide and inspire us.

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Chapter I: Introduction

A. Introduction

Evidence of the persistent degradation of biodiversity, both globally and in Canada, is mounting. The loss of species, habitat, and ecosystem integrity has accelerated and intensified at a remarkable pace and rate of change relative to the last 10 million years. These trends are projected to continue or worsen into the future under business-as-usual scenarios.[1]

In Canada, many species and ecosystems are exhibiting significant declining trends, as evidenced by the growing lists of species at risk and concerning trends in species and ecosystem degradation.[2] Key threats to biodiversity include habitat loss (agriculture and urban expansion), over-exploitation, invasive species and interactions with native species.[3] Human disturbance and invasive species are the most frequently listed threats in species recovery strategies.[4] The threats of climate change and pollution are increasingly identified as threats to species at risk, as are cumulative impacts derived from interacting and additive threats.[5]

The international community has endorsed a broad commitment to biodiversity conservation through the Convention on Biological Diversity (CBD), to which Canada was the first signatory in 1992. Despite these and other global efforts, the situation is worsening.

Biodiversity[6] – the variety of life on earth – is a key yet undervalued element of sustainability and provides a critical role for humanity. The CBD recognises three main levels of biodiversity: "diversity within species, between species and of ecosystems." The diversity among species (e.g., Blanding's turtle, western red cedar, Atlantic salmon) is often the aspect of biodiversity that is most considered. Variability within species refers to genetic diversity, such as the different spawning runs of Atlantic salmon, the two geographically distinct populations of Blanding's turtle found in Canada, the 11

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[1] IPBES, *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (2019): https://zenodo.org/record/3553579.
[2] Canadian Endangered Species Conservation Council, *Wild Species 2020: The General Status of Species in Canada* (2022): https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/general-status/wild-species-2020.html#toc3; Wildlife Conservation Society (WCS) Canada. "Globally threatened ecosystems (version 2.0)," *SHAPE of Nature*: https://shapeofnature.ca/globally-threatened-ecosystems/.
[3] L.R. Prugh, A. R. E. Sinclair, K. E. Hodges, A. L. Jacob & D. S. Wilcove, "Reducing threats to species: Threat reversibility and links to industry" (2010) Conservation Letters, 3(4), 267-276: DOI:https://doi.org/10.1111/j.1755-263X.2010.00111.x; O. Venter, N. N. Brodeur, L. Nemiroff, B. Belland, I.J. Dolinsek & J.W.A Grant, "Threats to endangered species in Canada" (2006) *BioScience*, 56(11), 903-910: DOI:10.1641/0006-3568(2006)56[903:TTESIC]2.0.CO;2.; C. Woo-Durand, J.-M. Matte, G. Cuddihy, C.L. McGourdji, O. Venter & J.W.A. Grant, "Increasing importance of climate change and other threats to at-risk species in Canada" (2020) *Environmental Reviews*, 28(4), 449-456: DOI:10.1139/er-2020-0032.; J. C. Ray, J. Grimm & A. Olive, "The biodiversity crisis in Canada: failures and challenges of federal and sub-national strategic and legal frameworks" (2021) *Facets* at 1048: DOI:10.1139/facets-2020-0075.
[4] J. McCune, *et al*., "Threats to Canadian species at risk: An analysis of finalized recovery strategies" (2013) *Biological Conservation*, 166, 254-265: DOI:10.1016/j.biocon.2013.07.006.
[5] J. Currie & V. Marconi "An analysis of threats and factors that predict trends in Canadian vertebrates designated as at-risk" (2020) *Facets* 5(1), 49-66: DOI:10.1139/facets-2019-0017.
[6] Under the Convention on Biological Diversity, "Biological diversity" means the "variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems:" *Convention on Biological Diversity*, 1760 UNTS 79, 31 ILM 818 (1992).

different caribou ecotypes, or the diversity of genes of western red cedar on Vancouver Island. Biodiversity also incudes ecosystems, defined by distinct communities of plants and animals. Examples of ecosystems range from a tidal pool along the Pacific coast to vast stretches of sugar maple forests in central Ontario and Quebec, to carbon-rich boreal peatland ecosystems.

Thanks to recent global assessments[7] we have increasing appreciation of the linkages between biodiversity and human well-being, and a growing understanding that these values are unevenly distributed across the planet. All people ultimately depend on biodiversity, and the planet's stock of natural ecosystems and resources provide "services," or the benefits people obtain from nature. This 'natural capital' includes food, water, climate regulation, protection, recreation, and cultural and spiritual benefits.[8] Most of nature's contributions to people are not fully replaceable, and some are irreplaceable.[9] Healthy ecosystems will continue to provide these services and society should be aiming for ecosystem health stewardship at all levels to maintain and improve ecosystem services.[10]

Biodiversity is essential for achieving the UN Sustainable Development Goals, including oceans, lands, poverty, hunger, health, water, cities, and climate (Sustainable Development Goals 1, 2, 3, 6, 11, 13, 14 and 15). In a statement following the 15th Conference of Parties to the Convention on Biological Diversity (COP15) in December 2022, the Office of the High Commissioner for Human Rights noted that "healthy biodiversity and ecosystems are the foundation of life and fundamental to the enjoyment of human rights, including the rights to life, health, food, water, culture, and a healthy environment."[11] For Indigenous peoples in particular, several global analyses have demonstrated the extent to which areas of high biodiversity value intersect with Indigenous territories. The climate and biodiversity crises are also interconnected, not only in that climate change is a key threat to biodiversity. Through the ecosystem services it supports, biodiversity also makes an important contribution to both climate-change mitigation and adaptation. Consequently, conserving and sustainably managing biodiversity is critical to addressing climate change. The first joint scientific report issued by the scientific bodies of the UN Conventions on Biodiversity and Climate Change in 2021[12] focused on exploring connections (i.e., synergies and trade-offs) between climate and biodiversity. Among its conclusions were: 1) "Measures narrowly focused on climate mitigation and adaptation can have direct and indirect negative impacts on nature and nature's contributions to people," and 2) "Treating climate, biodiversity and human society as coupled systems is key to successful outcomes from policy interventions."

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[7] IPBES, *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (2019): https://zenodo.org/record/3553579; Secretariat of the Convention on Biological Diversity, *Global Biodiversity Outlook 5* (2020) Montreal: https://www.cbd.int/gbo/gbo5/publication/gbo-5-en.pdf.

[8] R. Costanza, "Twenty years of ecosystem services: How far have we come and how far do we still need to go?" (2017) *Ecosystem Services*: https://doi.org/10.1016/j.ecoser.2017.09.008.

[9] IPBES (2019).

[10] M. Hernández-Blanco *et al*., "Ecosystem health, ecosystem services, and the well-being of humans and the rest of nature" (2022) *Global Change Biology* 28:17, 5027-5040: DOI:https://doi.org/10.1111/gcb.16281.

[11] Office of the High Commissioner for Human Rights, "Post-2020 Global Biodiversity Framework: Urgent need to protect nature and human rights, say UN experts" (6 December 2022): https://www.ohchr.org/en/press-releases/2022/12/post-2020-global-biodiversity-framework-urgent-need-protect-nature-and-human#:~:text=%E2%80%9CHealthy%20biodiversity%20and%20ecosystems%20are,environment%2C%E2%80%9D%20the%20experts%20said.

[12] H. O. Pörtner *et al. IPBES-IPCC co-sponsored workshop report on biodiversity and climate change*, (IPBES and IPCC, 2021): DOI:10.5281/zenodo.4782538.

1. Biodiversity in Impact Assessment

While many measures must be taken to maintain the full complement of genotypes, species and ecosystems on our landscapes and seascapes, one of the most important is the proper assessment and mitigation of impacts from development projects, large and small. One of the most important drivers of this trend is habitat conversion or loss caused principally by unsustainable land-use practices and inappropriately located development. Article 14 of the CBD ("Impact assessment and minimizing Adverse Impacts") requires its contracting parties (the signatory governments) to introduce appropriate procedures for environmental impact assessment (EIA)[13] of proposals that might have effects on biological diversity, and to ensure they have ways of taking biodiversity impacts of programmes and policies into account. At the 8th meeting of the Conference of the Parties to the Convention (COP8) in 2006, parties endorsed the Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment,[14] outlining guidance on the consideration of biodiversity and ecosystem services in project- and strategic-level impact assessments, eventually adopted by COP11 in 2012.

In 2016, at COP13, parties adopted a decision on mainstreaming that included a focus on impact assessment, inviting parties and other governments "to take measures to improve the effectiveness of environmental impact assessments and strategic environmental assessments, including by strengthening the application of strategic environmental assessment methodologies and by using tools to evaluate potential impacts on biodiversity and ecosystem functions and services, including on resilience."[15] A COP14 decision considered the mainstreaming of biodiversity in energy and mining; infrastructure; manufacturing and processing, and "encouraged" the Parties to the CBD to, among other things, "apply best practices on environmental impact assessments and biodiversity mainstreaming to decisions, including those of public and private financial institutions, related to the approval of projects and investments in these sectors."[16] In spite of these commitments, a number of common and long-standing problems are associated with the treatment of biodiversity in impact assessment globally and in Canada.[17]

[13] While the *Impact Assessment Act* (IAA) uses the term "impact assessment" (IA) to refer to assessments of proposed undertakings, internationally the term "environmental impact assessment" is more common. In Canada, previous federal legislation and current provincial assessment laws use the term "environmental assessment" (EA). In this report, we use EIA to refer to international assessment, EA to refer to assessments conducted by provinces and under past federal legislation, and IA to refer to impact assessments under the IAA.

[14] UNEP/CBD/COP/DEC/VIII/28*. Impact assessment: Voluntary guidelines on biodiversity-inclusive impact assessment*. 15 June 2006: https://www.cbd.int/decision/cop/?id=11042.

[15] CBD/COP/DEC/XIII/3. *Strategic actions to enhance the implementation of the Strategic Plan for Biodiversity 2011-2020 and the achievement of the Aichi Biodiversity Targets, including with respect to mainstreaming and the integration of biodiversity within and across sectors*. 16 December 2016 at 7: https://www.cbd.int/doc/decisions/cop-13/cop-13-dec-03-en.pdf.

[16] The decision text also recognized "that opportunities exist for the wider application of biodiversity-inclusive impact assessments and the integration of biodiversity considerations in feasibility studies and risk assessments and risk communication, in particular strategic environmental assessment of policies, plans and programmes and the use of spatial planning at the national and regional levels, as well as adjusting regulatory frameworks to encourage the assessment and disclosure of financial risks from biodiversity loss related to investors and businesses:" https://www.cbd.int/doc/decisions/cop-14/cop-14-dec-03-en.pdf.

[17] See G.E. Beanlands & P.N. Duinker, *An Ecological Framework for Environmental Impact Assessment in Canada* (Institute for Resource and Environmental Studies & Federal Environmental Assessment Review Office, 1983); P. Gannon, "The time is now to improve the treatment of biodiversity in Canadian environmental impact statements" (2021) *EIAR* 86.

Although Canada's first (and only) National Biodiversity Strategy under the CBD[18] highlighted the importance of EIA and committed to use EIA to address biodiversity impacts of projects and to consider cumulative effects, its recent national reports to the CBD have made little mention of EIA. Yet, with so many sector-specific provincial and territorial laws and policies governing development and natural resource extraction,[19] assessment laws provide just about the only policy safeguard for biodiversity outside protected areas in Canada. The federal *Impact Assessment Act*[20] (IAA) is an example of such a law.

The IAA has introduced a requirement that federal assessments consider "the extent to which the effects of [a] designated project hinder or contribute to the Government of Canada's ability to meet its environmental obligations" (section 22(1)), and for decision makers to consider the same when determining whether the project's adverse federal, direct and incidental effects are in the public interest (section 63(e)). Impact Assessment Agency of Canada (IAAC) guidance states that "environmental obligations" refers to obligations applicable to the Government of Canada in domestic and international law in relation to the protection of the natural environment."[21] Among Canada's many environmental obligations, its biodiversity-related ones are especially important and timely, given the declining condition of biodiversity in Canada and around the world, and the mandate of the Minister of Environment and Climate Change to "halt and reserve biodiversity loss."[22] In December 2022, COP15 took place in Montreal, where parties (including Canada) reached agreement on the Kunming-Montreal Global Biodiversity Framework (GBF) that now requires them to meet a number of detailed biodiversity-related goals and targets.

Assessing the extent to which projects help or hinder Canada's ability to meet its domestic and international obligations remains murky. Current IAAC guidance on the subject is high level, lacking such relevant details as how to assess the extent to which projects may help or hinder Canada's ability to meet its biodiversity obligations, how to predict and quantify biodiversity impacts to design mitigation measures, and how biodiversity may be considered alongside other issues (e.g., climate, Indigenous reconciliation, etc.) when determining whether a project's adverse effects are in the public interest. Tailored Impact Statement Guidelines (TISG) issued to date do not specify biodiversity obligations, instead merely referring to the instruments in which such obligations may arise, such as the CBD and GBF.

2. Objectives of this report

In August 2022, the Technical Advisory Committee on Science and Knowledge (TAC) approached us as legal and biodiversity experts to conduct research and analysis and prepare a report to the TAC related

[18] Environment Canada, *Canadian biodiversity strategy: Canada's response to the Convention on Biological Diversity* (Hull, Quebec: Biodiversity Convention Office, Environment Canada, 1995).
[19] J.C. Ray, J. Grimm & A. Olive, "The biodiversity crisis in Canada: failures and challenges of federal and sub-national strategic and legal frameworks" (2021) *Facets* at 1048: DOI:10.1139/facets-2020-0075.
[20] SC 2019, c 28, s 1 [IAA].
[21] Impact Assessment Agency of Canada, "Policy Context: Considering Environmental Obligations and Commitments in Respect of Climate Change under the Impact Assessment Act," in *Practitioner's Guide to Federal Impact Assessments under the* Impact Assessment Act: https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/considering-environmental-obligations.html.
[22] Rt. Hon. Justin Trudeau, P.C., M.P., Letter to Minister Guilbeault re "Minister of Environment and Climate Change Mandate Letter" (16 December 2021): https://pm.gc.ca/en/mandate-letters/2021/12/16/minister-environment-and-climate-change-mandate-letter.

to the treatment of biodiversity in IA, including consideration of relevant environmental obligations in decision making to inform TAC's own recommendations to the IAAC.

The specific objectives of this report are to:

1) Identify gaps and challenges in assessing projects' impacts on biodiversity;
2) Outline key principles for the treatment of biodiversity under the IAA;
3) Recommend ways to incorporate those principles in project-level assessment;
4) Identify ways that regional assessment can be used to inform project-level impact assessment (IA); and
5) Identify areas for further research or policy development.

3. Methods

To address these objectives, we conducted literature reviews on the treatment of biodiversity in IA (globally and in Canada) and reviewed available materials that have been generated from federal EAs in Canada. We identified biodiversity-related commitments, with a particular focus on the CBD and the UN *Declaration on the Rights of Indigenous Peoples*. We contracted experts to review relevant provincial statutes and to amalgamate best practices in treatment of EIA outside Canada. We used this set of material to generate a set of key principles and recommendations to effectively address biodiversity in federal IAs in Canada.

4. Organization

The opening chapters of the report (Chapters II-IV) provide background information, rationales and examples of how biodiversity is considered in policy and practice, at home and outside Canada. Specifically, we first consider the role of biodiversity in the language of the IAA specifically (Chapter II) followed by an analysis of the extent to which provincial statutes require the assessment of biodiversity and a review of how EAs under previous federal assessment legislation considered biodiversity (Chapter III). In Chapter IV, we provide examples of international and domestic environmental obligations that are relevant to biodiversity and that should be considered in IA.

In Chapter V we provide the results of a comprehensive review of policies and practices – mostly from outside Canada – along with available evidence for their effectiveness and draw from this previous material to provide a comprehensive list of principles for the effective treatment of biodiversity in impact assessment. In Chapter VI we synthesize the information from the previous chapters into a summary of gaps and challenges, followed by key recommendations for improving biodiversity in federal IAs. This report considers all stages of assessment, from early planning through to decision making.

While the report considers Indigenous rights, knowledge and perspectives, its primary focus is through the settler-colonial lens of federal Crown obligations and exercise of authority.

Chapter II: Treatment of Biodiversity under the IAA

The IAA does not trigger assessments of projects solely on the basis of their biodiversity implications. Rather, the *Physical Activities Regulations* (Project List) designate projects based on their type, size (e.g., volume of ore production, length of corridor, etc.), and in some cases, location. The Minister may also designate projects by Ministerial order, "if, in his or her opinion, either the carrying out of that physical activity may cause adverse effects within federal jurisdiction or adverse direct or incidental effects, or public concerns related to those effects warrant the designation.[23]

Many of the project types described in the Project List will have effects on biodiversity. For example, new all-season highways that require a total of 75 km or more of new right of way[24] have direct and indirect effects on wildlife, such as habitat fragmentation and destruction, altered migration patterns and changes in species abundance and distribution, and increased wildlife mortality. Growth-inducing roads in undeveloped areas may lead to highly adverse effects on biodiversity.[25] Conversely, projects that deploy effective mitigation of impacts that include net-positive offsetting may have positive effects on biodiversity. However, the *Physical Activities Regulations* were designed to apply only to major projects with the greatest potential for adverse effects on areas of federal jurisdiction, despite the fact that biodiversity loss is largely driven by the cumulative effects of projects of all sizes, including the thousands of projects that have impacts on areas of federal jurisdiction every year, yet do not trigger an impact assessment. By contrast to those thousands of projects, only 31 projects entered into the impact assessment process between the IAA's enactment in 2019 and November 2022.

For those projects that are designated either in the Regulations or by ministerial order, biodiversity is relevant to a number of mandatory factors, as well as to the decision as to whether the federal effects are in the public interest. Perhaps the most obvious of the factors are positive and adverse environmental effects[26] and the extent to which projects help or hinder Canada's ability to meet its environmental obligations.[27] However, biodiversity also relates to sustainability,[28] impacts on Indigenous groups and the rights of Indigenous peoples,[29] and the intersectionality of effects.[30] Every impact assessment must take these factors into account, with the Agency responsible for determining their scope during the planning phase.[31]

When making the final decision following the assessment, the Minister or Governor-in-Council (as the case may be) must consider the impact assessment report, and whether the adverse federal effects indicated in the report are in the public interest, in light of the five public interest factors enumerated under section 63 of the IAA: the extent to which the project in question contributes to sustainability, the extent to which adverse federal effects are significant, the implementation of mitigation measures, the

[23] *Impact Assessment Act*, SC 2019, c 28, s 1, s 9 (IAA).
[24] *Physical Activities Regulations,* SOR/2019-285, s 51.
[25] V.J. Bennett, "Effects of Road Density and Pattern on the Conservation of Species and Biodiversity" (2017) *Curr Landscape Ecol Rep* 2, 1–11: https://doi.org/10.1007/s40823-017-0020-6.
[26] IAA, s 22(1)(a).
[27] IAA, s 22(1)(i).
[28] IAA, s 22(1)(h).
[29] IAA, s 22(1)(c).
[30] IAA, s 22(1)(s).
[31] IAA, ss 18(1.2), 22(2).

impacts on Indigenous groups and Indigenous rights, and the extent to which the project helps or hinders Canada's ability to meet its environmental obligations.[32]

We discuss each of these factors below.

B. Positive and adverse environmental effects

The IAA requires all assessments to consider "the changes to the environment or to health, social or economic conditions and the positive and negative consequences of these changes that are likely to be caused by the carrying out of the designated project,"[33] including "any cumulative effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out"[34] and "interactions between those effects."[35] Biodiversity fits within the scope of this provision as follows:

- "**changes to the environment**": Environmental effects are inclusive of biodiversity. The IAA defines "environment" as including "all organic and inorganic matter and living organisms" and "interacting natural systems,"[36] while the Convention on Biological Diversity (CBD) defines "biological diversity" as "variability among living organisms" including "diversity within species, between species and of ecosystems."[37] Impacts affecting the variability among living organisms, including diversity within or between species and ecosystems are therefore environmental impacts that constitute a factor to be considered under the IAA.

- "**positive and negative consequences of [environmental] changes**": Consequences of biodiversity impacts include declines in soil health, human health, food, medicines, water purification, economic productivity, raw materials, and climate mitigation.

- "**cumulative effects**": With land use change being the single largest threat to biodiversity, cumulative effects are an important issue in most project assessments. Other drivers of biodiversity loss – overexploitation, invasive species, climate change, and pollution[38] act in cumulative fashion to contribute to biodiversity loss. Notwithstanding the challenges of assessing cumulative impacts at the project scale (see Chapter VI), the vast majority of effects on biodiversity are brought about through the accumulation of multiple threats, and as such fit within the scope of the cumulative effects assessment for the purposes of the IAA.

- "**interactions**": Contrary to how it has been commonly regarded, biodiversity is more than a collection of individual species. It also includes genetic variability, ecosystems, and ecological processes that support life on Earth. As a result, no single species persists without interacting with other species as well as the ecosystems of which they are part. The Cumulative Effects Practitioner's Guide describes how cumulative effects "[o]ccur as interactions between actions,

[32] IAA, s 63.
[33] IAA, s 22(1)(a).
[34] IAA, s 22(1)(a((ii).
[35] IAA, s 22(1)(a)(iii).
[36] IAA, s 2.
[37] Convention on Biological Diversity, 1760 UNTS 79, 31 ILM 818 (1992), Art 2.
[38] Ray *et al* (2021); Kunming-Montreal Global Biodiversity Framework.

between actions and the environment, and between components of the environment."[39] These interactions are also referenced in the first guiding principle for sustainability assessment in Impact Assessment Agency of Canada (IAAC) guidance (described in section C below), meaning that impact assessments should identify how designated projects will affect interactions in socio-ecological systems.

The IAA requires the Agency, review panels and bodies responsible for substituted assessments to set out in impact assessment reports the effects that are likely to be caused by the project, indicate which of those effects are adverse effects within federal jurisdiction and adverse direct or incidental effects, and specify which of those effects are significant.[40]

The IAA defines "effects within federal jurisdiction" as follows:[41]

> (a) a change to the following components of the environment that are within the legislative authority of Parliament:
>
> (i) fish and fish habitat, as defined in subsection 2(1) of the *Fisheries Act*,
>
> (ii) aquatic species, as defined in subsection 2(1) of the *Species at Risk Act*,
>
> (iii) migratory birds, as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994, and
>
> (iv) any other component of the environment that is set out in Schedule 3;
>
> (b) a change to the environment that would occur
>
> (i) on federal lands,
>
> (ii) in a province other than the one where the physical activity or the designated project is being carried out, or
>
> (iii) outside Canada;
>
> (c) with respect to the Indigenous peoples of Canada, an impact — occurring in Canada and resulting from any change to the environment — on
>
> (i) physical and cultural heritage,
>
> (ii) the current use of lands and resources for traditional purposes, or
>
> (iii) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance;
>
> (d) any change occurring in Canada to the health, social or economic conditions of the Indigenous peoples of Canada; and
>
> (e) any change to a health, social or economic matter that is within the legislative authority of Parliament that is set out in Schedule 3.

It defines direct or incidental effects as "effects that are directly linked or necessarily incidental to a federal authority's exercise of a power or performance of a duty or function that would permit the carrying out, in whole or in part, of a physical activity or designated project, or to a federal authority's

[39] The Cumulative Effects Working Group & AXYS Environmental Consulting Ltd., *Cumulative Effects Assessment Practitioner's Guide* (February 1999) at 6: https://www.canada.ca/content/dam/iaac-acei/documents/policy-guidance/cumulative-effects-assessment-practitioners-guide/cumulative_effects_assessment_practitioners_guide.pdf.
[40] IAA, ss 28(3), 33(2), 51(d)(ii), 59(2).
[41] IAA, s 2 ("effects within federal jurisdiction").

provision of financial assistance to a person for the purpose of enabling that activity or project to be carried out, in whole or in part."[42]

Biodiversity impacts may be federal, direct or incidental effects: in some cases, such as those related to migratory birds and aquatic species at risk (and arguably terrestrial species at risk, although federal jurisdiction over terrestrial at-risk species has not been judicially decided), impacts on Canada's ability to meet its environmental obligations are clearly federal. Other biodiversity effects, such as forest habitat fragmentation that will occur if a federal authority carries out a duty or function or provides financial assistance towards carrying out the project, will fall within the definition of "direct or incidental effects."

In either case, assessment authorities must consider the significance of the effects. Under previous federal environmental assessment legislation significance determinations were considered binary – i.e., resulting in determinations of either significance or insignificance. IAAC guidance on characterizing significance under the IAA has changed the characterization to one of negligible or low, moderate, and high, and take into account "benchmarks (e.g., standards, guidelines, descriptors or objectives, where they exist), criteria (e.g., magnitude, geographical extent, timing, frequency, duration, reversibility and uncertainty) and environmental, health, social and economic conditions."[43]

C. The extent to which a project hinders or contributes to Canada's ability to meet its environmental obligations

The IAA requires assessments to consider "the extent to which the effects of the designated project hinder or contribute to the Government of Canada's ability to meet its environmental obligations."[44] According to IAAC guidance, "environmental obligations" refers to "obligations applicable to the Government of Canada in domestic and international law in relation to the protection of the natural environment," such as obligations arising in federal law and regulations, and in international law.[45] We are assuming that the term also applies to environmental obligations that arise pursuant to bilateral or multilateral agreements that are binding on the Government of Canada, given that the binding nature of such agreements gives rise to obligations.

We explore key environmental obligations in Chapter IV. It should be noted that instruments such as the CBD and Kunming-Montreal Global Biodiversity Framework are not themselves obligations for the purpose of section 22(1)(i) of the IAA; they are instruments within which relevant environmental obligations are set out. While IAAC guidance states that tailored impact statement guidelines (TISG) will describe environmental obligations relevant to a designated project,[46] to date that has not been the

[42] IAA, s 2 ("direct or incidental effects").
[43] Impact Assessment Agency of Canada, "Guidance: Describing effects and characterizing extent of significance:" https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance-describing-effects-characterizing-extent-significance.html#toc11.
[44] IAA, s 22(1)(i).
[45] Impact Assessment Agency of Canada, "Policy Context: Considering Environmental Obligations and Commitments in Respect of Climate Change under the Impact Assessment Act," in *Practitioner's Guide to Federal Impact Assessments under the* Impact Assessment Act: https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/considering-environmental-obligations.html.
[46] Impact Assessment Agency of Canada, "Policy Context: Considering Environmental Obligations and Commitments in Respect of Climate Change under the Impact Assessment Act," in *Practitioner's Guide to Federal Impact Assessments under the* Impact Assessment Act: https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/considering-environmental-obligations.html.

case. To illustrate, the TISG for the Gazoduq pipeline project put the onus on the proponent to list potentially relevant environmental obligations,[47] while all other draft and final TISG issued to date refer only to environmental instruments, rather than their specific provisions.[48] For example, the TISG simply list instruments such as the CBD, SARA recovery strategies and action plans for species at risk potentially affected by the project, the *Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar)*, the *Convention for the Protection of Migratory Birds in the United States and Canada*, and relevant domestic implementation instruments. These instruments are not themselves obligations, but the vehicles that set out obligations. Examples of specific biodiversity obligations are given in Chapter IV.

D. Considering a project's contribution to sustainability

The IAA requires assessments to consider "the extent to which the designated project contributes to sustainability,"[49] which is defined as "the ability to protect the environment, contribute to the social and economic well-being of the people of Canada and preserve their health in a manner that benefits present and future generations."[50] Biodiversity is a critical component of sustainability in the IAA, reflecting the reality that the biodiversity crisis, along with the climate crisis, poses an existential threat to humanity and a million other species[51] (thousands in Canada[52]). This well-substantiated conclusion is reflected in the UN Sustainable Development Goals, which feature biodiversity and other aspects of the environment.

IAAC guidance on sustainability outlines four "principles" of sustainability:[53]

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[47] Impact Assessment Agency of Canada, Gazoduq Project Tailored Impact Statement Guidelines Pursuant to the *Impact Assessment Act* and *Canadian Energy Regulator Act* (30 January 2020) at 114: https://iaac-aeic.gc.ca/050/documents/p80264/133758E.pdf.

[48] Impact Assessment Agency of Canada, Suncor Base Mine Extension Project draft Tailored Impact Statement Guidelines Pursuant to the *Impact Assessment Act* (26 January 2021) at 98-99: https://iaac-aeic.gc.ca/050/documents/p80521/138104E.pdf; Impact Assessment Agency of Canada and BC Environmental Assessment Office, Draft Joint Guidelines, GCT Deltaport Expansion – Berth Four Project (8 November 2021) at 184: https://iaac-aeic.gc.ca/050/documents/p81010/141799E.pdf; Impact Assessment Agency of Canada, Marten Falls Community Access Road Project Tailored Impact Statement Guidelines (24 February 2020) at 137-38: https://iaac-aeic.gc.ca/050/documents/p80184/133937E.pdf; Impact Assessment Agency of Canada, Webequie Supply Road Project Tailored Impact Statement Guidelines (24 February 2020) at 137-38: https://iaac-aeic.gc.ca/050/documents/p80183/133938E.pdf; Impact Assessment Agency of Canada, Upper Beaver Gold Project Tailored Impact Statement Guidelines (20 April 2022) at 127: https://iaac-aeic.gc.ca/050/documents/p82960/143580E.pdf; Impact Assessment Agency of Canada, Wasamac Gold Mine Project Tailored Impact Statement Guidelines (March 2021) at 133: https://iaac-aeic.gc.ca/050/documents/p80879/138283E.pdf; Impact Assessment Agency of Canada, Value Chain Solutions – Heartland Complex Expansion Project Tailored Impact Statement Guidelines (25 June 2021) at 101-02: https://iaac-aeic.gc.ca/050/documents/p81148/139479E.pdf.

[49] IAA, s 22(1)(h).

[50] IAA, s 2 ("sustainability").

[51] IPBES, *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (2019) at 12: https://zenodo.org/record/3553579.

[52] Canadian Endangered Species Conservation Council, *Wild Species 2020: The General Status of Species in Canada* (2022): https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/general-status/wild-species-2020.html#toc3.

[53] Impact Assessment Agency of Canada, "Guidance: Considering the Extent to which a Project Contributes to Sustainability" in *Practitioner's Guide to Federal Impact Assessments under the* Impact Assessment Act: https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance-considering-extent-project-contributes-sustainability.html#toc6.

1. Consider the interconnectedness and interdependence of human-ecological systems;
2. Consider the well-being of present and future generations;
3. Consider positive effects and reduce adverse effects of a designated project; and
4. Apply the precautionary principle and consider uncertainty and risk of irreversible harm.

While the principles oddly omit environmental protection, the fact that the IAA definition of sustainability includes it means that environmental protection – and therefore biodiversity protection – are indeed an aspect of sustainability. The relevance of this factor is enhanced by the fact that not only is "to foster sustainability" the first enumerated purpose of the IAA; the very first recital of the Act's preamble states the Government of Canada's commitment to fostering sustainability. [54] While the preamble and purposes of the IAA include other principles, including those related to economic development, [55] that sustainability appears first in both the preamble and purpose can be interpreted as signalling its relative importance compared to other purposes.

Sustainability's integral importance to IAA interpretation is reiterated by an obligation the Act places on federal officials to foster sustainability: "The Government of Canada, the Minister, the Agency and federal authorities, in the administration of this Act, must exercise their powers in a manner that fosters sustainability, respects the Government's commitments with respect to the rights of the Indigenous peoples of Canada and applies the precautionary principle."[56] This requirement acts as an important constraint on the exercise of discretion under the IAA. For example, the Agency's scoping determinations cannot undermine sustainability by scoping out relevant biodiversity issues or information, federal experts must apply the precautionary principle when advising the Agency, and the Minister and Governor-in-Council cannot make decisions that do not foster sustainability.

While not an environmental obligation for the purposes of the IAA, Canada's commitment to implement the UN Sustainable Development Goals should inform sustainability assessment under the IAA, including analyses respecting biodiversity. The goals most relevant to biodiversity are Goal 14 ("Conserve and sustainably use the oceans, seas and marine resources"), and Goal 15 ("Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss"). The following figure from Obura (2023) illustrates the connection between the Kunming-Montreal Global Biodiversity Framework (KMGBF) and the UN Sustainable Development Goals.[57]

[54] IAA, Preamble, s 6(1)(a).
[55] IAA, Preamble, s 6(1)(b.1).
[56] IAA, s 6(2).
[57] D. Obura, "The Kunming-Montreal Global Biodiversity Framework: Business as usual or a turning point?" in *One Earth* 6 (17 February 2023), Figure 1.

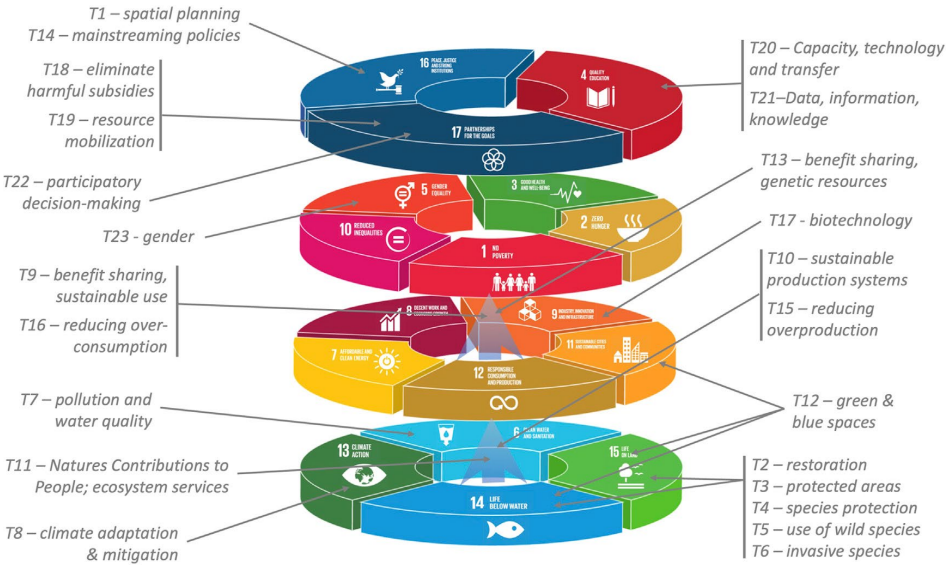

Figure 1: The twenty three targets of the Kunming-Montreal Global Biodiversity Framework are spread across most domains across the sustainable development goals.

The 2022-2026 Federal Sustainable Development Strategy[58] sets out additional short-term milestones and implementation strategies that should be applied to sustainability analyses under the IAA. Where any targets, indicators or milestones are inconsistent with an environmental obligation (such as those set out under the KMGBF), the stronger should prevail.

E. Effects on Indigenous peoples and impacts on Indigenous rights

Indigenous peoples' rights – including rights related to cultures, health and wellbeing – are inextricably linked with biodiversity. Indigenous peoples across Canada have distinct and varied territories, laws and cultures, and projects' effects on Indigenous peoples and impacts on Indigenous rights will vary from nation to nation and community to community. The success or failure of governments, including the Government of Canada, in meeting biodiversity obligations will have direct effects on Indigenous rights and title.[59] Conversely, colonialism is widely recognized as a key driver of biodiversity loss and Indigenous peoples, who sustainably stewarded their territories since time immemorial, play a pivotal role in helping Canada fulfil those obligations. The environmental health of Indigenous peoples' territories, including the variability among species and the ecological complexes of which they are part, is necessary for them to exercise their constitutionally-protected rights under section 35[60] and their international rights under instruments such as the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP), which Canada has committed to implementing through the federal *United*

[58] https://www.fsds-sfdd.ca/en.
[59] Forest Peoples Programme, *Local Biodiversity Outlooks 2: The contributions of indigenous peoples and local communities to the implementation of the Strategic Plan for Biodiversity 2011–2020 and to renewing nature and cultures. A complement to the fifth edition of the Global Biodiversity Outlook* (2020): https://www.cbd.int/gbo/gbo5/publication/lbo-2-en.pdf.
[60] *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73, [2004] 3 SCR 511.

Nations Declaration on Indigenous Peoples Act.[61] Many Indigenous rights are also environmental obligations for the purposes of the IAA.

Key domestic and international environmental obligations respecting the rights of Indigenous peoples are listed in Chapter IV. In addition to these, which should be considered under sections 22(1)(i) and 63(e) of the IAA, the IAA requires assessments to consider:

- the impact that the designated project may have on any Indigenous group and any adverse impact that the designated project may have on the rights of the Indigenous peoples of Canada recognized and affirmed by section 35 of the *Constitution Act, 1982*;[62]
- Indigenous knowledge provided with respect to the designated project;[63]
- considerations related to Indigenous cultures raised with respect to the designated project;[64]
- comments received from a jurisdiction, which includes Indigenous peoples that meet the definition of jurisdiction under the IAA;[65]
- a relevant assessment by an Indigenous governing body;[66] and
- any studies or plans conducted by Indigenous jurisdictions and Indigenous governing bodies that is in respect of a region related to the designated project.[67]

Additionally, as noted in subsection F below, the public interest determination must be made in light of a consideration of impacts on Indigenous peoples and their rights. The rights of Indigenous peoples of Canada includes the existing Aboriginal and treaty rights of First Nations, Inuit and Métis peoples recognized and affirmed under section 35 of the *Constitution Act, 1982*, as well as Indigenous peoples' international rights such as those protected under UNDRIP. Treaty rights include rights existing in 1982 when section 35 came into force, as well as rights pursuant to land claims agreements entered into subsequent to its passing.[68] As noted in section C above, section 6(2) requires federal officials to exercise their powers in a manner that respects the Government of Canada's commitments with respect to the rights of the Indigenous peoples of Canada, and the legislative purposes of the IAA include ensuring respect for the rights of the Indigenous peoples of Canada recognized and affirmed by section 35 of the *Constitution Act, 1982*.[69]

Some of these factors have procedural elements (e.g., how Indigenous knowledge is considered and the process of engagement and consultation), which is relevant to best practice and will be discussed in Chapter V. Others, such as impacts on Indigenous peoples and rights, are substantive in nature, although they may also contain procedural elements (e.g., the right to fish and the manner in which that right is exercised).[70] Indigenous rights vary from group to group and from nation to nation, and Indigenous

[61] SC 2021, c 14.
[62] IAA, s 22(1)(c).
[63] IAA, s 22(1)(g).
[64] IAA, s 22(1)(l).
[65] IAA, s 22(1)(o). Indigenous peoples are considered jurisdictions under the IAA if they have entered into a land-claims agreement with the Government of Canada, if they have powers or duties in relation to an EA of the project (such as participating Indigenous nations in BC EAs), and if they have entered into an agreement with the Minister pursuant to regulations.
[66] IAA, s 22(1)(q).
[67] IAA, s 22(1)(r).
[68] *Constitution Act, 1982*, ss 35(1)-(3).
[69] IAA, s 6(1).
[70] *R v Sparrow*, 1990 CanLII 104 (SCC): https://www.canlii.org/en/ca/scc/doc/1990/1990canlii104/1990canlii104.html.

perspectives and laws must inform determinations respecting the specific meaning, scope and application of Indigenous rights,[71] as well as informing consultations respecting potential infringements of those rights. Additionally, UNDRIP should be used to interpret the section 35 rights of Indigenous peoples.[72]

F. Gender-Based Analysis (GBA) Plus

Section 22(1)(s) of the IAA requires assessments to consider "the intersection of sex and gender with other identity factors." In other words, IAs must consider how different impacts differently affect people along various identity lines, including sex, gender, (dis)ability and race, and how biodiversity impacts may affect people differently due to identity factors. For example, loss of traditional harvesting grounds or the inability to harvest foods and medicines at certain times of year may affect Indigenous women differently than Indigenous men, while causing food or medicine species to become at risk may affect Indigenous women differently than Indigenous or non-Indigenous men. Indigenous youth and Elders may also be differently affected. Thus, in addition to considering biodiversity effects, implications of those effects on sustainability and the extent to which a project helps or hinders Canada's ability to meet its environmental obligations, assessments should consider the distribution of biodiversity impacts along identity lines.

G. Public interest determination

Biodiversity is a prominent consideration in the final decision following the impact assessment. The IAA requires decision makers to "determine whether the adverse effects within federal jurisdiction — and the adverse direct or incidental effects" are "in the public interest."[73] That determination must be based on the assessment report and the extent to which the federal, direct and incidental effects are significant, and a consideration of the following five factors:[74]

(a) the extent to which the designated project contributes to sustainability;
(b) the extent to which the adverse effects within federal jurisdiction and the adverse direct or incidental effects that are indicated in the impact assessment report in respect of the designated project are significant;
(c) the implementation of the mitigation measures that the Minister or the Governor in Council, as the case may be, considers appropriate;
(d) the impact that the designated project may have on any Indigenous group and any adverse impact that the designated project may have on the rights of the Indigenous peoples of Canada recognized and affirmed by section 35 of the *Constitution Act, 1982*; and
(e) the extent to which the effects of the designated project hinder or contribute to the Government of Canada's ability to meet its environmental obligations and its commitments in respect of climate change.

[71] *R v Sparrow*; John Borrows and Leonard I. Rotman, "The *Sui Generis* Nature of Aboriginal Rights: Does it Make a Difference?" (2007) Alta L. Rev. 36 No 1: DOI: https://doi.org/10.29173/alr1018.
[72] Assembly of First Nations, *Implementing the United Nations Declaration on the Rights of Indigenous Peoples* (November 2017): https://www.afn.ca/wp-content/uploads/2018/02/17-11-27-Implementing-the-UN-Declaration-EN.pdf.
[73] IAA, s 60(1).
[74] IAA, s 63.

Each of these factors is relevant to biodiversity: factors (a), (b), (d) and (e) in the manner described earlier in this chapter, and (c) as it relates to the mitigation hierarchy described in more detail in Chapter V. Depending on whether and to what extent the Agency scopes biodiversity into sustainability considerations, federal, direct and indirect effects, and Indigenous impacts and rights (we contend that it should do so rigorously), the analysis that informs the public interest determination would then consider biodiversity in the following ways:

(a) the extent to which the project fosters sustainability in light of biodiversity-related impacts, risks and benefits;
(b) the extent to which any adverse biodiversity effects that are federal, direct or incidental are significant;
(c) the application of the mitigation hierarchy,
(d) biodiversity-related impacts on Indigenous groups and their rights; and
(e) the extent to which the project helps or hinders Canada's ability to meet its environmental obligations.

Because the decision must be based on the IA report, and on whether the adverse federal effects indicated in the report are in the public interest, it is critical that the Agency or a review panel, as the case may be, comprehensively describe each conclusion (and recommendation, in the case of review panels) respecting biodiversity and how it intersects with each of the section 63 considerations in the report. Absent detailed analysis and conclusions that relate specifically to effects on biodiversity, the decision maker will not have the relevant information to make the public interest determination and may overlook this dimension altogether.

The Minister and Governor-in-Council may find that a project is in the public interest despite adverse effects on biodiversity. However, in light of the degree to which biodiversity must factor into decisions (as we demonstrate in this report), the purposes of the Act (and especially the primary purpose of fostering sustainability), and the requirement for federal authorities to exercise their duties in a manner that fosters sustainability, it may be challenging to justify a project with biodiversity impacts that hinder Canada's ability to meet its environmental obligations. At a minimum, even where a project's adverse impacts are considered to be justifiable, clear and detailed justification for any biodiversity trade-offs would lend credibility to decisions.

Chapter III: Background

It has not been customary to consider biodiversity as an explicit factor in federal or provincial environmental assessment (EA) legislation or policy in Canada to date, although this element has featured in some recent EAs. Only about half the provinces and territories have species-at-risk legislation, and the overall legal and policy safety net lacks an integrated, systematic approach that governs biodiversity health in Canada.[75] In this vein, we focus in this chapter on the particular role of the impact assessment regime across the federation. We provide an overview of the treatment of biodiversity under the *Canadian Environmental Assessment Act* (CEAA) and *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and under provincial EA regimes to draw lessons from experience to date, and identify challenges that have been or are likely to be experienced in assessing biodiversity effects and gaps that could be addressed in federal IA.

A. Treatment of biodiversity in federal EA prior to the IAA

Biodiversity was not explicitly mentioned as a factor under previous federal EA legislation, although component parts of it were. CEAA made no direct reference to biodiversity, although it did define "environment" as including "all organic and inorganic matter and living organisms" and their "interacting natural systems."[76] It required all EAs to consider the environmental effects of projects,[77] defining "environmental effect" as "any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act*," alongside the effects of those changes on health and socio-economic conditions, physical and cultural heritage, Indigenous traditional land and resource use, and historically-, archaeologically-, paleontologically- or architecturally-significant sites, structures and things.[78] It is noteworthy that this definition specifically references wildlife species listed on the Species at Risk Public Registry and no other environmental components, encouraging a narrow focus on species at risk.

While sustainable development was prominent in the preamble and purposes section of CEAA, sustainability was not a factor to consider. CEAA also did not require the assessment of impacts on Indigenous rights or GBA+. CEAA's preamble referred to EA as an effective means of promoting "sustainable development" and preventing degradation of "environmental quality," and purposes of the Act included to ensuring "that projects are considered in a careful and precautionary manner," and encouraging responsible authorities to "take actions that promote sustainable development." [79]

Similarly, CEAA 2012 did not mention biodiversity, although it did apply the same definition of "environment" as CEAA. It was much more explicit than its predecessor in enumerating the environmental effects to be considered, which it narrowed to changes to fish and fish habitat, aquatic species at risk and migratory birds, effects that occur on federal lands or outside Canada, interprovincial effects, and effects on Indigenous peoples' health and socio-economic conditions, physical and cultural

[75] J. Ray *et al* (2021).
[76] *Canadian Environmental Assessment Act*, 1992, c 37, s 2(1) [CEAA].
[77] CEAA, s 16(1)(a).
[78] CEAA, s 2 ("environmental effect").
[79] CEAA, ss 4(1)(a)-(b).

heritage, traditional land and resource use, and structures, sites and things of historical, archaeological, paleontological or architectural significance.[80] For projects requiring a federal authorization or other performance of a duty or function, assessments had to also consider direct and incidental environmental effects and socio-economic effects, among other effects.[81]

Cumulative effects assessment – key to understanding development impacts on biodiversity – was required under both CEAA and CEAA 2012. Specifically, both required the assessment of projects' likely cumulative effects "in combination with" other projects or activities "that have been or will be carried out."[82] Cumulative effects were not defined in either statute, but operational policy statements and technical guidance outlined information related to when to assess cumulative effects, scoping, analysis, mitigation, significance determinations and follow-up.

The Operational Policy Statement for Addressing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act*[83] points to a 1999 *Cumulative Effects Assessment Practitioners Guide*[84] written by an independent committee. In 2015, the Agency published a new cumulative effects policy for EAs under CEAA 2012 titled *Assessing Cumulative Environmental Effects under the* Canadian Environmental Assessment Act, 2012,[85] which complements its 2014 *Technical Guidance for Assessing Cumulative Environmental Effects under the* Canadian Environmental Assessment Act, 2012.[86] Until new cumulative effects guidance for IAs under the IAA is published, the CEAA 2012 guidance applies.

For biodiversity, one particularly relevant element of the 1999 guide was the mention of an ecological index ("a numerical or descriptive categorization of a large quantity of ecological data or information involving multiple metrics"),[87] which may be used to assess a range of species in a complex community as opposed to employing the standard species-by-species approach. It is outside the scope of our review to research and understand how commonly or effectively this was implemented; in any case, it was not carried through to the 2015 guidance.

One notable issue is that both the 1999 and 2015 guides direct the proponent to include "certain" or "reasonably foreseeable" future projects and activities in their cumulative effects assessment, rather than evaluating future alternative (and plausible) development scenarios, including those arising from induced growth.[88]

B. Treatment of biodiversity under provincial EA legislation

Given provincial constitutional responsibility for so much of the land base in Canada and Canada's environmental obligations (outlined in Chapter IV), we have analysed provincial EA laws to determine

[80] CEAA 2012, s 5(1).
[81] CEAA 2012, s 5(2).
[82] CEAA, s 16(1); CEAA 2012, s 19(1).
[83] https://web.archive.org/web/20000611020311/http:/www.ceaa.gc.ca/publications_e/cea_ops_e.htm.
[84] https://www.canada.ca/content/dam/iaac-acei/documents/policy-guidance/cumulative-effects-assessment-practitioners-guide/cumulative_effects_assessment_practitioners_guide.pdf.
[85] https://www.canada.ca/content/dam/iaac-acei/documents/policy-guidance/assessing-cumulative-environmental-effects/assessing-cumulative-environmental-effects-ops-eng.pdf.
[86] https://publications.gc.ca/collections/collection_2016/acee-ceaa/En106-116-1-2014-eng.pdf.
[87] *Technical Guidance for Assessing Cumulative Environmental Effects under the* Canadian Environmental Assessment Act, 2012 at page 53.
[88] P. N. Duinker, E.L. Burbidge, S.R. Boardley & L.A. Greig, "Scientific dimensions of cumulative effects assessment: toward improvements in guidance for practice" (2013) Environmental Review 21: 40–52: dx.doi.org/10.1139/er-2012-0035.

the extent to which provincial EAs can be expected to help Canada achieve its biodiversity-related obligations. We have limited our analysis of provincial regimes to relevant legislation and regulations, and did not review individual assessment reports.

As with federal EA and IA legislation, biodiversity is not directly referenced in most provincial EA regimes, with the exception of Nova Scotia. The Nova Scotia *Environment Act* refers to preventing loss of biological diversity in the purpose section, along with reference to sustainable development.[89] It also requires assessments to consider "impacts on species at risk, species of conservation concern and their habitats."

British Columbia's *Environmental Assessment Act* requires assessments to consider "biophysical factors that support ecosystem function,"[90] whereas some other regimes (such as Alberta and Saskatchewan) include species or organisms as factors to consider. BC, Alberta and Nova Scotia's assessment laws require the assessment of effects interactions.

However, most EA regimes lack detailed factors to consider, and BC's law is the only one to require an assessment of cumulative effects. Many provinces (e.g., Ontario, Newfoundland and Labrador and Prince Edward Island) have limited application of EA and highly discretionary processes that do not require consideration of either biodiversity as a concept or its components. No provincial assessment regime requires the assessment to compare project effects with biodiversity targets or obligations.

One finding of note is the approach in BC's *Environmental Assessment Act* to Indigenous rights, jurisdiction and decision-making authority. It recognizes a First Nation's power to require an Indigenous-led assessment of impacts on its Nation and on its section 35 rights,[91] requires BC to seek consensus with participating Indigenous nations and provides formal opportunities for First Nations to give notice as to whether or not they are providing their consent. Because biodiversity health is integral to Indigenous rights, these provisions may enhance the likelihood that EAs conducted in BC will consider biodiversity, bolstered by obligations under the provincial *Declaration on the Rights of Indigenous Peoples Act*.[92]

A table of provincial EA law provisions respecting biodiversity is included in Appendix A to this report.

C. Key federal laws and policies that are relevant to the treatment of biodiversity in IA

5. Species at Risk Act

Section 73 and in particular section 79 of the *Species at Risk Act*[93] are relevant to the treatment of biodiversity under the IAA, and are both consistent with the mitigation hierarchy, a tool that deploys a set of prioritized steps to anticipate and avoid impacts on biodiversity and ecosystem services (see chapter V). Section 73(3) states that the competent minister may only enter into an agreement with or

[89] *Environment Act*, SNS 1994-95, c 1, s 2.
[90] *Environmental Assessment Act*, SBC 2018, c 51, s 25(2)(e).
[91] Section 19(4).
[92] SBC 2019, c 44.
[93] SC 2002, c 29.

issue a permit to a person authorizing the person to affect a listed wildlife species, its critical habitat or its residences if the minister is of the opinion that:

> (a) all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted;
> (b) all feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat or the residences of its individuals; and
> (c) the activity will not jeopardize the survival or recovery of the species.

Section 73 may be relevant to IAs where a proponent requires a permit in order to affect a listed wildlife species, its critical habitat or its residences, as the IA would identify conditions for protecting the species, minimizing the impact of the authorized activity on the species or providing for its recovery under section 73(6).

Section 79 requires proponents of designated projects to notify the competent minister in writing if the project is likely to affect a listed species at risk, identify the adverse effects on the species and its habitat, and ensure that "measures are taken to avoid or lessen those effects… in a manner that is consistent with any applicable recovery strategy and action plans."[94] This requirement should guide the application of the mitigation hierarchy in impact assessments under the IAA (discussed in Chapters V and VI), as well as the development and implementation of monitoring plans. It should also ensure that relevant federal experts provide their expertise during the planning phase and throughout impact assessments. It should be noted, however, that the *Species at Risk Act* applies to only a small subset of 80,000 species in Canada, i.e., those that are formally listed as threatened or endangered on the SARA registry.

6. Other relevant federal policies

Below is a list of additional federal policies and guidance that should apply to the assessment of effects on biodiversity under the IAA where relevant.

- *Federal Policy on Wetland Conservation*[95]
- *Federal Policy on Wetland Conservation: Implementation Guide for Federal Land Managers*[96]
- *Fish and Fish Habitat Protection Policy Statement*[97]
- *Policy for Applying Measures to Offset Adverse Effects on Fish and Fish Habitat Under the* Fisheries Act[98]
- *Operational Framework for the Use of Conservation Allowances*[99]

[94] *Species at Risk Act*, SC 2002, c 29, s 79(1)-(2).
[95] https://publications.gc.ca/collections/Collection/CW66-116-1991E.pdf.
[96] https://publications.gc.ca/collections/Collection/CW66-145-1996E.pdf.
[97] At page 20: https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/40971193.pdf.
[98] At pages 6-7: https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/40939698.pdf.
[99] At pages 4-5: https://publications.gc.ca/collections/collection_2012/ec/En14-77-2012-eng.pdf. This 2012 policy is currently proposed to be replaced by an *Offsetting Policy for Biodiversity* that was recently released in draft for public comment and which prescribes the mitigation hierarchy: Environment and Climate Change Canada, *Offsetting Policy for Canada – Proposed* (nd) at pages 3-5: https://www.canada.ca/en/environment-climate-change/services/biodiversity/offsetting-policy-biodiversity.html.

- *Tailored Impact Statement Guidelines Template for Designated Projects Subject to the* Impact Assessment Act[100]
- *Offsetting Policy for Biodiversity – Proposed*[101]

D. Joint review panel and substituted assessments

While legislative language provides a picture of the formal requirements of EAs, we asked the Agency to provide us with a list of all Agency-led and joint review panel EAs conducted under CEAA and CEAA, 2012 that considered biodiversity in order to understand how frequently and how it was considered. All the assessments identified by the Agency and considering biodiversity were panels jointly appointed with provincial and, for Voisey's Bay, Indigenous authorities. The Agency informed us that, based on its internal discussions and analysis, there are limited relevant examples of Agency-led assessments that considered biodiversity to draw from. We also reviewed the draft report for the Cedar LNG project, a substituted EA conducted by the BC Environmental Assessment Office (EAO), because it is the first report to have been issued pursuant to the requirement of the *Impact Assessment Act* (IAA) to consider the extent to which the project will contribute to or hinder Canada's ability to meet its environmental obligations.

The purpose of this review was not to evaluate the effectiveness of biodiversity considerations in the assessments, but rather to understand how available biodiversity-related guidance was interpreted by assessment authorities. As a result, we focused our review on joint panel and EAO reports, which we did by searching for the terms "biodiversity," "biological diversity" and "ecosystem" and by reading relevant sections (e.g., report chapters on wildlife and species at risk). It was outside the scope of this project to review panel terms of reference, impact statement guidelines or impact statements. In Chapter 5, we discuss a recent review by Gannon (2021), who assessed "the degree to which biodiversity considerations are being incorporated into environmental impact statements" from projects commenced between 2005 and 2015 under CEAA and CEAA 2012 by use of a quantitative Biodiversity Assessment Index (BAI) tool.[102] We incorporate the results of Gannon's findings along with ours in our summary of main gaps and challenges, as well as recommendations, in Chapter 7.

1. Cedar LNG Substituted Assessment Report (2022)

The Cedar LNG project is a proposed floating liquefied natural gas export facility and marine terminal that, if approved, would process and liquefy 11.3 million cubic meters per day (3 million tonnes per year) of natural gas. It was a substituted assessment under the IAA and the 2002 BC *Environmental Assessment Act*, but aspects of the 2018 BC Act were incorporated into the assessment.

[100] At section 20: https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/tailored-impact-statement-guidelines-projects-impact-assessment-act.html#_Toc15652151.
[101] This draft policy states that the mitigation hierarchy will apply and as such, offsetting will be the lowest priority below (in descending order) avoidance, minimization and restoration: https://www.canada.ca/en/environment-climate-change/services/biodiversity/offsetting-policy-biodiversity.html.
[102] Patrick Gannon, "The time is now to improve the treatment of biodiversity in Canadian environmental impact statements" (2012) EIAR 86.

The draft report issued by the EAO[103] in 2022 states that loss of mature and old forest and loss of wetlands will result in local loss of forest biodiversity, old forest functions and services for wildlife.[104] The section on environmental obligations (required under the IAA) describes what it refers to as environmental obligations as follows:

- The Convention on Biological Diversity (CBD) and the following supporting federal policies: Canada's Biodiversity Strategy, Canada's Biodiversity Outcomes Framework and Canada's Biodiversity Goals and Targets, North American Waterfowl Management Plan, and the Declaration of Intent for the Conservation of North American Birds and their Habitat;
- The *Species at Risk Act,* and recovery strategies and action plans pursuant to that Act;
- The *Canada Wildlife Act*; and
- The *Convention for the Protection of Migratory Birds in the United States and Canada* as implemented in part through the *Migratory Birds Convention Act*, and supporting guidance on conservation objectives arising from Bird Conservation Region Strategies.

The environmental obligations section goes on to describe how hundreds of species at risk and migratory birds were identified during the assessment that are relevant to the CBD, *Migratory Birds Convention Act* and *Species at Risk Act*. However, the section only lists those species that occur within the project area and marine shipping regional area, and only describes direct impacts on marbled murrelet critical habitat. It does not describe any other direct or indirect impacts on at risk species or migratory birds, or describe cumulative effects on any at risk species or migratory birds.[105] Based on these findings, the EAO report states that the Agency advised the EAO that the project "would only hinder Canada's ability to meet its environmental obligations to a negligible extent."[106]

2. Voisey's Bay Mine and Mill EA Panel Report (1999)

The Voisey's Bay project is an open-pit nickel, copper and cobalt mine in northern Labrador, originally proposed to mine 32 million tonnes of ore with the potential for expansion. It underwent an EA by a review panel appointed jointly by the province of Newfoundland and Labrador, the federal government, the Labrador Inuit Association (LIA) and the Innu Nation under CEAA and the Newfoundland *Environmental Assessment Act* of 1990.[107]

The Panel was directed to:

- consider the need for the project;
- address the Project's effects on biological diversity, and on the capacity of renewable resources to meet the needs of present and future generations; and
- examine the extent to which the proponent applied the precautionary principle to the project.

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[103] Environmental Assessment Office, *Draft Assessment Report for Cedar LNG Project (Project)*, (21 September 2022): https://projects.eao.gov.bc.ca/api/public/document/632a6738b752160022a0882b/download/Cedar_Assessment%20Report%20Draft_2022-09-21.pdf. At the time of writing, the final report was not available on the EAO's registry.
[104] At page 418.
[105] At pages 486-87.
[106] At page 488.
[107] Voisey's Bay Mine-Mill Project Joint Environmental Assessment Panel, *Voisey's Bay Mine and Mill Environmental Assessment Panel Report*: https://www.ceaa.gc.ca/archives/evaluations/5EA5DD6D-1/default_lang=En_n=0A571A1A-1_printfullpage=true.html#ws6B6C6C74.

It also considered alternative means of carrying out the project.

The panel interpreted the definition of sustainable development to include "preservation of ecosystem integrity and maintenance of biological diversity." It found that "in many respects, the Project is a relatively conventional mining operation using proven mitigation measures, and that its effects can be predicted with reasonable certainty," but that "significant challenges" remained. It concluded that the project would not likely significantly damage ecosystem functions or reduce the capacity of renewable resources to support future generations, provided that the proponent "operate within an effective environmental management system," implement mitigation and use scientifically sound monitoring.

The report also considered biodiversity in the context of the precautionary principle, which it discussed in a special section. The panel referred to the 1992 Rio Declaration,[108] which articulates the precautionary approach as follows: "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation,"[109] and considered the following in determining whether the project could lead to serious or irreversible damage:

- the degree of novelty of the interaction in similar environments;
- the degree of uncertainty about potential effects;
- the magnitude and duration of potential effects and the extent to which they might be irreversible; and
- the extent and scale at which potential effects could impair biological productivity and ecosystem health.

It asked the proponent to show it had:

- designed the project to avoid adverse effects wherever possible;
- developed mitigation measures, or contingency or emergency response plans, of proven effectiveness;
- designed monitoring programs to ensure rapid response and correction when adverse effects are detected (or would design these in cooperation with others, where appropriate); and
- developed adequate systems to remediate any residual accidental or unplanned adverse effects of the project and demonstrated sufficient financial resources to compensate for such effects.

The panel did not discuss biodiversity as a component of sustainability. While it discussed impacts on Indigenous peoples' use of lands and resources due to impacts on species, it also did not discuss the interaction of biodiversity effects and Indigenous peoples or their rights. It concluded that the project would contribute to cumulative effects on various species, and recommended that future EAs in the area pay particular attention to cumulative effects.

3. Lower Churchill Joint Panel Report (2011)

The Lower Churchill Hydroelectric Generation Project is comprised of two hydroelectric generation facilities on the lower Churchill River in central Labrador with a combined capacity of 3,074 megawatts. Pursuant to the CEAA and the Newfoundland and Labrador *Environmental Protection Act*, it was

[108] *Rio Declaration on Environment and Development*, A/CONF.151/26 (Vol. I).
[109] Principle 15.

assessed by a review panel jointly established by Canada's Minister of the Environment, the Minister of Environment and Conservation for Newfoundland and Labrador, and the Minister for Intergovernmental Affairs for Newfoundland and Labrador.[110]

The panel considered genetic, species and habitat/ecosystem biodiversity in its assessment of impacts on the aquatic and terrestrial environments. In its report, the panel noted that a key issue that emerged during its review included possible changes to overall aquatic biodiversity and ecosystem resilience.[111] It found that the project would result in a reduction of aquatic biodiversity, terrestrial biodiversity and the overall integrity of terrestrial ecosystems.[112] In drawing its conclusion about terrestrial biodiversity loss, the panel wrote that due to the scale of terrestrial habitat loss, "it is important to consider habitat loss itself as an environmental effect in addition to considering the effect of the loss of habitat on individual species."[113]

The Lower Churchill panel also applied a framework for determining whether significant adverse environmental effects were justified.[114] The framework comprised a set of sustainability criteria designed to identify the range of effects on sustainability and principles for addressing residual effects and "whether, in light of the identified range of effects, risks and uncertainties, the Project is expected to make a net positive contribution to sustainability."[115] The criteria were:

1. Ecological effects, benefits, risks and uncertainties;
2. Economic effects, benefits, risks and uncertainties;
3. Social and cultural effects, benefits, risks and uncertainties;
4. Fair distribution of effects, risks and uncertainties;
5. Present versus future generations; and
6. Integration.

For the ecological criteria, the panel asked:[116]

- Are biophysical systems adequately protected throughout all phases of development, construction, operation, and decommissioning of the Project?
- Is the long-term integrity of biophysical systems ensured and are the irreplaceable life support functions protected upon which human as well as ecological well-being depends?
- Are complex interactions sufficiently understood?
- Are potential adverse effects minimized?

[110] Canadian Environmental Assessment Agency & Ministry of Environment, *Lower Churchill Hydroelectric Generation Project: Report of the Joint Review Panel* (Government of Canada, Aug. 2011): https://www.ceaa-acee.gc.ca/archives/evaluations/26178/document-eng_did=53120.html.
[111] At page 61.
[112] At pages 78, 96.
[113] At page 96.
[114] Section 37 of CEAA allowed responsible authorities to exercise powers and perform duties necessary for the carrying out of projects when projects were not likely to result in significant adverse effects, or when projects were likely to result in significant adverse effects "that can be justified in the circumstances." The Act did not set out who is to determine whether significant effects can be justified in the circumstances.
[115] Appendix 8 at page 352.
[116] At page 352.

- Does the Project reduce threats to the long-term integrity of ecological systems by reducing extractive damage, avoiding waste and cutting overall material and energy use per unit of benefit?

Among other questions related to the social and cultural criteria, the panel asked: "Does the Project strengthen individual and collective understanding of ecology and community, foster customary civility and ecological responsibility, and build civil capacity for effective involvement in collective decision making?"[117]

For the present versus future generations criterion, the panel asked (among other things) whether the project applies "precaution, by respecting uncertainty, avoiding both well and poorly understood risks of serious or irreversible damage to the foundations for sustainability, planning to learn, designing for surprise, and managing for adaptation?"[118]

For the integration criterion, the main question was whether "all principles of sustainability applied together, seeking mutually supportive benefits and multiple gains."[119]

The principles that the panel identified to guide the final decision were that the project should:[120]

- Maximize net gains;
- Avoid significant adverse effects;
- Be generationally and geographically fair in the distribution of effects, risks, costs and benefits; and
- Any trade-offs "should be accompanied by an explicit and transparent justification based on openly identified, context specific priorities as well as the sustainability decision criteria."

4. EnCana Shallow Gas Infill Development Project Joint Review Panel Report (2009)

The EnCana Shallow Gas Infill project was a proposal to drill up to 1275 shallow gas wells in the Canadian Forces Base Suffield National Wildlife Area in Alberta over a three-year period, and would include pipelines, access trails and other associated infrastructure. The assessment review was conducted by a panel jointly appointed by the federal environment minister and by the chair of the Alberta Energy and Utilities Board.[121] The panel's report included a section on biodiversity, which primarily consisted of the views of the proponent, Canada and interveners. The panel's brief conclusions on biodiversity were that there were "important biodiversity issues" and that recommendations respecting wildlife, vegetation and soils, wetlands and cumulative effects would address those issues.[122] It did not provide any details or rationale for its conclusions, nor did it define biodiversity, although it did note that the proponent considered three components: species diversity, habitat diversity, and landscape diversity.

5. Jackpine Mine Expansion Project Joint Review Panel Report (2013)

The Jackpine Mine Expansion project was a proposed expansion of the Jackpine Mine oil sands mine to increase bitumen production by 15 900 cubic metres per day while resulting in the loss of over 10,000

[117] At page 353.
[118] At page 353.
[119] At page 354.
[120] At pages 354-55.
[121] Energy Resources Conservation Board and Canadian Environmental Assessment Agency, *Report of the Joint Review Panel, EnCana Shallow Gas Infill Development Project*: https://iaac-aeic.gc.ca/050/documents/31401/31401E.pdf.
[122] At pages 115-119.

hectares of wetlands, 85% of which are peatlands that cannot be reclaimed.[123] The assessment review was conducted by a panel jointly established by the federal environment minister and the chair of Alberta's Energy Resources Conservation Board,[124] and was conducted under CEAA and the *Alberta Energy and Utilities Board Act* and the *Energy Resources Conservation Act*. In addition to considering biodiversity effects, the panel considered the proponent's no net loss plan for fisheries, effects on migratory birds, effects on wildlife and its habitat, effects on wetlands and old-growth forests, effects on traditional plant potential areas, and regional biodiversity effects.

The panel report states that the proponent identified areas of high biodiversity potential, but does not include a definition of the term "high biodiversity potential" or describe any methods used to identify such areas.[125] The panel defined biodiversity as "the totality of genes, species, and ecosystems of a region" and considered effects at the species, community and landscape levels in its project and cumulative biodiversity effects assessment.[126]

The panel found that the project would likely have significant direct and cumulative effects on biodiversity.[127] Specifically:[128]

> The Panel has assessed the effects on biodiversity at the species, ecosystem, and landscape levels. The Panel believes that there appears to be a high potential for significant loss of biodiversity based on overall wildlife habitat loss, unproven methods for reclamation of peatlands and old-growth forest, and the long time lag between disturbance and reclamation. The Panel finds a high-magnitude, long-term, potentially irreversible effect on biodiversity at the [local study area] scale and concludes that it is a significant effect. The Panel also finds that there would be significant adverse cumulative effects on biodiversity in the [regional study area].

It also found that "without additional mitigation, there will be significant adverse effects on species abundance and diversity" which could "contribute to adverse effects on biodiversity as well."[129] The panel noted the proponent's lack of effective mitigation measures and the fact that the proposed project was surrounded by other large oil sands developments that contributed to significant biodiversity effects. The panel acknowledged the 40-year project lifespan, the decades it would take for natural processes to re-establish after closure and reclamation, and the uncertainty respecting reclamation success related to species.[130]

In the section on cumulative biodiversity effects the panel noted the CBD's requirement to prevent or reverse the decline of species at risk and rare species, thereby highlighting the need to "carefully consider the effects on species at risk."[131] It found that the proponent had not assessed effects on species at risk in its biodiversity assessment, but rather "based its analysis of biodiversity on an

[123] At page 5.
[124] Alberta Energy Regulator and Canadian Environmental Assessment Agency, *Report of the Joint Review Panel, Jackpine Mine Expansion Project*: https://iaac-aeic.gc.ca/050/documents/p59540/90873E.pdf.
[125] At page 163.
[126] At page 165.
[127] At page 2; see also page 166.
[128] At page 6.
[129] At pages 6-7.
[130] At page 166.
[131] At pages 171-72.

unverified assumption that habitat types (e.g., wetlands,) have an associated level of biodiversity," and therefore there was "substantial uncertainty" about the proponent's analysis.[132]

It noted:[133]

> The Panel recognizes that numerous issues and challenges are related to the regional environmental effects of oil sands development. It is clear that critical issues about oil sands development are increasingly not project specific, and successful management of these issues is often not the sole responsibility of an applicant or proponent. As has been the case with other recent decisions on mineable oil sands development, many of the concerns and issues related to this proposal have to do with the pace of development of the mineable oil sands and the capacity of the regional environment to absorb these developments without creating effects that result in further development not being in the public interest. The Panel believes that a more integrated and comprehensive approach is required to adequately address cumulative effects of mineable oil sands development.

Similar to direct biodiversity effects, the panel concluded that the decrease in high and moderate levels of biodiversity in the regional study area was likely, would be high, have a regional geographic extent, be long-term, be largely irreversible, and occur in an area already adversely affected, and therefore the regional biodiversity cumulative effects would be significant.[134]

6. Marathon Palladium Project Joint Review Panel Report (2022)

The Marathon Palladium mine is a proposed open pit platinum group metal and copper mine and milling operation in Ontario with a 12.7-year operating life. It was assessed by a joint review panel appointed by the federal Minister of Environment and Climate Change and Ontario Minister of the Environment, Conservation and Parks under CEAA, 2012 and Ontario's *Environmental Assessment Act.*[135] The panel's terms of reference required it to consider the extent to which the project would affect biological diversity, including "any federally listed wildlife species, its critical habitat, or the residences of individuals of that species, as well as any affect the Project might have on a provincially threatened or endangered species and/or their protected habitat."[136]

The panel reported on effects on fish and fish habitat, soils and vegetation, wildlife species, caribou and other species at risk, and biological diversity, all of which the panel considered to be environmental effects required to be assessed under Ontario's *Environmental Assessment Act* despite the fact that the statute does not list biodiversity as a factor to be considered.[137]

The panel adopted the CBD's definition of biological diversity. It concluded that the project was likely to cause significant adverse environmental effects on caribou critical habitat and habitat connectivity, as well as likely significant adverse effects on at-risk bat species. It also found that "a notable change in habitat could put added pressure on the species that depend on it, particularly species at risk such as

[132] At page 172.
[133] At page 7.
[134] At pages 172-73.
[135] Report of the Joint Review Panel: Marathon Palladium Project: https://iaac-aeic.gc.ca/050/documents/p54755/144649E.pdf.
[136] At page 505.
[137] At page 505.

bats, caribou, Northern Brook Lamprey and Lake Sturgeon."[138] In the end, however, the Panel limited its biodiversity-related recommendations to those respecting mitigation, offsetting and follow up for caribou.[139]

7. Grassy Mountain Coal Joint Review Panel Report (2021)[140]

The Grassy Mountain Coal project is a proposed 4.5 million tonne metallurgical coal mine in southwest Alberta with a lifespan of approximately 23 years, reviewed by a joint panel established by the federal Minister of Environment and Climate Change and the Alberta Energy Regulator under CEAA, 2012 and Alberta's *Environmental Protection and Enhancement Act*. The panel concluded that the project is likely to result in significant adverse environmental effects on surface water quality, westslope cutthroat trout (listed as threatened under SARA) and its habitat, whitebark pine, rough fescue grasslands, and vegetation species and community biodiversity, and that the project will result in an extended loss of biodiversity within the local study area. It also stated that it was "not confident" that the proponent's reclamation plan would effectively mitigate biodiversity effects.[141]

The assessment considered soil biodiversity, plant species and community biodiversity, vegetation landscape biodiversity and wildlife biodiversity. In drawing its conclusions respecting biodiversity, the panel considered the evolutionary history of species: "We consider the loss of rare plants, and species and community biodiversity, irreversible because the existing levels of biodiversity have evolved over hundreds of years and cannot be mitigated through reclamation …. A reclamation plan that proposes to plant a few species is not sufficient to mitigate the loss of species that have occupied and persisted in an area for hundreds of years."[142]

A relevant consideration for the panel in drawing its conclusions about biodiversity was that in its view, the proponent relied on adaptive management plans that lacked sufficient detail; in other words, it was 'a plan to make future plans.' Also, the project would impact federally-protected aquatic species-at-risk habitat, which the proponent did not adequately assess.[143]

8. Frontier Oil Sands Mine Project Joint Review Panel Report (2019)

The Teck Frontier Oil Sands Mine was a proposed oil sands mine and processing plant north of Fort McMurray, Alberta with a disturbance area of 29,217 hectares and lifespan of 41 years. Its assessment commenced under CEAA and Alberta's *Energy Resources Conservation Act*, and was continued under CEAA, 2012 and Alberta's *Responsible Energy Development Act* when those laws came into effect. The joint review panel established by the Federal Minister of Environment and Climate Change and the Alberta Energy Regulator[144] noted that biodiversity "refers to the diversity of all living things, from genetic diversity to species diversity and the diversity of ecosystems across landscapes,"[145] and considered impacts on eight biodiversity-related valued components: topographic diversity, soil series

[138] At page 506.
[139] At page 225-27.
[140] Report of the Joint Review Panel, Benga Mining Limited Grassy Mountain Coal Project: https://iaac-aeic.gc.ca/050/documents/p80101/139408E.pdf.
[141] At pages 91, 93.
[142] At page 332.
[143] At pages x-xi.
[144] Report of the Joint Review Panel, Teck Resources Limited Frontier Oil Sands Mine Project: https://iaac-aeic.gc.ca/050/documents/p65505/131106E.pdf.
[145] At page 493

diversity, landscape diversity, uplands community diversity, wetlands community diversity, old-growth forest community diversity, species diversity potential, and wildlife biodiversity potential.[146] It concluded that the project would likely result in significant direct and cumulative effects to wetlands and old-growth forest diversity, and that overall the project will contribute to a loss of biodiversity at the species, community, and landscape levels.[147]

In drawing its conclusions, the panel noted:[148]

- the rate and degree of improvement in species diversity following reclamation is uncertain;
- some species and vegetation communities (including peatlands) would be permanently lost;
- wetlands and old-growth forests, key contributors to biodiversity, would be significantly impacted; and
- the project would further fragment an already fragmented landscape.

It also found that opportunities to avoid and minimize biodiversity loss would be minimal, and recommended that in order to mitigate the effects of the Frontier project and re-establish biodiversity and wildlife habitat in the reclaimed landscape, the proponent should submit a plan, which includes a program to achieve continuous improvement on biodiversity.

[146] At page 496.
[147] At pages 496, 501.
[148] At page 502.

Chapter IV: Examples of key biodiversity-related obligations

As noted in Chapter III, Tailored Impact Statement Guidelines (TISG) issued to proponents to date have not specified environmental obligations that are relevant to the project and that should be considered in the assessment. Instead, they simply list the instruments in which relevant obligations may arise, such as the Convention on Biological Diversity (CBD), the *Species at Risk Act* (SARA), and recovery strategies and action plans for federal species at risk. Additionally, there is no IAAC guidance listing the most likely relevant environmental obligations that proponents, Indigenous peoples or participants can look to for assistance. To date, the approach under the IAA has been to put the onus on proponents to identify relevant environmental obligations and assess the extent to which projects hinder or contribute to Canada's ability to meet those obligations, with no publicly transparent guidance from IAAC for doing either of those things.

This lack of clarity poses a number of challenges. First, it risks omitting the consideration of relevant environmental obligations. Second, it can seriously limit participants' and Indigenous peoples' ability to prepare for the impact assessment phase, as they do not know which environmental obligations proponents will feature or how an analysis of the extent to which projects hinder or contribute to meeting those obligations should be carried out. Third, it risks adding to an already over-burdened planning phase by requiring additional attention to identifying potentially-relevant environmental obligations and then determining their likely relevance to the project in question. And finally, such an approach will not give rise to a common standard of application of this requirement of the statute.

As the IAAC policy on environmental obligations and climate commitments notes, "environmental obligations" refers to obligations that are legally binding on the Government of Canada and that may arise under international or domestic law, including binding agreements, treaties, conventions, and domestic law.[149]

Where an instrument (e.g., the *Federal Sustainable Development Act* or the *Fisheries Act*) requires the establishment of a strategy or plan and compliance with the strategy or plan is required, any obligations that arise may also be environmental obligations for the purpose of the IAA. Additionally, non-binding policies may be used as interpretive aids and therefore may also be relevant to understanding which environmental obligations are applicable in an assessment, how they are applicable, and how to assess them. As we have discussed previously, the term "environmental obligation" should be interpreted as also including obligations pertaining to biodiversity as it relates to Indigenous peoples and their rights.

In this chapter we describe key international obligations, domestic obligations and obligations respecting Indigenous peoples that are relevant to biodiversity, as well as key policy instruments that help interpret the obligations and what they mean for impact assessment (IA). In determining an obligation's potential relevance, we primarily determined whether the obligation is procedural (e.g., an obligation to plan or report) or substantive (e.g., an obligation to conserve, halt or reverse) in nature. As projects are less likely to affect government processes (e.g., planning and reporting) and more likely to

[149] See Impact Assessment Agency of Canada, "Policy Context: Considering Environmental Obligations and Commitments in Respect of Climate Change under the Impact Assessment Act," in *Practitioner's Guide to Federal Impact Assessments under the* Impact Assessment Act: https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/considering-environmental-obligations.html.

affect substantive goals (e.g., the halt and reversal of extinction rates or habitat loss), we were more likely to determine that a process-oriented obligation would not be relevant to an assessment. A notable exception is obligations setting out processes respecting Indigenous peoples (e.g., state obligations to consult, consider knowledge, and obtain consent) as those processes are also substantive in that they relate to Indigenous rights, and because rights-based engagement of Indigenous peoples is a fundamental component of biodiversity. A second exception is obligations respecting public participation, because meaningful public participation is critical to meeting substantive targets and goals, including those related to biodiversity.

We recommend that the Agency create a list of key international and domestic instruments that give rise to environmental obligations that may be relevant to impact assessment, the specific obligations that might be relevant to assessments, and any additional guidance, policies or information that could help the assessment of the extent to which a project hinders or contributes to Canada's ability to meet each obligation. We also recommend that the Agency produce guidance for determining which environmental obligations are relevant to an assessment to provide clarity and certainty for all parties. The following examples should provide a useful starting place for such guidance.

A. International obligations

1. Convention on Biological Diversity[150]

Canada is a signatory to the 1992 United Nations *Convention on Biological Diversity* (CBD), a multilateral treaty respecting the conservation, sustainable use and fair and equitable sharing of the benefits arising from biological diversity. The CBD contains 42 articles and three annexes, some of which are procedural and some of which substantive in nature. Article 6 requires each party, including Canada, to prepare and submit a national biodiversity strategy and action plan (NBSAP) detailing how parties intend to implement the CBD. While the Convention does not require parties to actually meet their commitments under their NBSAPs, an NBSAP can be a useful interpretation tool and therefore potentially relevant to IA.

Additionally, in December 2022, parties to the Convention agreed to the Kunming-Montreal Global Biodiversity Framework (GBF), which replaces the Strategic Plan for Biodiversity 2011–2020 and associated Aichi Targets. The GBF contains 23 targets and four overarching goals, as well as a monitoring framework for its implementation. Relevant obligations arising under the text of the CBD, the GBF and Canada's NBSAP are detailed below.

Text of the Convention

Article text	Application to IA	Relevance and notes
Article 1, Objectives: The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its	While this Article does not impose a specific obligation on the Government of Canada, it can be used as an interpretive tool to guide conclusions about the extent to	Relevant to the interpretation of the CBD and Canada's

[150] https://www.cbd.int/convention/text/.

Article text	Application to IA	Relevance and notes
components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources,[151] including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.	which projects hinder or contribute to CBD obligations.	obligations under it.
Article 2, Use of Terms: For the purposes of this Convention: "Biological diversity" means the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. "Biological resources" includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.	"Biodiversity" and related terms used under the IAA should apply or be consistent with this definition of biodiversity.	Highly relevant.
Article 7, Identification and Monitoring: Each Contracting Party shall, as far as possible and as appropriate, in particular for the purposes of Articles 8 to 10 [in-situ conservation, ex-situ conservation, and sustainable use]: (a) Identify components of biological diversity important for its conservation and sustainable use having regard to the indicative list of categories set down in Annex I;	Through the data collected in impact assessment and monitoring and follow-up programs, projects may help Canada's ability to meet the first two obligations arising under Article 7. To what extent will projects identify components of biological diversity important for its conservation and sustainable use?	Relevant to monitoring and follow-up as well as to the scope of the IA.

[151] Article 2 of the CBD defines genetic resources as "genetic material of actual or potential value." It defines genetic material as "any material of plant, animal, microbial or other origin containing functional units of heredity."

Article text	Application to IA	Relevance and notes
(b) Monitor, through sampling and other techniques, the components of biological diversity identified pursuant to subparagraph (a) above, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use; **Annex I, Identification and Monitoring**: 1. Ecosystems and habitats: containing high diversity, large numbers of endemic or threatened species, or wilderness; required by migratory species; of social, economic, cultural or scientific importance; or, which are representative, unique or associated with key evolutionary or other biological processes; 2. Species and communities which are: threatened; wild relatives of domesticated or cultivated species; of medicinal, agricultural or other economic value; or social, scientific or cultural importance; or importance for research into the conservation and sustainable use of biological diversity, such as indicator species; and 3. Described genomes and genes of social, scientific or economic importance.	Will proponents monitor the components of biological diversity identified pursuant to subparagraph (a), paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use?	
Article 8, In-situ Conservation: Each Contracting Party shall, as far as possible and as appropriate: … (c) Regulate or manage biological resources important for the conservation of biological diversity	What are projects' implications on the conservation and sustainable use of biological resources important for	Highly relevant to the impact assessment, the impact assessment report and the public interest determination, including with

Article text	Application to IA	Relevance and notes
whether within or outside protected areas, with a view to ensuring their conservation and sustainable use; (d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings; (e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas; (f) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies; … (h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species; (i) Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components; (j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and	the conservation of biological diversity? What are projects' effects on ecosystems, habitats and the maintenance of viable populations of species? What are projects' effects on areas adjacent to protected areas? What will be the implications of these effects on the protected areas? Do projects hinder or contribute to the rehabilitation and restoration of degraded ecosystems and recovery of threatened species? Will projects introduce alien species that threaten ecosystems, habitats or species? Will the project affect the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components? Will the project affect the preservation, maintenance or application of Indigenous knowledge, innovations or practices relevant for the conservation and sustainable use of biological diversity, or affect the equitable sharing of the benefits arising from the utilization of such	respect to the rights of Indigenous peoples and the use of Indigenous knowledge in impact assessments.

Article text	Application to IA	Relevance and notes
encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices…	knowledge, innovations and practices?	
Article 10, Sustainable Use of Components of Biological Diversity: Each Contracting Party shall, as far as possible and as appropriate: (b) Adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biological diversity; (c) Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements; (d) Support local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced;	Will the project use resources in a way that adversely affects biological diversity? Will the project affect Indigenous peoples' rights respecting the use of biological resources? Will the project affect Indigenous peoples or non-Indigenous communities' remedial action in degraded areas?	Relevant to the impact assessment, the impact assessment report and the public interest determination, including respecting Indigenous rights.
Article 17, Exchange of Information: 1. The Contracting Parties shall facilitate the exchange of information, from all publicly available sources, relevant to the conservation and sustainable use of biological diversity, taking into account the special needs of developing countries.	May help encourage open and accessible data (e.g., from proponents otherwise inclined to keep data confidential). Will the project help facilitate the exchange and public accessibility of information relevant to the conservation and sustainable use of biological diversity?	Particularly relevant to regional assessments.

Kunming-Montreal Global Biodiversity Framework

Goal/Target[152]	Application to IA	Relevance and notes
Goal A: The integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050; Human induced extinction of known threatened species is halted, and, by 2050, extinction rate and risk of all species are reduced tenfold and the abundance of native wild species is increased to healthy and resilient levels; The genetic diversity within populations of wild and domesticated species, is maintained, safeguarding their adaptive potential.	How will the project directly or indirectly affect the integrity, connectivity and resilience of ecosystems? Will the project affect known species at risk, and to what extent will it affect Canada's ability to halt extinction and reduce it tenfold by 2050? How will it affect the abundance of wild species? Will the project adversely affect the genetic diversity within species?	Implementation will be greatly enhanced by the development of regional or jurisdictional baselines and targets
Target 1: Ensure that all areas are under participatory integrated biodiversity inclusive spatial planning and/or effective management processes addressing land and sea use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.	To what extent will the project affect areas of high biodiversity importance (e.g., Key Biodiversity Areas[153]), including ecosystems of high ecological integrity? Will it hinder or contribute to attempts to bring loss of those areas close to zero?	Highly relevant, particularly for the cumulative effects assessment of the growth-inducing effects of linear corridors into intact regions.
Target 2: Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and coastal and marine		Highly relevant, and would be greatly facilitated by

[152] Each goal and target is accompanied by headline, component, and complementary indicators in the GBF Monitoring Framework that should be applied to the assessment of the project's implications on the relevant goals and targets: https://www.cbd.int/doc/c/179e/aecb/592f67904bf07dca7d0971da/cop-15-l-26-en.pdf.
[153] www.kbacanada.org.

Goal/Target[152]	Application to IA	Relevance and notes
ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.	To what extent will the project hinder or contribute to current or feasible future restoration efforts?	regional/jurisdictional sub-targets.
Target 3: Ensure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories.	How and to what extent will the project affect the quality, integrity and connectivity of protected areas, areas of particular importance for biodiversity and ecosystem functions and services (e.g., Key Biodiversity Areas), and other effective area-based conservation measures and their integration into wider landscapes, seascapes and the ocean? How will it hinder or contribute to efforts to ensure that any sustainable use of those areas is fully consistent with conservation outcomes? How will it affect Indigenous rights?	Highly relevant, and would be greatly facilitated by detailed guidance (e.g., Canada's updated NBSAP).
Target 4: Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated	How and to what extent will the project affect relevant species, particularly species at risk, and Canada's ability to significantly reduce extinction risk (e.g., to special concern species) and maintain and restore genetic diversity within and between populations of species? To what extent will it effectively manage	Highly relevant.

Goal/Target[152]	Application to IA	Relevance and notes
species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.	human-wildlife interactions to minimize human-wildlife conflict for coexistence?	
Target 5: Ensure that the use, harvesting and trade of wild species is sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spill-over, applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous peoples and local communities.	Will the project use, harvest or involve trade in wild species, or result in their use, harvest or trade? If so, will that use, harvest or trade be sustainable, minimize effects on non-target species and avoid pathogen spill-over, apply the ecosystem approach and respect Indigenous rights?	This target is unlikely to be relevant to most projects assessed under the IAA. However, if a project involves the harvesting of a species (e.g., of trees as part of site preparation) it may apply.
Target 6: Eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 per cent, by 2030, eradicating or controlling invasive alien species especially in priority sites, such as islands.	Is there a risk that the project will introduce invasive alien species? If so, how can that risk be eliminated, minimized, reduced or offset (in that order)? To what extent will the project affect efforts to reduce the rates of introduction and establishment of other known or potential invasive alien species by at least 50 per cent by 2030 and the eradication or control of invasive alien species in priority areas?	This target will likely be particularly relevant for projects involving activities like marine shipping.
Target 7: Reduce pollution risks and the negative impact of pollution from all	What are the project's pollution risks and what would be its pollution	This target references the importance of considering cumulative effects on

Goal/Target[152]	Application to IA	Relevance and notes
sources, by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: reducing excess nutrients lost to the environment by at least half including through more efficient nutrient cycling and use; reducing the overall risk from pesticides and highly hazardous chemicals by at least half including through integrated pest management, based on science, taking into account food security and livelihoods; and also preventing, reducing, and working towards eliminating plastic pollution.	impacts on biodiversity, its cumulative pollution effects on biodiversity, and its net pollution effects, including on the health of human and wildlife populations, and to the food security of communities reliant on biodiversity for sustenance and livelihoods?	biodiversity and ecosystem functions and services, including in reference to the health of human and wildlife populations, and to the food security of communities reliant on biodiversity for sustenance and livelihoods. While the approved version of the GBF did not include it, previous versions had a glossary that defined pollution inclusively, which should be used to guide assessments of pollution on biodiversity and ecosystem function.
Target 8: Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solution and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.	Will the project contribute to or help minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions? To what extent does it employ nature-based solutions or ecosystem-based approaches? Will it help the minimization of adverse effects and enhancement of the positive effects of climate action on biodiversity?	May be relevant to assessments of extent to which projects hinder or contribute to Canada's ability to achieve its environmental obligations.
Goal B: Biodiversity is sustainably used and managed and nature's contributions		For example, a road that facilitates access into areas that allow

Goal/Target[152]	Application to IA	Relevance and notes
to people, including ecosystem functions and services, are valued, maintained and enhanced, with those currently in decline being restored, supporting the achievement of sustainable development for the benefit of present and future generations by 2050.	To what extent will the project hinder or contribute to the sustainable use of biodiversity? How will it affect the maintenance, enhancement and restoration of ecosystem functions and services, and affect sustainable development for the benefit of present and future generations by 2050?	for increased hunting or fishing can have adverse effects on biodiversity and its sustainable use.
Target 11: Restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as regulation of air, water, and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and/or ecosystem-based approaches for the benefit of all people and nature.	To what extent will the project impact the provisioning and regulating services of biodiversity?	Highly relevant to IAs involving wetlands, carbon sinks, etc.
Target 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, and ensure biodiversity-inclusive urban planning, enhancing native biodiversity, ecological connectivity and integrity, and improving human health and well-being and connection to nature and contributing to inclusive and sustainable urbanization and the provision of ecosystem functions and services.	Will the project affect the area, quality or connectivity of, access to, or benefits from green and blue spaces in urban and densely populated areas?	Of relevance to projects in or near urban and densely populated areas.

Goal/Target[152]	Application to IA	Relevance and notes
Goal C: The monetary and non-monetary benefits from the utilization of genetic resources, and digital sequence information on genetic resources, and of traditional knowledge associated with genetic resources, as applicable, are shared fairly and equitably, including, as appropriate with indigenous peoples and local communities, and substantially increased by 2050, while ensuring traditional knowledge associated with genetic resources is appropriately protected, thereby contributing to the conservation and sustainable use of biodiversity, in accordance with internationally agreed access and benefit-sharing instruments.	Will the project affect the distribution of monetary and non-monetary benefits from the use of genetic resources and Indigenous knowledge? If so, how? How will it affect the protection of Indigenous knowledge associated with genetic resources?	Especially relevant to the sustainability assessment.
Target 13: Take effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, 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, and facilitating appropriate access to genetic resources, and by 2030 facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing instruments.	Will the project affect the utilization of genetic resources? If so, to what extent will the benefits of such use be equitably distributed? How will the distribution of the benefits of genetic resources contribute to sustainability, and to what extent?	Projects that affect genetic resources are in fact "using" them. As a result, IAs should ensure that any benefits arising from genetic resource impacts are equitably shared. This consideration is also relevant to the sustainability assessment.
Target 14: Ensure the full integration of biodiversity and its multiple values		This target is only moderately relevant, as it is primarily about

Goal/Target[152]	Application to IA	Relevance and notes
into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments and, as appropriate, national accounting, within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, fiscal and financial flows with the goals and targets of this framework.	Will the project be aligned with the goals and targets of the GBF? If not, how and why not? Does the project have a federal proponent, or will it receive federal subsidies or other federal financial assistance? If so, will those subsidies or other assistance be aligned with the GBF goals and targets?	government measures, not private sector projects. However, it does compel governments to require that proponents support effective planning and development processes for achieving GBF targets, and it does state that development processes in all sectors should align with the GBF goals and targets.
Target 15: Take legal, administrative or policy measures to encourage and enable business, and in particular to ensure that large and transnational companies and financial institutions: (a) Regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity, including with requirements for all large as well as transnational companies and financial institutions along their operations, supply and value chains and portfolios; (b) Provide information needed to consumers to promote sustainable consumption patterns; (c) Report on compliance with access and benefit-sharing regulations and measures, as applicable;	While IA should always result in monitoring and the disclosure of monitoring results, this target should be applied to ensure that monitoring and disclosure is transparent and accessible.	This target is in a grey zone, as technically it is about government measures. However, it does compel governments to ensure that large companies undertake (a)-(c).

Goal/Target[152]	Application to IA	Relevance and notes
in order to progressively reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks to business and financial institutions, and promote actions to ensure sustainable patterns of production.		
Target 18: Identify by 2025, and eliminate, phase out or reform incentives, including subsidies, harmful for biodiversity, in a proportionate, just, fair, effective and equitable way, while substantially and progressively reducing them by at least 500 billion United States dollars per year by 2030, starting with the most harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.	Will the project receive any incentives, including subsidies, and will it result in harm to biodiversity?	This is particularly relevant to federally-subsidized projects, such as new roads to subsidize critical minerals exploration or extraction and that lead to growth-inducing impacts in intact areas.
Target 19: Substantially and progressively increase the level of financial resources from all sources, in an effective, timely and easily accessible manner, including domestic, international, public and private resources, in accordance with Article 20 of the Convention, to implement national biodiversity strategies and action plans, by 2030 mobilizing at least 200 billion United States dollars per year…	Whether and to what extent will the project contribute financial resources to Canada's efforts to achieve the enumerated sub-targets of target 19 (e.g., international assistance, domestic implementation, co-benefits, etc.)?	Potentially relevant to benefits assessment and consideration of trade-offs.
Target 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,	To what extent does the project allow, contribute or lead to the contribution of the best available data, information and knowledge that is accessible to decision makers,	Should guide scoping and assessment planning decisions and is also particularly relevant to regional

Goal/Target[152]	Application to IA	Relevance and notes
integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management and, also in this context, traditional knowledge, innovations, practices and technologies of indigenous peoples and local communities should only be accessed with their free, prior and informed consent, in accordance with national legislation.	practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management? How will knowledge gained through the project and IA be made accessible to decision makers, practitioners and the public? Will the knowledge, innovations, practices and technologies of Indigenous peoples and local communities be accessed with their free, prior and informed consent?	and strategic assessments.
Target 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, respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by women and girls, children and youth, and persons with disabilities and ensure the full protection of environmental human rights defenders.	Will the public interest determination be made with full, equitable, inclusive, effective and gender-responsive representation and participation of Indigenous peoples? Will Indigenous peoples have access to justice and information related to biodiversity, and will their cultures, rights, and Indigenous knowledge be respected? Will the public interest determination respect the rights of women and girls, children and youth, and persons with disabilities, and ensure the full protection of environmental human rights defenders?	Relevant to GBA+ in relation to decision-making.
Target 23: Ensure gender equality in the implementation of the framework through a gender-responsive	Will the project ensure the equal opportunity and capacity of women and girls, including with respect to	Relevant to the assessment of the access of women, Indigenous peoples and gender-diverse

Goal/Target[152]	Application to IA	Relevance and notes
approach where all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention, including by recognizing their equal rights and access to land and natural resources and their full, equitable, meaningful and informed participation and leadership at all levels of action, engagement, policy and decision-making related to biodiversity.	access to land and natural resources and their full, equitable, meaningful and informed participation and leadership at all levels of action, engagement, policy and decision-making related to biodiversity?	people to lands and natural resources of importance for biodiversity. Implications for IA.

Canada's National Biodiversity Strategy and Action Plan

Canada is in the process of updating its NBSAP in accordance with the GBF. The new NBSAP is expected to detail how the Government of Canada intends to ensure that it meets its obligations under the CBD, including the goals and targets of the GBF (as per above). As an implementation plan, any targets, goals, milestones, strategies or measures contained in it should be considered as environmental obligations for the purposes of the IAA. Because a new NBSAP is expected in the next year, we do not list all the relevant obligations set out in the current (outdated) NBSAP.

United Nations Declaration on the Rights of Indigenous Peoples[154]

Article	Application to the IAA	Relevance/notes
Article 24(1) Indigenous peoples have the right to their traditional medicines and to maintain their health practices, including the conservation of their vital medicinal plants, animals and minerals. Indigenous individuals also have the right to access, without any discrimination, to all social and health services.	Would the project have adverse effects on Indigenous peoples' traditional medicinal plans, animals or minerals? To what extent?	The obligations in this table are likely highly relevant in at least some circumstances. Their relevance must be determined by Indigenous peoples.
Article 25 Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas	Will the project affect Indigenous peoples' spiritual relationship with their territories?	Indigenous peoples' spiritual relationships with territories are tied to the health of the ecosystems and habitats that

[154] https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf.

Article	Application to the IAA	Relevance/notes
and other resources[155] and to uphold their responsibilities to future generations in this regard.		support biodiversity.[156]
Article 26(1) Indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired. **(2)** Indigenous peoples have the right to own, use, develop and control the lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired.	Whether and to what extent would the project affect Indigenous peoples' right to their traditional or acquired lands, territories or resources?	
Article 28 (1) Indigenous peoples have the right to redress, by means that can include restitution or, when this is not possible, just, fair and equitable compensation, for the lands, territories and resources which they have traditionally owned or otherwise occupied or used, and which have been confiscated, taken, occupied, used or damaged without their free, prior and informed consent. **(2)** Unless otherwise freely agreed upon by the peoples concerned, compensation shall take the form of lands, territories and resources equal in quality, size and legal status or of monetary compensation or other appropriate redress.	If the project is likely to result in adverse effects on Indigenous peoples' lands, territories or resources, will appropriate redress be provided?	
Article 29(1) Indigenous peoples have the right to the conservation and protection of the environment and the	Will the biodiversity on Indigenous peoples' lands be conserved and protected?	

[155] The term "resources" is not defined in UNDRIP. We recommend that it be interpreted to include genetic resources, as recognized by the CBD.
[156] Forest Peoples Programme, *Local Biodiversity Outlooks 2*: https://www.cbd.int/gbo/gbo5/publication/lbo-2-en.pdf.

Article	Application to the IAA	Relevance/notes
productive capacity of their lands or territories and resources. States shall establish and implement assistance programmes for indigenous peoples for such conservation and protection, without discrimination. **(2)** States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the lands or territories of indigenous peoples without their free, prior and informed consent. **(3)** States shall also take effective measures to ensure, as needed, that programmes for monitoring, maintaining and restoring the health of indigenous peoples, as developed and implemented by the peoples affected by such materials, are duly implemented.	Would the project result in the storage or disposal of hazardous materials without their free, prior and informed consent? Would there be Indigenous-designed and led monitoring and follow-up to ensure the monitoring, maintenance and restoration of Indigenous peoples' health?	
Article 31(1) Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions. **(2)** In conjunction with indigenous peoples, States shall take effective	Would the project or the impact assessment affect Indigenous peoples' maintenance, control, protection or development of their cultural heritage, traditional knowledge or traditional cultural expressions, the manifestations of their sciences, technologies and cultures, or their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions?	

Article	Application to the IAA	Relevance/notes
measures to recognize and protect the exercise of these rights.		
Article 32(1) Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources. **(2)** States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources. **(3)** States shall provide effective mechanisms for just and fair redress for any such activities, and appropriate measures shall be taken to mitigate adverse environmental, economic, social, cultural or spiritual impact.	Would the project affect Indigenous peoples' right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources? Would the project have the free, prior and informed consent of Indigenous peoples whose territories would be affected? Are there mechanisms for just and fair redress for any adverse effects, and mitigation agreed to by the Indigenous peoples in question?	

2. Migratory Birds

Convention for the Protection of Migratory Birds in the United States and Canada[157]

Article	Application to the IAA	Relevance/notes
Article II: The High Contracting Powers agree that, to ensure the long-term conservation of migratory birds, migratory bird populations shall be managed in accord with the following conservation principles:	Will the project affect the viability of migratory bird populations, their habitat, or the restoration of depleted migratory bird populations?	Relevant where there are potential adverse effects on migratory birds, their habitats or their populations.

[157] As amended in 1999: https://www.treaty-accord.gc.ca/text-texte.aspx?id=101589.

Article	Application to the IAA	Relevance/notes
• To manage migratory birds internationally; • To ensure a variety of sustainable uses; • To sustain healthy migratory bird populations for harvesting needs; • To provide for and protect habitat necessary for the conservation of migratory birds; and • To restore depleted populations of migratory birds.		
Article IV: Each High Contracting Power shall use its authority to take appropriate measures to preserve and enhance the environment of migratory birds. In particular, it shall, within its constitutional authority: a. seek means to prevent damage to such birds and their environments, including damage resulting from pollution; b. endeavour to take such measures as may be necessary to control the importation of live animals and plants which it determines to be hazardous to the preservation of such birds; c. endeavour to take such measures as may be necessary to control the introduction of live animals and plants which could disturb the ecological balance of unique island environments…	Will the project prevent damage to migratory birds and their environments?	Relevant where there are potential adverse effects on migratory birds, their habitats or their populations.
Article V: The taking of nests or eggs of migratory game or insectivorous or	Will the project result in the taking or destruction of nests or eggs of	Relevant where there are potential

Article	Application to the IAA	Relevance/notes
nongame birds shall be prohibited, except for scientific, educational, propagating or other specific purposes consistent with the principles of this Convention under such laws or regulations as the High Contracting Powers may severally deem appropriate, or as provided for under Article II, paragraph 4 [*exceptions for Indigenous peoples*].	migratory game or insectivorous or nongame birds, except for scientific, educational, propagating or other specific purposes consistent with the principles of the Convention?	impacts on migratory birds, their habitats or their populations.

3. Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar)[158]

Canada currently has 37 sites designated as Wetlands of International Importance (Ramsar Sites). Information on them can be accessed on the Ramsar website: https://www.ramsar.org/wetland/canada.

Convention Text

Article	Application to the IAA	Relevance/notes
Article 3.1: The Contracting Parties shall formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in their territory.	To what extent is the project consistent with the "wise use" of Ramsar wetlands?	The 4th Strategic Plan 2016 – 2024 adopted by parties defines wise use as "the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development."[159]
Article 4.4: The Contracting Parties shall endeavor through management to increase waterfowl populations on appropriate wetlands.	Will the project impact or enhance waterfowl populations on Ramsar sites?	Relevant to projects with effects on Ramsar sites.

[158] https://www.ramsar.org/sites/default/files/documents/library/scan_certified_e.pdf.
[159] https://www.ramsar.org/sites/default/files/documents/library/4th_strategic_plan_2016_2024_e.pdf.

Article 4.5: The Contracting Parties shall promote the training of personnel competent in the fields of wetland research, management and wardening.	Would the project contribute (e.g., through monitoring and follow-up) to training of personnel competent in the fields of wetland research, management and wardening?	Particularly relevant to the design and oversight of monitoring and follow-up programs.

4th Strategic Plan 2016 – 2024

Targets[160]	Application to the IAA	Relevance/notes
Target 2: Water use respects wetland ecosystem needs for them to fulfil their functions and provide services at the appropriate scale *inter alia* at the basin level or along a coastal zone.	Whether and to what extent will the project directly affect or contribute to cumulative effects on water flows affecting wetland ecosystem needs, functions and services?	Relevant to impact assessments of projects that will impact Ramsar sites.
Target 5: The ecological character of Ramsar sites is maintained or restored, through effective planning and integrated management.	To what extent will the project help or hinder the maintenance or restoration of Ramsar sites?	Relevant to impact assessments of projects that will impact Ramsar sites.
Target 7: Sites that are at risk of change of ecological character have threats addressed.	Will the project avoid threatening Ramsar sites, and help address such threats?	Relevant to impact assessments of projects that will impact Ramsar sites.
Target 10: The traditional knowledge, innovations and practices of indigenous peoples and local communities relevant for the wise use of wetlands and their customary use of wetland resources are documented, respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention, with a [sic] full and effective participation of indigenous peoples and local communities at all relevant levels.	Will the project help document, respect and fully integrate and reflect Indigenous knowledge, innovations and practices of Indigenous peoples relevant to wetlands, and will it help ensure the full and effective participation of Indigenous peoples in the protection and conservation of wetlands?	Relevant to impact assessments of projects that will impact Ramsar sites.

[160] Tools, indicators and guides for meeting the targets are contained in Annex 1 of the 4th Strategic Plan 2016-2024: Financial and other resources for effectively implementing the 4th Ramsar Strategic Plan 2016 – 2024 from all sources are made available.

Target 12: Restoration is in progress in degraded wetlands, with priority to wetlands that are relevant for biodiversity conservation, disaster risk reduction, livelihoods and/or climate change mitigation and adaptation.	Will the project help, or at a minimum not hinder, restoration efforts of degraded wetlands?	Relevant to impact assessments of projects that will impact Ramsar sites.
Target 13: Enhanced sustainability of key sectors such as water, energy, mining, agriculture, tourism, urban development, infrastructure, industry, forestry, aquaculture and fisheries, when they affect wetlands, contributing to biodiversity conservation and human livelihoods.	Will the project foster sustainability of wetlands, and contribute to biodiversity conservation and human livelihoods?	Relevant to assessments of projects that will impact Ramsar sites. Note that other obligations (e.g., GBF) refer to fair distribution, which means that evaluation of contribution to human livelihoods should have regard to the type (e.g., full-time, appropriately compensated), duration and equitable distribution of livelihoods within and among generations.
Target 17: Financial and other resources for effectively implementing the 4th Ramsar Strategic Plan 2016 – 2024 from all sources are made available.	Will the project contribute resources for implementing the 4th Ramsar Strategic Plan?	

4. Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO World Heritage Sites)

Article	Application to the IAA	Relevance/notes
Article 4		Cultural and natural heritage includes

Each State Party to this Convention recognizes that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage referred to in Articles 1 and 2 and situated on its territory, belongs primarily to that State. It will do all it can to this end, to the utmost of its own resources and, where appropriate, with any international assistance and co-operation, in particular, financial, artistic, scientific and technical, which it may be able to obtain.	Will the project help to ensure the protection, conservation, presentation and transmission to future generations of cultural and natural heritage?	monuments, groups of buildings, sites, natural features, geological and physiographical formations, and natural sites. However, IAs should consider impacts on World Heritage Sites caused by upstream activities, as illustrated by the pending decision by the World Heritage Committee on Wood Buffalo National Park.[161]

B. Domestic obligations

1. Legislation

Legislation and text	Application to the IAA	Relevance/notes
Impact Assessment Act, s 6(2) The Government of Canada, the Minister, the Agency and federal authorities, in the administration of this Act, must exercise their powers in a manner that fosters sustainability, respects the Government's commitments with respect to the rights of the Indigenous peoples of Canada and applies the precautionary principle.	Would approving the project hinder or contribute to the ability of the Minister and federal authorities to exercise their powers in a manner that fosters sustainability, respects the Government's commitments with respect to the rights of the Indigenous peoples of Canada and applies the precautionary principle?	Highly relevant to Agency and federal expert analysis, Agency decisions, and Ministerial and Governor in Council decisions.

[161] The Mikisew Cree First Nation submitted a petition in 2014 to requesting inclusion of Wood Buffalo National Park World Heritage Site on the List of World Heritage in Danger, citing concerns related to impacts of industrial development and climate change on the ecology and hydrology of the Peace-Athabasca Delta that could negatively impact the site's "outstanding universal values" https://parks.canada.ca/pn-np/nt/woodbuffalo/info/action/SEA_EES.

2. Domestic obligations respecting Indigenous peoples

Crown fiduciary obligations

It is well established in common law that the Crown owes a fiduciary duty to the Indigenous peoples of Canada in all its dealings with them.[162] This duty is not confined to exercises of Aboriginal rights under section 35 of the *Constitution Act, 1982*, but rather must guide all exercises of discretionary power that the Crown has over Indigenous peoples.[163] The fiduciary duty means that the federal and provincial governments must act honourably and with reference to Indigenous groups' best interests when exercising discretionary control over an Indigenous interest.[164] The Crown's fiduciary duty is not a blanket obligation, but rather exists in relation to specific interests of Indigenous peoples and varies with "the nature and importance of the interest sought to be protected."[165] It may be possible to claim that the federal government owes a fiduciary obligation respecting the protection of biodiversity or a subset (e.g., cultural keystone species) within Indigenous territory, but claimants must first show that biodiversity health is a "cognizable" interest in relation to which the Crown undertakes discretionary control.[166] As the BC Court of Appeal recently held in the Blueberry River case, "The Crown's fiduciary obligations are aimed at protecting the interests of Indigenous people, especially when the level of Crown discretion leaves these interests vulnerable to government ineptitude or misconduct."[167]

Section 35

Section 35 of the *Constitution Act, 1982* recognizes and affirms the rights of the Indigenous peoples of Canada,[168] including rights that must be considered in impact assessments and in the public interest determination. The Government of Canada has described section 35 as containing "a full box of rights, and hold[ing] the promise that Indigenous nations will become partners in Confederation on the basis of a fair and just reconciliation between Indigenous peoples and the Crown."[169] Section 35 did not create these rights: the Supreme Court of Canada has confirmed that section 35 affirms the existence of Aboriginal rights flowing from Indigenous peoples' sovereignty over their territories and resources prior to European contact, and has as its fundamental purpose reconciliation.[170] As such, section 35 protects rights that existed before contact as well as rights arising out of treaties that Indigenous groups entered

[162] *Guerin v The Queen*, [1984] 2 SCR 335.
[163] Brian Slattery, "What are Aboriginal Rights?" " (2007) *Comparative Research in Law & Political Economy*, Research Paper No. 1/2007: https://digitalcommons.osgoode.yorku.ca/cgi/viewcontent.cgi?article=1218&context=clpe.
[164] *Haida Nation v British Columbia (Minister of Forests)*, 2004 SCC 73 (CanLII), [2004] 3 SCR 511 at para 18: https://www.canlii.org/en/ca/scc/doc/2004/2004scc73/2004scc73.html.
[165] *Wewaykum Indian Band v Canada*, [2002] 4 SCR 245, 2002 SCC 79 (CanLII) at paras 86, 81.
[166] *Wewaykum Indian Band v Canada*.
[167] *Yahey v British Columbia*, 2021 BCSC 1287 (CanLII) at para 90.
[168] A note on terminology: while throughout this report we use the term "Indigenous" to refer to the First Nations, Inuit and Métis peoples of Canada, section 35 of the *Constitution Act, 1982* uses the term "aboriginal peoples of Canada," and Canadian jurisprudence has tended to use the term "Aboriginal" in reference to peoples and rights. International instruments like UNDRIP use the term "indigenous." Increasingly, legal and other literature has tended to use the term "Indigenous" when referring to peoples and their inherent rights, laws, governance systems and authority as well as their international rights, and the term "Aboriginal" when referring to Crown law and any rights arising under it. In this report, we use the adjective "Indigenous" when referring to peoples, their internationally-recognized rights, and their inherent laws, jurisdiction and governance systems, and we use "Aboriginal" in reference to section 35 rights and additional rights recognized by Canadian courts.
[169] Department of Justice Canada, *Principles Respecting the Government of Canada's Relationship with Indigenous Peoples*: https://www.justice.gc.ca/eng/csj-sjc/principles-principes.html.
[170] *R v Van der Peet*, 1996 CanLII 216 (SCC), [1996] 2 SCR 507.

into with the Crown. It also includes rights articulated in international instruments such as UNDRIP, described above.

The Crown has a duty to consult Indigenous peoples when it intends to act in a manner that may adversely affect potential or established Aboriginal or treaty rights, such as by approving adverse federal effects under the IAA. This duty is grounded in the honour of the Crown and enshrined in section 35,[171] and should be considered a floor rather than a ceiling. A primary objective of IA, including treatment of biodiversity, should be the advancement of reconciliation and securing the free, prior and informed consent of Indigenous peoples.

Aboriginal rights

Aboriginal rights as defined in Canadian law are inherent rights that are held collectively by Indigenous societies and that flow from the continued use and occupation of their territories. Aboriginal rights include specific and general rights and are not uniform among all Indigenous groups in Canada, but rather may vary among Indigenous societies. Specific rights include rights to engage in activities that are integral to the distinctive culture of Indigenous groups and that existed before contact,[172] such as rights to subsistence fishing or hunting, rights to commercial fishing or hunting, and harvesting rights. General rights include Aboriginal title, which is ownership and control of Indigenous territories. To our knowledge, no case has recognized an Aboriginal right to biodiversity *per se*, but there is ample judicial recognition of rights related to species, and the sustainable use of biodiversity has been central to numerous court decisions.

Treaty rights

The majority of Canadian territory south of the 60th parallel (where the IAA applies) are lands subject to treaties between Indigenous peoples and the Crown, either historical (i.e., pre-1975) treaties or modern land-claims agreements that are relevant to assessment of biodiversity in impact assessment.[173] It is outside the scope of this report to summarize how biodiversity is relevant to historical treaties and modern land-claims agreements.

The BC Supreme Court recently considered what Treaty 8 means in terms of cumulative effects and the rights of the Blueberry River First Nations, a Treaty 8 signatory.[174] It held that Treaty 8, which covers First Nations territories in northeast BC and northwest Alberta as well as parts of northern Saskatchewan and the Northwest Territories, "promised the Indigenous peoples that their way of life would not be interfered with" and that while the treaty "foreshadowed change," it "provided protection to the Indigenous peoples' ability to hunt, fish and trap as part of their way of life."[175] The right to hunt, fish and trap protected by Treaty 8 includes hunting, fishing and trapping for food as well as for commercial purposes. While the Treaty includes a Crown power to "take up" land from time to time (which includes the right to sell, lease or permit activities, including natural resource and industrial

[171] *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73, [2004] 3 SCR 511.
[172] *R v Van der Peet*.
[173] For a summary of the pre-1975 treaties, see https://www.rcaanc-cirnac.gc.ca/eng/1370362690208/1544619449449. For information on modern land-claims agreements, see: https://www.rcaanc-cirnac.gc.ca/eng/1573225148041/1573225175098.
[174] *Yahey v British Columbia*, 2021 BCSC 1287 (CanLII): https://www.canlii.org/en/bc/bcsc/doc/2021/2021bcsc1287/2021bcsc1287.html#_Toc75942655.
[175] *Yahey* at paras 201, 216.

activities on it), that power must be exercised in the interests of the Indigenous parties and must "ensure that the Indigenous way of life based on hunting, trapping and fishing is respected."[176]

The Court found that the way of life of the Blueberry River Dane-zaa peoples included

> travelling as family groups throughout their territory to access resources from a variety of environments; practicing seasonality and scheduling their resource use (such as by not returning to the same places every year, but letting areas rejuvenate); hunting, trapping and fishing for the wildlife species that have sustained them for generations; passing down knowledge generation to generation while on the land engaged in various activities; and engaging in spiritual practices that reflect the connection to the land and wildlife.[177]

This way of life has relied on moving among various ecological zones to fish, hunt, trap and gather, and taking care not to overharvest.[178] Critically, the Court recognized that Blueberry River's ability to carry on its way of life pursuant to its treaty rights depends on a healthy and stable environment, and that "impairing it significantly harms their well-being."[179]

The Court held that provincial decision making meaningfully impaired Blueberry River First Nation's treaty right to hunt, fish and trap as part of their way of life and accordingly, that the BC government had infringed Blueberry's constitutionally-protected treaty rights. It found that industrial activities (forestry, oil and gas, mining and agriculture) along with hydroelectricity and roads had cumulatively resulted in significant declines of key wildlife populations, such that they interfered with Blueberry River's hunting and trapping rights. The Court found that by 2018, 91 percent of Blueberry's claim area (the portion of Blueberry River's territory subject to its claim of treaty infringement) is disturbed when a 500-metre buffer is applied, including high disturbance in boreal caribou habitat.[180] These disturbances constitute "taking up" by the Crown as, for example, "it goes without saying that, when forests have been clearcut, the land is fundamentally altered – the forests are gone…, [t]he habitat that supported wildlife is gone, and may take decades to return in terms of supporting the biodiversity it once did."[181] As the Court held, the degree of cumulative effects disturbance on Blueberry River's treaty lands was not agreed to by the parties under the treaty:

> The promise was not to interfere with the exercise of treaty rights. As Blueberry has argued, that is both a freedom 'from' and a freedom 'to' and it requires a certain level of proactive protection. Blueberry needs places to exercise its rights and an opportunity to harvest healthy wildlife. These conditions are not being met in this landscape where, according to 2018 data, over 90% of the Blueberry Claim Area is within 500 metres of a disturbance.[182]

Even though Blueberry River members do continue to hunt, fish and trap, they have been forced to do so in different and fewer places, and the disturbances, including air and water pollution, make it more difficult to do so. As a result, the Court found that the significant diminution of Blueberry River First

[176] *Yahey* at para 276.
[177] *Yahey* at para 429.
[178] *Yahey* at paras 430-31.
[179] *Yahey* at paras 433, 436.
[180] *Yahey* at para 906.
[181] *Yahey* at paras 1067-68.
[182] *Yahey* at para 1077.

Nations' members' way of life amounts to infringement of their treaty rights to hunt, trap and fish.[183] It held that the Province has breached its treaty obligations to Blueberry River in accordance with the honour of the Crown. In particular, the Province has failed to:

a) "develop processes to assess whether the ecological conditions in Blueberry's traditional territories are sufficient to support Blueberry's way of life;
b) "develop processes to assess or manage cumulative impacts to the ecosystems in Blueberry's traditional territories and/or on their treaty rights;
c) "implement a regulatory regime or structure that will take into account and protect treaty rights, and that will guide decision-making for taking up lands or granting interests to lands and resources within Treaty 8; and,
d) put in place sufficient interim measures to protect Blueberry's treaty rights while these other processes are developed."[184]

The Court held that the Province's numerous decision-making bodies had not considered cumulative effects sufficiently to meet its fiduciary duty to act in good faith to seek to address Blueberry River's concerns. Rather, Blueberry's concerns have fallen through the cracks and were not being addressed in a comprehensive or coordinated manner."[185] In other words, it is not sufficient to establish processes to consider cumulative effects; rather, Crown authorities have a duty to address them meaningfully. Finally, the Court held that the province had not established justification of the infringement.[186] The Court made the following declarations:

1. In causing and/or permitting the cumulative impacts of industrial development on Blueberry's treaty rights, the Province has breached its obligation to Blueberry under Treaty 8, including its honourable and fiduciary obligations. The Province's mechanisms for assessing and taking into account cumulative effects are lacking and have contributed to the breach of its obligations under Treaty 8; and,
2. The Province has taken up lands to such an extent that there are not sufficient and appropriate lands in the Blueberry Claim Area to allow for Blueberry's meaningful exercise of their treaty rights. The Province has therefore unjustifiably infringed Blueberry's treaty rights in permitting the cumulative impacts of industrial development to meaningfully diminish Blueberry's exercise of its treaty rights in the Blueberry Claim Area.
3. The Province may not continue to authorize activities that breach the promises included in the Treaty, including the Province's honourable and fiduciary obligations associated with the Treaty, or that unjustifiably infringe Blueberry's exercise of its treaty rights; and,
4. The parties must act with diligence to consult and negotiate for the purpose of establishing timely enforceable mechanisms to assess and manage the cumulative impact of industrial development on Blueberry's treaty rights, and to ensure these constitutional rights are respected.[187]

[183] *Yahey* at paras 1113, 1132.
[184] *Yahey* at para 1787.
[185] *Yahey* at para 1807.
[186] *Yahey* at para 1857.
[187] *Yahey* at para 1894.

As different treaties contain different language and the situation involving different nations and Crown activities in relation to their lands varies, whether and to what extent Indigenous-Crown treaties protect Indigenous parties' rights related to biodiversity will have to be considered on a case-by-case basis. Additionally, modern land claims agreements may contain different language that affects the existence, meaning and scope of rights as they relate to biodiversity. However, the Blueberry River case makes it clear that governments can be held liable for infringing treaty rights through incremental, cumulative erosion of rights through project-by-project decision making. Specifically, the Court found that Blueberry River's treaty right to carry on its way of life depends on the existence of healthy mature forests, wildlife habitats (such as mineral licks), fresh clean water, and access to these places, healthy populations of moose and other wildlife, and a relatively stable environment in which to pass on Indigenous knowledge.[188] The Crown owes a fiduciary and treaty obligation to Indigenous treaty partners not to erode those values through cumulative or direct impacts that result in the unjustifiable infringement of treaty rights, an obligation that should be carefully considered in federal IA.

3. *Species at Risk Act* Recovery Strategies and Action Plans

Species at risk recovery strategies and action plans may set out obligations that are binding on the Government of Canada and that are relevant to IA. As with international obligations, relevant domestic obligations will likely be substantive in nature (e.g., an obligation to protect critical habitat or ensure the recovery of a population by a certain percentage by a certain date) rather than procedural (e.g., an obligation to monitor). However, non-binding objectives, principles, measures and strategies may be used as interpretive aids to determine whether and to what extent a project hinders or contributes to Canada's ability to meet its environmental obligations (e.g., those under the GBF). In that way, even non-binding principles, objectives, targets and goals set out in recovery strategies and action plans should help to inform the determination of the extent to which the project hinders or contributes to Canada's ability to meet its environmental obligations.

Some questions about the extent of federal jurisdiction over the protection and recovery of terrestrial species at risk remain unresolved. In particular, it is unclear whether effects on a terrestrial species at risk may be considered federal effects for the purposes of the IAA. However, at a minimum, such effects could be considered "direct or incidental effects" (see Chapter II, section B) and therefore a mandatory factor to consider in the assessment and in the public interest determination.

It is outside the scope of this report to review all recovery strategies and action plans to identify potentially relevant obligations and interpretive aids; rather, as an example, we list some objectives and strategies from the recovery strategy and action plan of the Northern and Southern Resident Killer Whales in the table below.

[188] *Yahey* at para 437.

Recovery Strategy for Northern and Southern Resident Killer Whales[189]	Application to the IAA	Relevance/notes
Objective 1: ensure that Resident Killer Whales have an adequate and accessible food supply to allow recovery. **Strategies**: • Protect the access of Resident Killer Whales to important feeding areas • Ensure that Resident Killer Whale prey populations and their (the prey's) habitat are adequately protected from anthropogenic factors such as exploitation and degradation, including contamination, which will allow for the recovery of Resident Killer Whales.	Would the project affect the adequacy or accessibility of Resident Killer Whale food supply?	Highly relevant to projects having the potential to affect Resident Killer Whales or their habitat.
Objective 2: ensure that chemical and biological pollutants do not prevent the recovery of Resident Killer Whale populations. **Strategies**: • Reduce the introduction into the environment of pesticides and other chemical compounds that have the potential to adversely affect the health of Killer Whales and/or their prey, through measures such as national and international agreements, education, regulation, and enforcement. • Reduce the introduction of biological pollutants, including pathogens and exotic species,	Would the project result in chemical or biological pollution that affects the recovery of Resident Killer Whale populations?	Highly relevant to projects having the potential to affect Resident Killer Whales or their habitat.

[189] https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/Rs-ResidentKillerWhale-v00-2018dec-Eng.pdf.

Recovery Strategy for Northern and Southern Resident Killer Whales[189]	Application to the IAA	Relevance/notes
into the habitats of Killer Whales and their prey.		
Objective 3: ensure that disturbance from human activities does not prevent the recovery of Resident Killer Whales.	Would the project cause or result in disturbance to Resident Killer Whales?	Highly relevant to projects having the potential to affect Resident Killer Whales or their habitat.
Objective 4: protect critical habitat for Resident Killer Whales and identify additional areas for critical habitat designation and protection. **Strategies**: • Protect the access of Resident Killer Whales to their critical habitat. • Protect critical habitat areas through assessment and mitigation of human activities that result in contamination and physical disturbance. • Ensure that sufficient prey is available to Killer Whales in their critical habitat.	Would the project harm the critical habitat of Resident Killer Whales?	Highly relevant to projects having the potential to affect Resident Killer Whales or their habitat.

Action Plan for Northern and Southern Resident Killer Whales[190]	Application to the IAA	Relevance/notes
Recovery measure 28: Protect and preserve the freshwater habitat of important Resident Killer Whale prey stocks.	Would the project impact the freshwater habitat of Resident Killer Whale prey stocks?	Highly relevant to projects having the potential to affect Resident Killer Whales or their habitat.

[190] https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/Ap-ResidentKillerWhale-v00-2017Mar-Eng.pdf.

Chapter V: Best practice and principles for the treatment of biodiversity under the IAA

This chapter draws from a review of policies and studies around the world focused on the treatment of biodiversity. It explores how different approaches may be applied to the conduct of assessments under the IAA to help Canada achieve its biodiversity-related obligations, foster sustainability and advance reconciliation. It sets out key principles for the treatment of biodiversity, considers some components of those principles, describes roles and responsibilities, and proposes how IA can achieve the principles.

While the 50-year history of impact assessment has yielded substantial evidence to inform best practices, the treatment of biodiversity within IA processes and practice is considerably further behind. Not only has biodiversity received relatively little attention in assessment practice to date, but the multi-dimensional nature of biodiversity combined with time lags and scale issues make it challenging to determine effectiveness of project level assessments on species and ecosystems.

A common way to describe best practice is a standard or set of guidelines used in policy that is known to be effective at achieving the objectives[191]. A set of best practices should ideally come from an examination of a body of evidence derived from studies of effectiveness of policy implementation and well-documented experience in implementation.

For the purposes of this report, we have interpreted best practices related to treatment of biodiversity in impact assessment as practices that 1) are the object of relatively wide consensus and 2) enjoy some evidentiary basis for their effectiveness.

We have reviewed, summarized and categorized characteristics, approaches, and principles in policy that are necessary for achieving biodiversity targets and avoiding or at least reducing adverse effects on biodiversity and its interactions with other considerations as a component of sustainability. We drew from the following sources:

- Development bank standards and related guidance (International Finance Corporation, World Bank, other development banks);
- Government laws, guidance and other policies (European Union, other governments);
- Standards and guidance developed by business initiatives and cross-sectoral organisations (industry associations, Business & Biodiversity Offsets Programme (BBOP), IUCN); and
- Academic papers reviewing effectiveness of development policy and practice.

Principles for treatment of biodiversity in impact assessment based on these sources are set out below. In Chapter VI, we synthesize these principles into key recommendations for implementation of the IAA in Canada.

A. Recognize the limitations of project-level impact assessment

Meeting Canada's biodiversity obligations, advancing sustainability and reconciliation, and managing cumulative effects are large-scale and complex issues that can only be superficially addressed and

[191] L. Arnold & K. Hanna. "Best Practices in Environmental Assessment: Cases Studies and Application to Mining." ((2017). Canadian International Resources and Development Institute (CIRDI) Report 2017-003.

mitigated within the narrow context through project-level assessment.[192] The use of regional assessment is often recommended for identifying and then addressing regional cumulative effects, including effects on biodiversity. Regional assessment under the IAA could be employed to fill in information gaps respecting the state of biodiversity values and to identify ecological limits and benchmarks, thus providing guidance for project assessment, including cumulative effects assessment. It could also promote reconciliation by identifying rights-based approaches to regional governance and biodiversity protection. Until regional assessment is applied more widely and effectively in Canada, project-level impact assessment will remain the primary planning tool for biodiversity assessment.

B. Employ an objectives-based approach

It will be critical for IA processes to be deliberately oriented around achievement of substantive outcomes, rather than focused on procedural milestones including timely completion. No Net Loss (NNL) and Neg Gain (NG) have emerged as key principles, with the former seeking a neutral outcome and the latter an improved outcome (see section 4). Achieving either of these objectives at the project level requires a positive, outcomes-oriented IA, including baselines against which to determine loss or gain. An objectives-based approach for IA need not conflict with the risk-based approaches often adopted and championed by businesses, as the risks sought to be avoided tend to be based on biodiversity conservation priorities.

Without substantive goals that govern the process, IA is like a ship without a destination, one that will frustrate participants, erode ambition and lack meaning. In this light, it seems imperative that IA become objectives-oriented in order to help Canada meet its biodiversity obligations.

Transparent and substantive objectives will enable the various actors to have a mutual understanding of the task at hand and maximize their contributions in the assessment. As a starting place, IAs should be aimed at achieving the substantive purposes of the IAA. For biodiversity, these include:

- Fostering sustainability;[193]
- Protecting environmental components and health, social and economic conditions within federal jurisdiction;[194]
- Applying the precautionary principle to avoid adverse federal effects;[195] and
- Respecting the rights of Indigenous peoples.[196]

The fact that the IAA requires assessments and decisions to consider the extent to which designated projects foster sustainability, the extent to which adverse federal effects are significant, the impact that a project may have on the rights of Indigenous peoples, and the extent to which a project hinders or contributes to Canada's ability to meet its environmental obligations (see Chapter II) reinforces the centrality of these purposes to IA. For example, biodiversity net gain (specifically to increase species

[192] Bram F Noble, "EA simplification: Canadian processes and challenges, Impact Assessment and Project Appraisal," (2023) https://doi.org/10.1080/14615517.2023.2175503.

[193] IAA, s 6(1)(a).
[194] IAA, s 6(1)(b).
[195] IAA, s 6(1)(d).
[196] IAA, s 6(1)(g).

abundance by ten percent by 2042, compared to 2030) has been proposed as a target under the UK's *Environment Act 2021*.[197]

Additional high-level objectives can be found in environmental obligations, such as those arising under the Convention on Biological Diversity (CBD) and Kunming-Montreal Global Biodiversity framework (GBF). For example:

- Conserve biological diversity, sustainably use its components and fairly and equitably share the benefits arising out of the utilization of genetic resources,[198] including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding (CBD Article 1).
- Maintain, enhance or restore the connectivity and resilience of all ecosystems, substantially increasing the area of natural ecosystems by 2050 (GBF Goal A).
- Halt and, by 2050, reduce tenfold the extinction rate of at-risk species and increase the abundance of native wild species to healthy and resilient levels (GBF Goal A).
- Maintain the genetic diversity within populations of species (GBF Goal A).
- Halt human-induced extinction of known threatened species and ensure management actions for the recovery and conservation of species, in particular threatened species (GBF Target 4).
- Reduce pollution risks and impacts from all sources, by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects (GBF Target 7).
- Sustainably use and manage biodiversity, including ecosystem services, and value, maintain and enhance nature's contributions to peoples, restoring biodiversity and ecosystem services (GBF Goal B).
- Restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as regulation of air, water, and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and/or ecosystem-based approaches for the benefit of all people and nature (GBF Target 11).
- Fairly and equitably share and substantially increase the monetary and non-monetary benefits of the utilization of genetic resources, digital sequence information on genetic resources, and Indigenous knowledge, and ensure the protection of Indigenous knowledge associated with genetic resources (GBF Goal C).

Objectives designed at the global scale need to be translated into project-scale targets to effectively guide IA and project design and credibly measure project impacts. Specific targets are required for each biodiversity value assessed and can be derived, where available, from regional-scale planning and resource management activities, watershed plans, recovery strategies and action plans,[199] Indigenous

[197] See Department for Environment Food & Rural Affairs, *Environmental targets consultation summary of responses and government response*: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1125278/Environmental_targets_consultation_summary_of_responses_and_government_response.pdf.

[198] Article 2 of the CBD defines genetic resources as "genetic material of actual or potential value." It defines genetic material as "any material of plant, animal, microbial or other origin containing functional units of heredity."

[199] Sinclair AJ, Doelle M, and Duinker PN. 2017. Looking up, down, and sideways: Reconceiving cumulative effects assessment as a mindset. Environmental Impact Assessment Review, 62: 183–194. DOI: 10.1016/j.eiar.2016.04.007

knowledge and collaboration, and the updated national biodiversity strategy and action plan (NBSAP) once it is completed.

1. Clearly identify specific relevant environmental obligations and what they mean for the IA

It is not sufficient to simply name the international and domestic instruments that give rise to biodiversity-related obligations in guidance to proponents, as is reflected by current IAA policy and tailored impact statement guidelines (TISG) issued to proponents to date. A more effective approach would be for TISG to specify which environmental obligations contained within instruments are relevant to the IA in question, and what those obligations mean for the particular project and assessment. For example, rather than simply mentioning the CBD, TISG would be better to list specific articles of the Convention, along with applicable GBF goals and targets, that are relevant to the project. For examples of key potentially-relevant environmental obligations and their relevance to projects, see Chapter IV.

These obligations are best identified as early in the planning phase as possible, recognizing that additional obligations may be found to be relevant later in the assessment as further information comes to light and as additional alternative means are identified. To help parties easily identify and agree on which obligations, targets and indicators are relevant in particular cases, the Agency (or ECCC) could publish guidance listing potentially relevant obligations and which obligations may be relevant to which project types (for example, obligations arising under the London Convention[200] may be relevant to projects involving marine terminals and shipping) and how the project should identify and apply actions to achieve the targets.

2. Identify biodiversity and ecosystem values

One of the most common refrains in fifty years of experience with environmental impact assessment is the need for issues and project alternatives to be identified as early as possible in the process, before options are precluded. The planning phase should be used to identify biodiversity values and ecosystem services to focus on during the IA. This focusing should occur with the engagement and collaboration of Indigenous peoples (including Indigenous knowledge holders), scientists (including independent experts – see sections F and G below) and the public, as it is critical to identify biodiversity and ecosystem values of most importance to Indigenous peoples and communities. This focusing should also take into account relevant international obligations as well as relevant federal policies, plans or programs (such as recovery strategies and action plans, Canada's Critical Minerals Strategy, the Emissions Reduction Plan, the Climate Adaptation Plan, the Sustainable Development Strategy and the future updated NBSAP). The identification of values and of relevant obligations should be an iterative process.

3. Identify substantive objectives and targets

Targets, goals and objectives, along with any indicators and measurements contained in international instruments or domestic law or policy that are related to the obligations, should be identified (in collaboration with Indigenous peoples through consent-based processes, in collaboration with scientists, and through meaningful public participation) and enshrined in guidance. For examples, see Chapter IV.

[200] *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter*. *Adopted* November 13, 1972, 11 ILM 1291.

The International Union for Conservation of Nature's Impact Mitigation and Ecological Compensation (IUCN IMEC) thematic group describes how biodiversity outcomes following development should be linked to jurisdictional biodiversity targets.[201] However, there are few examples of strategic efforts by governments to integrate broad biodiversity targets into development planning, beyond stating that development is a 'no-go' in some small sites. As Simmonds *et al* write:

> We show that few current policies meet these conditions [requirement for residual losses from development to be compensated for by (1) absolute gains, which are (2) scaled to the achievement of explicit biodiversity targets, where (3) gains are demonstrably feasible], which risks undermining efforts to achieve the proposed Post-2020 GBF milestones and goals, as well as other jurisdictional policy imperatives to halt and reverse biodiversity decline.[202]

The "conservation hierarchy" is an approach that focuses on geographical or sectoral approaches to achieve conservation or biodiversity targets rather than limiting actions in relation to a project.[203] The conservation hierarchy proposes actions taken by institutions and actors with broad effective control or influence over the types of activities permitted in a target area or target sector. It adapts the mitigation hierarchy (typically more useful for a single project) to focus on four steps: Refrain, Reduce, Restore, and Renew. Refraining could include, through the conduct of a strategic environmental assessment, identification of a suite of activities that must be controlled, managed or eliminated over large areas or across a sector (for example, use of a pesticide in a target region) to ensure that priority biodiversity features are maintained or enhanced as necessary to achieve specific targets. Reducing could include limiting the temporal intensity of fishing. Restoring could include improving the connectivity between two patches of an ecosystem. Renewing could include creating a new area of an ecosystem as a means to support climate change adaptation.

Specified targets – adapted from relevant recovery strategies, regional/watershed or land use planning, or the NBSAP – would provide an effective means of measuring the extent to which a project hinders or contributes to Canada's ability to meet its environmental obligations and should be used to determine the compensation needed to achieve no net loss (NNL) or net gain (NG) (see subsection 4 below). The targets must be measurable and "explicitly reflect the desired state (outcome) of the biodiversity feature (e.g., species population, ecosystem extent) on which the target focuses, rather than a desired rate of change, or a mechanism for achieving the target."[204] Targets must be based on science, evidence and Indigenous knowledge, and established independently of the design of the compensatory scheme to avoid the setting of unambitious targets. In the event of inconsistency among targets, the higher (more stringent) should apply.

Where jurisdictional (e.g., national, regional or Indigenous) targets do not yet exist at the national or regional level, targets and limits should be identified during the assessment in collaboration with

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[201] IUCN Commission on Ecosystem Management Thematic Group, *Impact Mitigation and Ecological Compensation*: https://www.impactmitigation.org/.

[202] Jeremy S. Simmonds *et al.*, "Aligning ecological compensation policies with the Post-2020 Global Biodiversity Framework to achieve real net gain in biodiversity" (2022) Conservation Science and Practice 4(3): https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/csp2.12634.

[203] Conservation Hierarchy, "What is the mitigation and conservation hierarchy?: https://conservationhierarchy.org/what-is-conservation-hierarchy/; E.J Milner-Gulland *et al*, "Four steps for the Earth: mainstreaming the post-2020 global biodiversity framework" (2021) One Earth 4: https://www.cell.com/action/showPdf?pii=S2590-3322%2820%2930657-6.

[204] Simmonds *et al* at 4.

Indigenous peoples and informed by Indigenous knowledge, scientific advice and meaningful public participation.

Additionally, project assessment guidance should specify relevant headline indicators, component indicators and complementary indicators from the GBF monitoring framework (some of which are being developed post-COP15). Proponents should be directed to avoid impacts on unique, irreplaceable and vulnerable areas, including global and national Key Biodiversity Areas, significant areas identified by Indigenous peoples, or any other irreplaceable areas derived from systematic conservation planning in the area. Assessment of impacts against no net loss and net gain outcomes must be in line with the obligations, goals, targets and indicators described above (see the discussion of the mitigation hierarchy in section E, below).

4. Make net gain the objective except in prescribed circumstances

NG and NNL are required in many countries around the world and by major lenders, and are prominent in corporate practice.[205] Often, both are included as objectives, based on the assumption that they both lie on a continuum of ambition. NNL and NG are, however, fundamentally different from one another and are rarely explicitly distinguished; the difficulty in transitioning between one and the other should not be underestimated.[206]

Given the high degree of ecological uncertainty regarding biodiversity offsetting (see below), the well-documented failure of project assessment to adequately address or manage cumulative effects, and the GBF 2050 goals that relate to reversal, restoration, increase and enhancement, NG should be the default objective (e.g., UK *Environment Act 2021*[207]) for offsetting requirements except in prescribed circumstances in which NNL may be deemed to be appropriate. Where such circumstances are not clearly prescribed (for example, in federal policy), NG should be the objective.

In its broadly-used biodiversity policy, the International Finance Corporation (IFC) defines no net loss as "the point at which project-related impacts on biodiversity are balanced by measures taken to avoid and minimize the project's impacts, to undertake on-site restoration and finally to offset significant residual impacts, if any, on an appropriate geographic scale (e.g., local, landscape-level, national, regional)."[208] Because this definition is based on *measures taken* rather than actual outcomes, any failure of such measures to achieve predicted results will result in net loss. Net gain, on the other hand, entails increasing biodiversity values, and when used as a goal increases the likelihood of projects helping Canada meet its biodiversity obligations. Net gain requirements for a focal biodiversity feature should

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[205] World Bank, *Environmental and Social Framework* (2016): https://thedocs.worldbank.org/en/doc/837721522762050108-0290022018/original/ESFFramework.pdf; International Finance Corporation, *Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources* (2012): https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps6 [IFC PS6]; Asian Infrastructure Investment Bank, *Environmental and Social Framework* (2021): https://www.aiib.org/en/policies-strategies/_download/environment-framework/AIIB-Revised-Environmental-and-Social-Framework-ESF-May-2021-final.pdf; *ACT Environmental Offsets Policy* (2015): https://www.environment.act.gov.au/__data/assets/pdf_file/0009/628758/ACT-Environmental-Offsets-Policy-ACCESS-PDF.PDF; Victoria State Government, *Native vegetation removal regulations*: https://www.environment.vic.gov.au/native-vegetation/native-vegetation-removal-regulations; Republic of Uganda *National Environment Act*, 2019; and Mozambique *Decree 89/2017 on the Regulation for the Conservation Law*, 2017.

[206] J.W. Bull & S. Brownlie, "The transition from No Net Loss to a Net Gain of biodiversity is far from trivial" (2017) *Oryx* 51, 53–59: DOI:10.1017/S0030605315000861.

[207] UK *Public General Acts*, 2021 c 30.

[208] IFS PS6.

therefore be aligned with national (e.g., NBSAP) and global (e.g., GBF) targets, if they are to be consistent and effective in meeting policy needs.

NNL will at best curtail rather than stop or reverse further biodiversity decline. Accordingly, an outcomes-oriented IA should help not just maintain but enhance biodiversity, with proponents "paying" for their ability to take up resources and ecosystem services by, in part, contributing positively towards restoration and enhancement efforts. To this end, IA should identify ways to safeguard and enhance biodiversity and ecosystem extent, health and functionality. After all options to avoid, minimize and restore biodiversity loss are exhausted (see section E on the mitigation hierarchy, below), offsets (if they are to be used) should deploy ratios based on biodiversity values' targets (e.g., in line with the federal *Species at Risk Act* Policy on Survival and Recovery's "upper bound" of recovery)[209] and a NG goal, with ratios reflecting the percentage of recovery necessary for that value. For example, where a species' critical habitat target is a doubling of the amount of connected habitat, proponents should be required to offset at least twice as much habitat as will be damaged by the carrying out of the project, and potentially far more.[210] For more on NNL and NG, including the well-documented shortcomings of NNL, see our submission to Environment and Climate Change Canada on its draft offsets policy dated February 17, 2023, attached as Appendix B to this report.

5. Identify limits or benchmarks

IA should also identify any limits of acceptable change to biodiversity values due to development impacts, based on Indigenous knowledge, independent and federal science, Indigenous communities' and the public's levels of dependence on ecosystem services, and any culturally-appropriate thresholds and non-negotiables according to Indigenous peoples, the public and ecosystem needs. Ideally, evidence-based thresholds can be set at the regional level (e.g., through regional assessment processes).[211] However, project-level IA should allow for identification of thresholds. Acceptable change should also consider how this will affect progress towards targets. According to the International Association for Impact Assessment, limits (and potentially thresholds) can be determined based on:

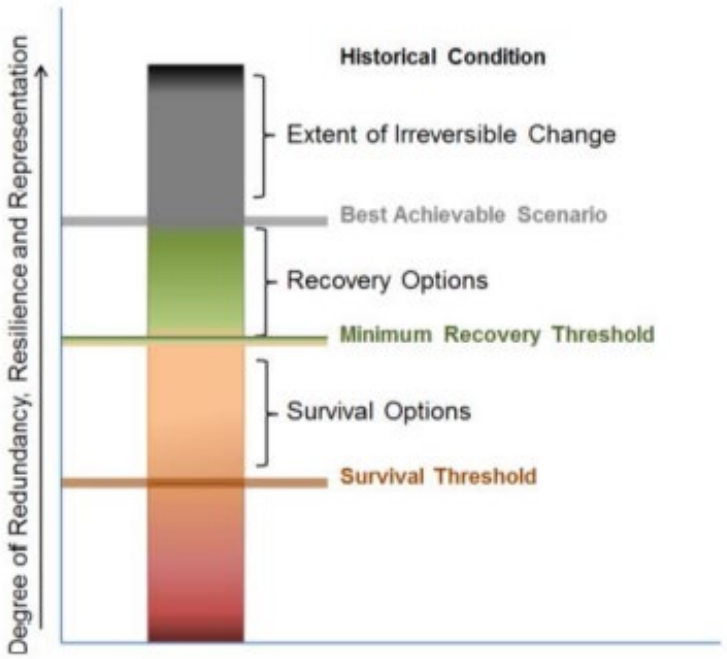
- Communities' level of dependence on natural resources for livelihoods, health, cultural practices and protection from natural hazards, and trends in the condition or availability of those resources;
- Limits to what can be lost, harmed, restored or offset, taking into account the irreplaceability and vulnerability of the biodiversity values and human dependence on natural systems;
- Limits to tolerance of valued biodiversity components (species, ecosystems) to change, e.g., from land use and/or climate change; and

[209] Government of Canada, Species at Risk Act Policy on Survival and Recovery (2016) at 1: https://registrelep-sararegistry.gc.ca/virtual_sara/files/policies/Survival_and_Recovery_EN1.pdf.
[210] Jeremy S. Simmonds, "Moving from biodiversity offsets to a target-based approach for ecological compensation" (2022) *Conservation Letters* 13:e12695: https://doi.org/10.1111/conl.12695.
[211] C.J. Johnson & J.C. Ray. "The challenge and opportunity of applying ecological thresholds to environmental assessment decision making." (2021) In: Cumulative Impact Assessment Handbook (J. Blakely & D. Franks, eds.). Edward Elgar Publishing Ltd.

- The functional role of the project area within the wider landscape, such as buffering or connecting habitats or ecosystems.[212]

The *Species at Risk Act* Policy on Survival and Recovery describes how multiple parameters, benchmarks and tolerance thresholds can be combined to identify acceptable limits. For example, if a wildlife species is endangered, has low resiliency to disturbance, has a high degree of scientific certainty attributed to adverse effects, and is valued as important by society, species survival and recovery thresholds would be higher than for a similar wildlife species in the same area that lacks such characteristics (see Figure 2). In the wildlife example, socially derived thresholds or standards are important in determining the societal value that an Indigenous or local community may place on the wildlife species and, therefore, levels of acceptable risk the community might accept.

Figure 2: SARA species recovery and survival thresholds[213]



6. Identify and apply criteria and trade-off principles

As discussed in Chapter III (Background), in section B of this chapter, and elsewhere in this report, biodiversity is an integral component of sustainability and as such, is linked to other sustainability aspects such as human health and well-being, livelihoods, culture, other environmental components, and the economy. Biodiversity is also directly relevant to the rights and authority of Indigenous peoples. The interlinkages between biodiversity and climate change are likewise becoming increasingly clear (see below). As a result of biodiversity's interconnections and the multifarious ways that trade-offs may occur as a result of making decisions respecting biodiversity, IAs that employ detailed criteria for

[212] S. Brownlie and J. Treweek, *Biodiversity and Ecosystem Services in Impact Assessment* (Special Publication Series No. 3. Fargo, USA: International Association for Impact Assessment) (2018): https://www.iaia.org/uploads/pdf/SP3-Biodiversity-Ecosystem-Services.pdf.

[213] Government of Canada, Species at Risk Act *Policy on Survival and Recovery* (2016) at 1: https://registrelep-sararegistry.gc.ca/virtual_sara/files/policies/Survival_and_Recovery_EN1.pdf.

determining the adversity of predicted biodiversity and ecosystem service impacts will guide judgements about options. Likewise, clear principles should guide trade-off deliberations and decisions. Consistent development and use of criteria and trade-off rules "would introduce a firmer base for credible and justifiable judgments about which options may be most desirable and whether appropriate trade-offs are being made."[214]

Generic criteria and trade-off principles set out in policy and guidance, particularly guidance associated with the planning phase of IAs, should be used to identify case-specific criteria and principles with the free, prior and informed consent of Indigenous peoples and with meaningful expert and public participation. This approach is consistent with the CBD Voluntary Guidelines developed in 2006, which suggested that authorities develop biodiversity criteria for evaluating impacts, and measurable standards or objectives for measuring impact significance, which can be derived from the priorities and targets in NBSAPs.

C. Use a reconciliation and rights-based approach that respects and upholds Indigenous jurisdiction

Respecting the constitutionally-protected and internationally recognized rights of Indigenous peoples is pivotal to meeting Canada's biodiversity obligations. Article 8(j) of the CBD requires parties, including Canada, to "respect, preserve and maintain knowledge, innovations and practices of indigenous … peoples … for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge innovations and practices."

Additionally, the UN *Declaration on the Rights of Indigenous Peoples* contains a number of articles that are relevant to biodiversity and impact assessment and which Canada has committed to implementing (see Chapter IV), including Indigenous peoples' right to their traditional territories and resources (Article 26), their right to the conservation and protection of the environment, including through government-supported programs (Article 29), and the right to "determine and develop priorities and strategies for the development or use of their lands or territories and other resources" (Article 32(1)). Relatedly, states are obliged to obtain Indigenous peoples' free, prior and informed consent prior to any project approval in their territories (Article 32(2)). Together, these obligations require Canada to respect Indigenous peoples' rights, laws and decision-making authority and support Indigenous peoples' engagement and decision-making processes.

Models for achieving the consent of Indigenous peoples include Indigenous-led IA, IA based on Indigenous knowledge, and thematically-specific IAs (e.g., Indigenous health assessment, cumulative effects assessment, rights assessment, and collaborative risk mitigation.[215] During the planning phase, the Agency should consult Indigenous peoples on how they wish to be engaged, and co-design

[214] S. Brownlie and J. Treweek, *Biodiversity and Ecosystem Services in Impact Assessment* (Special Publication Series No. 3. Fargo, USA: International Association for Impact Assessment)(2018): https://www.iaia.org/uploads/pdf/SP3-Biodiversity-Ecosystem-Services.pdf at pages 3-4.

[215] Forest Peoples Programme, *Local Biodiversity Outlooks 2: The contributions of indigenous peoples and local communities to the implementation of the Strategic Plan for Biodiversity 2011–2020 and to renewing nature and cultures. A complement to the fifth edition of the Global Biodiversity Outlook* (2020): https://www.cbd.int/gbo/gbo5/publication/lbo-2-en.pdf.

Indigenous engagement and partnership plans based on Indigenous peoples' needs and governance standards. The Akwé: Kon Guidelines were developed to help ensure CBD parties comply with Article 8(j), are directly relevant to IA, and offer a best practice to adopt in Canada.[216]

Principles for Indigenous engagement in IA, particularly respecting biodiversity and the related climate crisis, would include:

- Recognize Indigenous peoples' authority over their territories, including by supporting and respecting Indigenous-led IA and decision making.
- Where agreed to by Indigenous nations, design inclusive and collaborative processes, emphasizing deliberative dialogue and knowledge-sharing over one-way communications such as notice periods and written comments.
- Recognize Indigenous peoples' laws, protocols and needs, including respecting the timing and manner of engagement.
- Design trauma-informed processes in ethical space.
- Prioritize mutual learning, respect, reciprocity and reconciliation.
- Ensure Indigenous nations have the resources (long-term capacity and IA-specific) they need to meaningfully engage.
- Identify and respect Indigenous knowledge of biodiversity health, baseline conditions and potential direct, indirect and cumulative effects, and the consequences of effects on the health of valued biodiversity components.
- Integrate culture and health considerations into biodiversity assessment.

D. Define biodiversity clearly, consistently and comprehensively

1. Adopt the CBD definition of biodiversity

Biodiversity is more than just species at risk, and must be recognized as such for the purposes of IA. The CBD defines biodiversity as "the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems," and biological resources as including "genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity" (Article 2).

Indicators proposed in the GBF Monitoring Framework illuminate the scope of biodiversity values encapsulated in the definition of biodiversity, including natural ecosystem extent, distribution and health, ecosystem intactness and integrity, air and water quality, water flow, soil health and erosion, and culturally and economically-important species.

"Critical habitat" is an internationally-recognized term used in international standards that should not be confused with the narrower definition used in the *Species at Risk Act*. For the purposes of Canada's international biodiversity obligations, "critical habitats" should be defined as "areas with high biodiversity value, including (i) habitat of significant importance to [endangered] species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally

[216] Akwé: Kon Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessments Regarding Developments Proposed to Take Place on, or which are Likely to Impact on, Sacred Sites and on Lands and Waters Traditionally Occupied or Used by Indigenous and Local Communities (2020): https://www.cbd.int/doc/publications/akwe-brochure-en.pdf.

significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes,"[217] and be able to include broad landscape and seascape units, connectivity between habitats, and sites of importance to climate change adaptation. Many of these elements are criteria in Key Biodiversity Areas, which are in the process of being identified across Canada.[218]

2. Biodiversity is a component of sustainability

As recognized by the Voisey's Bay joint panel (see Chapter 3, section D(2)), biodiversity is a highly relevant component of sustainability. Given the multi-faceted nature of sustainability and the potential for trade-offs among various environmental, social, health and economic conditions arising from project decisions, it is critical that in addition to considering biodiversity effects and the extent to which projects hinder or contribute to Canada's ability to meet its environmental obligations, IAs must also consider effects on biodiversity as they relate to sustainability, and be explicit about trade-offs (as discussed above).

3. Biodiversity is integral to Indigenous peoples' rights, culture and well-being

As with sustainability, any definition of biodiversity should recognize that it is central to Indigenous rights, and that Indigenous stewardship has protected biodiversity for millennia. For example, biodiversity values should include cultural keystone species, and consider and properly evaluate Indigenous peoples' use of and benefit from ecosystem services. Indigenous peoples who indicate interest in doing so must be engaged on what biodiversity means to them and the identification of key biodiversity values for the purposes of the IA.

4. Biodiversity and climate change co-benefits and trade-offs

Climate change is a considerable and increasing threat to biodiversity, both directly and as a consequence of many climate mitigation measures (e.g., hydroelectric projects impacting aquatic systems; windfarms elevating direct mortality of birds and bats). It also disproportionately affects Indigenous peoples in Canada. Conversely, biodiversity can provide important carbon regulation and adaptation services (e.g., carbon-rich peatland ecosystems[219]). For example, an undertaking in a carbon-rich ecosystem can lead to the degradation or destruction of vital carbon stores that are vital for climate change mitigation and adaptation.[220] Target 8 of the GBF recognizes these linkages, requiring parties to minimize the impact of climate change on and increase the resilience of biodiversity, including through nature-based solutions and ecosystem-based approaches. Consequently, the definition of biodiversity and its treatment in IAs must recognize that biodiversity depends on a healthy climate, and biodiversity and climate change's interdependencies should be considered in order to deliberately identify, assess and rigorously consider climate and biodiversity co-benefits and trade-offs.

[217] IFC PS6 at page 4.
[218] Key Biodiversity Areas Canada: kbacanada.org.
[219] Lorna I Harris *et al*., The essential carbon service provided by northern peatlands," (2021) Frontiers in Ecology and the Environment 20(4): https://esajournals.onlinelibrary.wiley.com/doi/10.1002/fee.2437.
[220] H. O. Pörtner *et al.* "IPBES-IPCC co-sponsored workshop report on biodiversity and climate change, (IPBES and IPCC, 2021): DOI:10.5281/zenodo.4782538.

E. Require the rigorous application of the mitigation hierarchy

The mitigation hierarchy is widely recognized as a critical tool for helping ensure that projects contribute to rather than hinder parties' ability to meet their biodiversity obligations, goals, strategies and targets. Required under IFC Performance Standard 6[221] and recommended by the International Association for Impact Assessment (IAIA; among other leading bodies on impact assessment and biodiversity), the mitigation hierarchy requires proponents to take all measures to first avoid effects on biodiversity, then minimize them, then restore them, and only as a final step – if necessary and if possible – to offset them.[222] The Cross-Sector Biodiversity Initiative Guide for Implementing the Mitigation Hierarchy provides particularly useful guidance, and states: "As a rule, preventive measures are always preferable to remediation measures — from ecological, social and financial perspectives."[223] Most development banks also contain helpful text in their standards and policies.

As noted in Chapter III, the mitigation hierarchy is relevant to sections 73 and 79 of the *Species at Risk Act* (SARA). Section 73 requires that in order to authorize a person to affect a listed wildlife species, the competent minister must be of the opinion that all reasonable alternatives for reducing impacts on listed wildlife species have been considered and the best solution adopted, that all feasible measures will be taken to minimize impacts on the species, its critical habitat or residences, and that the activity will not jeopardize the species' survival or recovery.[224] Section 79 requires proponents of designated projects to notify the competent minister in writing if the project is likely to affect a listed species at risk. They must also identify the adverse effects on the species and its habitat and ensure that "measures are taken to avoid or lessen those effects" in a manner "that is consistent with any applicable recovery strategy and action plans."[225]

These requirements reiterate the importance of a rigorous application of the mitigation hierarchy in. As part of the "public interest decision," the IAA requires the Minister to establish conditions that he or she considers appropriate in relation to adverse effects within federal jurisdiction, and conditions that are directly linked or necessarily incidental to an exercise of power (such as issuing a permit under SARA).[226] Applying the mitigation hierarchy during the IA will streamline any applicable SARA permitting process. Also, because of the IAA's requirements respecting Indigenous engagement and public participation and

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[221] International Finance Corporation (IFC), Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources (2012): https://www.ifc.org/wps/wcm/connect/5e0f3c0c-0aa4-4290-a0f8-4490b61de245/GN6_English_June-27-2019.pdf?MOD=AJPERES&CVID=mKqG85z.

[222] In addition to IFC PS6, see International Finance Corporation, *Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts*: https://www.ifc.org/wps/wcm/connect/8804e6fb-bd51-4822-92cf-3dfd8221be28/PS1_English_2012.pdf?MOD=AJPERES&CVID=jiVQIfe; Asian Development Bank, *Safeguard Policy Statement* (2009): https://www.adb.org/sites/default/files/institutional-document/32056/safeguard-policy-statement-june2009.pdf; African Development Bank Group, *Integrated Safeguards System – Policy Statement and Operational Safeguards* (2013): https://www.afdb.org/en/documents/document/afdbs-integrated-safeguards-system-policy-statement-and-operational-safeguards-34993; European Bank for Reconstruction and Development (EBRD), *Environmental and Social Policy* (2019): https://www.ebrd.com/environmental-and-social-policy.pdf.

[223] Cross-Sector Biodiversity Initiative, *A Cross-Sector Guide for Implementing the Mitigation Hierarchy* (2015): http://www.csbi.org.uk/our-work/mitigation-hierarchy-guide/ [CSBI 2015].

[224] *Species at Risk Act*, SC 2002, c 29, s 73(3). An agreement or permit allowing the activity may be issued only if the competent minister is also of the opinion that the activity is scientific research relating to the conservation of the species and will be conducted by qualified persons; that the activity will benefit the species or is required to enhance its survival; or that affecting the species is merely "incidental" to the carrying out of the activity: s 73(2).

[225] *Species at Risk Act*, s 79(1)-(2).

[226] *Impact Assessment Act*, s 64.

its broad factors to consider, applying the mitigation hierarchy in IA should ensure a more meaningful and informed application of the hierarchy, providing that the elements described in 1-7 of this section are achieved.

Too many offsets schemes are devised without appropriate attention to the mitigation hierarchy and after higher-priority mitigation options have been precluded. It is imperative that federal IAs apply the mitigation hierarchy throughout all stages, from planning through to follow-up. The mitigation hierarchy must be applied at the landscape or seascape level, with mitigation actions designed and implemented at a site or project level. Governments should ensure the mitigation hierarchy is embedded in the framework of landscape and seascape level planning and legislation and is part of existing and future strategic development plans.[227] This section outlines key requirements for maximizing its success in helping projects contribute to Canada's efforts to meet its biodiversity obligations and targets.

Phalan *et al*. (2018) describe five sets of criteria to be met for avoiding impacts on priority biodiversity features in order to meet jurisdictional biodiversity targets:[228]

1. Project alternatives are given full consideration by regulators and developers.
2. Clear criteria for defining societal benefits of a project that outweigh its environmental costs: typically for reasons of human health, public safety or environmental benefit, or if there are 'imperative reasons of overriding public interest,' which will reduce subjective and often highly political definitions.
3. Projects should be assessed only for common as well as priority biodiversity features to ensure that small, cumulative impacts on common species or features are not ignored.
4. Legal requirements can help to define opportunities for impact avoidance, such as through identifying protected sites, ecosystems and species.
5. All forms of avoidance should be prioritised, including not proceeding with project development where it is likely that negative impacts on key biodiversity features will occur, or relocating the project to other sites, prioritising, where relevant, already degraded areas.[229]

1. Begin at the earliest possible stages

It is clear from direct experience and research that to be effective at helping projects avoid and minimize effects on biodiversity, the mitigation hierarchy must be applied at the earliest possible stages of project design and assessment planning, and prior to the development of detailed project descriptions. The mitigation hierarchy relies on the identification and comparative evaluation of alternatives (see below), and its early application allows for their early identification before decisions are made that may result in options being left off the table. Beginning at the earliest possible stages also enables the early identification and prioritization of potentially highly adverse effects on biodiversity and ecosystem services, which in turn encourages the identification of alternatives to avoid those impacts.[230] Ideally,

[227] IUCN Policy on Biodiversity Offsets, WCC-2016-Res-059-EN (2016): https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2016_RES_059_EN.pdf.
[228] Phalan *et al*., "Avoiding impacts on biodiversity through strengthening the first stage of the mitigation hierarchy" (2018) Oryx 52(2): https://www.cambridge.org/core/journals/oryx/article/avoiding-impacts-on-biodiversity-through-strengthening-the-first-stage-of-the-mitigation-hierarchy/DDBA2EA1D468985A9CE5D089ABC5FAD5.
[229] See also The KBA Partnership, *Guidelines on Business and KBAs: Managing Risk to Biodiversity* (2018): https://www.ibat-alliance.org/pdf/guidelines-on-business-and-kbas.pdf.
[230] CSBI 2015; International Union for the Conservation of Nature (IUCN) (2021), *Mitigating biodiversity impacts associated with solar and wind energy development: Guidelines for project developers*: https://portals.iucn.org/library/sites/library/files/documents/2021-004-En.pdf.

landscape scale assessment and planning can be deployed as a key step in identifying priority sites to avoid in development, directly feeding into the IA process. Conducting this in advance will save proponents time when planning to invest as information on biodiversity will already be available; and will require less consultancy time as well.

Applying the mitigation hierarchy early should be a consent-based process with Indigenous peoples and involve the meaningful participation of experts and the public. It means[231]:

- Requiring proponents to apply it in their initial and detailed project descriptions, including:
    - Identify areas to avoid;
    - Identify potential effects on biodiversity and ecosystem services, and all alternatives to the project and alternative means of carrying out the project to avoid those effects;
    - List potentially unavoidable effects on biodiversity and ecosystem services, explain why they are unavoidable, and identify options for minimizing them;
    - List potential residual effects on biodiversity and ecosystem services, explain why they could not be minimized, and identify possible restoration options; and
    - List any potential residual effects that could not be restored, explain why, identify offsetting requirements to ensure the project will result in NG or NNL (if NNL, justify why), and outline the cost and feasibility of the offset measures.
- Identifying key biodiversity values and ecosystem services on which to focus during the IA, beginning in the earliest stages of the planning phase and continuing throughout.
- Identifying risks of irreplaceable or unacceptable losses of biodiversity or ecosystem services, beginning in the earliest stages of the planning phase and continuing throughout.
- Identifying appropriate spatial and temporal scopes, necessary studies, methodologies and information verification processes, and key actors.
- Identifying alternatives that would result in unacceptable biodiversity losses.

2. Early and ongoing identification and comparative evaluation of alternatives

As noted above, the early and ongoing identification and comparative evaluation of alternatives is a core, necessary function of the mitigation hierarchy, as it is through alternatives (e.g., in timing, routing, sequencing, technologies or materials) that options for avoiding, then minimizing, then restoring, and finally offsetting can be identified and considered. Effective alternatives assessment for the sake of limiting biodiversity loss should be a consent-based process with Indigenous peoples and involve the meaningful participation of experts and the public, and requires:

- That potentially irreversible or unacceptable effects on biodiversity and ecosystem services should be identified early on, along with feasible alternatives that would allow no NG or NNL (where appropriate) to be achieved.
- That the identification of less harmful or better alternatives should occur iteratively throughout all stages of the IA, as more information about values, effects, concerns, and risks come to light.
- The identification of the full range of alternatives, with transparent justification of any alternatives not considered.

[231] Cross-Sector Biodiversity Initiative (2015); IFC P6.

- The comparative evaluation of alternatives' biodiversity and other implications (including the extent to which they foster sustainability), including the "no project" alternative (i.e., the baseline), rather than treating alternatives assessment as an afterthought.
- Identification of the costs associated with any loss of biodiversity or ecosystem service, and the costs and risks of any offsetting required to get to NG or NNL.
- Incorporation of the costs associated with any loss of biodiversity or ecosystem service, and the costs and risks of any offsetting required to get to NG or NNL, into economic, sustainability and GBA+ analyses and assessment of effects on Indigenous peoples and impacts on Indigenous rights. [232]

3. Exhaust all feasible options at each step of the hierarchy

As seen in Chapter V, case studies of the application of the mitigation hierarchy demonstrate a tendency to move towards lower steps even when there may be available options to further avoid or minimize impacts. To guard against premature 'stepping down' in the hierarchy:

- Proponents should be required to demonstrate through expert review that there are no more feasible options for achieving each step before moving to the next.
- Generally, offsets should only be identified once options to avoid, minimize and restore have been exhausted, although for projects of "overriding public importance" for which alternative sites and technologies are not feasible it may be appropriate to begin to address offsets in the earliest stages of the IA.[233] Landscape- or regional-scale assessment of priorities will support identification of the highest priorities that should only be compromised for projects of the highest public importance.
- The Agency should develop clear criteria for determining whether residual effects on biodiversity and offset risk and cost are outweighed by the project benefit (for reasons such as benefits to human health, public safety or the environment), by lack of consent of Indigenous peoples, or if there are "imperative reasons of overriding public interest."[234] Application of these criteria to projects should receive independent review by experts and Indigenous knowledge holders.
- Establish detailed, stringent avoidance requirements for all species, habitats and ecosystem services, ideally at the regional level.
- Assess the monetary and non-monetary costs and benefits of avoidance, minimization, restoration and offsetting, and estimate and communicate the potential costs, efficacy and limitations of restoration and offsetting. [235]

Feasibility features prominently as a factor to consider in the IAA. Subsection 22(1) requires assessments to consider "alternatives to the designated project that are technically and economically feasible and are directly related to the designated project," "alternative means of carrying out the designated project that are technically and economically feasible," and "mitigation measures that are technically and

[232] See, e.g., IFC PS6, World Bank, *Environmental and Social Framework* (2016); EBRD (2019).
[233] Brownlie and Treweek at page 13.
[234] Council of the European Commission, 1992; European Commission, 2007.
[235] IFC PS6; EBRD (2019).

economically feasible."[236] It is important that feasibility determinations be transparent and that the analysis, information and assumptions are made public.

In keeping with this principle, technical feasibility should be determined "based on whether the proposed measures and actions can be implemented with commercially available skills, equipment, and materials, taking into consideration prevailing local factors such as climate, geography, demography, infrastructure, security, governance, capacity, and operational reliability."[237] Financial feasibility should be determined based on such considerations as "relative magnitude of the incremental cost of adopting such measures and actions compared to the project's investment, operating, and maintenance costs, and on whether this incremental cost could make the project nonviable to the client."[238] Feasibility determinations must occur with meaningful public participation and the consent of Indigenous people.

The *Species at Risk Act* Policy on Survival and Recovery sets out guidance for determining the feasibility of recovery of species that were and were not historically precarious in Canada. For species that were not historically precarious, recovery will be considered feasible if a minimum recovery threshold can be attained by the best achievable scenario after considering irreversible change. For species that were historically precarious, recovery will be considered feasible if the condition of the species can be improved to a point approaching its historical condition under the best achievable scenario.[239] This policy should be followed for feasibility determinations under the IAA, and assessments should demonstrate the evidence and rigour of feasibility analyses.

4. Clearly define circumstances in which residual biodiversity harms may and may not be permitted

Meeting the GBF goals and targets (e.g., Goal A and Targets 1-8) means avoiding adverse effects that would approach or violate the limits of acceptable change. To provide greater certainty and clarity and encourage the identification of options for avoiding unacceptable biodiversity loss, guidance should outline what constitutes unacceptable effects on biodiversity. For example, regional assessments should be used to, among other things, identify biodiversity "no-go" areas, as well as areas in which development may be appropriate at a certain pace and scale and under certain conditions.[240] Projects should be required to avoid highly adverse direct or cumulative effects on key sites, such as Ramsar sites, and Key Biodiversity Areas, and must not significantly convert or degrade natural habitats unless there are no other viable alternatives. Unavoidable residual adverse effects must be minimized and mitigated to maintain biodiversity value and functionality.[241]

Activities should only be permitted in the habitats of species at risk, endemic and range-restricted species, and globally-significant concentrations of migratory and congregatory species, as well as highly threatened and unique ecosystems and areas associated with key evolutionary processes (including Key Biodiversity Areas) where:

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[236] *Impact Assessment Act*, s 22(1)(b), (c), (f).
[237] IFC PS1, page 5 footnote 20.
[238] IFC PS1, page 5 footnote 21.
[239] Government of Canada, Species at Risk Act *Policy on Survival and Recovery*: https://registrelep-sararegistry.gc.ca/virtual_sara/files/policies/Survival_and_Recovery_EN1.pdf.
[240] World Bank Group, *Biodiversity Offsets: A User Guide* (October 2016): https://www.cbd.int/financial/doc/wb-offsetguide2016.pdf; IUCN, *Protection of primary forests, including intact forest landscapes*, WCC-2016-Res-045-EN ; https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2016_RES_045_EN.pdf.
[241] See, e.g., The KBA Partnership (2018); African Development Bank Group (2013).

- There are no other viable alternatives for carrying out the project on non-critical habitat and the project is of over-riding importance based on adequate criteria;
- The project will not result in measurable adverse effects on key biodiversity values or the ecological processes supporting them;
- The project will not lead to a net reduction of species at risk over a reasonable period of time;
- The proponent has a robust, appropriately designed and long-term biodiversity monitoring and evaluation program; and
- The mitigation strategy will achieve net gains of the affected biodiversity values and aligned with targets. [242]

Decisions should also recognize that not all adverse effects can be offset, for example due to the vulnerability and irreplaceability of the biodiversity value in question, or because the risk of success is unacceptably high. Where non-offsetable impacts cannot be avoided, the project must not proceed except in exceptional cases of imperative, overriding public interest where no feasible alternatives exist.

What constitutes unacceptable biodiversity loss has ecological, social, health and rights-based considerations. Therefore, Indigenous peoples must be consulted on which effects must be avoided. Similarly, the public (especially those living in nearby communities) may have expertise and should be engaged. Identifying limits to ecosystem services trade-offs should be based on the reversibility of the impact, the substitutability of the impacted services, and beneficiaries' levels of dependence on them.

5. The goal of the mitigation hierarchy should be net gain except in specified circumstances when NNL may be acceptable

As noted elsewhere and in our February 2023 submission on ECCC's draft offsetting policy (see Appendix B), a significant body of research on the effectiveness of achieving NNL outcomes has shown that attempts to achieve NNL tend to be unsuccessful.[243] This lack of success occurs for various reasons, including (but not limited to) loss of biodiversity through ongoing declines that have not been addressed, inadequate consideration of all types of effects in offsets plans, inadequate offset implementation, and high risk of failure.

Given the high degree of uncertainty associated with biodiversity offsetting and the GBF goals respecting reversal, restoration and enhancement (i.e., net gain), projects should be required to offset towards NG rather than NNL except in prescribed circumstances.[244] Where government policy does not prescribe circumstances in which NNL may be acceptable, NG should be the objective. To ensure NG (or NNL, where appropriate), residual biodiversity losses and offset goals must be compared against targets for the biodiversity value rather than against the baseline (see section B(3) of this Chapter, above). Compensation ratios (the amount of improvement or maintenance needed per unit of residual loss to

[242] See, e.g., Inter-American Development Bank, *Environmental and Social Policy Framework* (2020): https://www.iadb.org/en/mpas.
[243] See, for example: Sophus O. S. E. zu Ermgassen *et al*., "The ecological outcomes of biodiversity offsets under 'no net loss' policies: A global review" (2019) Conservation Letters 12(6): https://conbio.onlinelibrary.wiley.com/doi/10.1111/conl.12664; Sebastian Theis *et al*., "Compliance with and ecosystem function of biodiversity offsets in North American and European freshwaters" (2021) Conservation Biology 34(1): https://conbio.onlinelibrary.wiley.com/doi/abs/10.1111/cobi.13343; Laura J. Sonter *et al*., "Local conditions and policy design determine whether ecological compensation can achieve No Net Loss goals" (2020) Nature Communications 11: https://www.nature.com/articles/s41467-020-15861-1.
[244] African Development Bank Group (2013); EBRD (2019).

contribute to meeting targets) should be determined for each biodiversity feature and applied consistently to all projects. Compensation ratios should be commensurate with the target relative to the current status of the feature – for example, if the target is to double the currently available habitat for a species, the improvement should be double that which is lost. Compensation ratios must be increased in accordance with time lags and uncertainties.

6. Offsetting must be the last resort

Biodiversity offsets projects, the majority of which are weakly linked to the mitigation hierarchy, have proliferated around the world.[245] Offsets must be recognized as the final step in the mitigation hierarchy, to be taken only after proponents have demonstrated that there are no feasible options for avoiding adverse effects, in order to drive avoidance and reduction of effects before they take place, with offsets as a last resort in specified circumstances.[246]

IFC Performance Standard 6 defines biodiversity offsets as "measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development and persisting after appropriate avoidance, minimization and restoration measures have been taken."[247] As the Biodiversity Consultancy states, offsets are the "last resort to address those significant residual impacts that could not be prevented through avoidance and minimization, or adequately corrected through restoration/rehabilitation."[248]

Wherever possible, offsets should be of the same type as impacted biodiversity, although where the latter is not a national or local priority and there are other biodiversity areas with like values that are a higher priority and under imminent threat or need of protection or effective management, "out-of-kind" offsets that "trade up" may be appropriate. Offsets should align with best available information, knowledge (including Indigenous knowledge) and current practice, be designed with the assistance of independent experts with knowledge of offset design and implementation, be executed within a comparable timeframe and spatial scale, and must be designed and implemented to achieve measurable outcomes.

7. Design for sustainability

Finally, offset design should align with the IAA's purpose of fostering sustainability, and recognize the interconnections among biodiversity, human health and socio-economic well-being.[249] For example,

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[245] J.W. Bull, JW & N. Strange, "The global extent of biodiversity offset implementation under no net loss policies" (2018) *Nature & Sustainability* 1(12): 790-798.

[246] IUCN, Policy on Biodiversity Offsets, WCC-2016-Res-059-EN: https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2016_RES_059_EN.pdf. See also, Government of Western Australia, *Western Australia Environmental Offsets Policy* (2011): https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/WAEnvOffsetsPolicy-270911.pdf.

[247] IFC PS 6 at page 2 footnote 2.

[248] Biodiversity Consultancy, *A cross-sector guide for implementing the mitigation hierarchy* (2015): https://www.thebiodiversityconsultancy.com/knowledge-and-resources/a-cross-sector-guide-for-implementing-the-mitigation-hierarchy-117/. See also Republic of Uganda, *National Guidelines for Biodiversity and Social Offsets* (2022): https://www.nema.go.ug/sites/default/files/Final%20National%20Biodiversity%20and%20Social%20Offset%20Guidelines%20-%20Approved%20by%20NEMA%20Board%20March%202022.pdf.

[249] See Impact Assessment Agency of Canada, "Guidance: Considering the Extent to which a Project Contributes to Sustainability" in *Practitioner's Guide to Federal Impact Assessments under the* Impact Assessment Act:

offsetting decisions should consider the distributional equity of impacts and benefits, and users of impacted ecosystem services should be provided full and fair in-kind compensation. Any enhancement measures should be identified and designed with robust public and Indigenous engagement and with attention to the interests of future generations.

F. Adopt a collaborative, dialogue-based approach

For IA to have any chance of helping Canada meet its environmental obligations, it is imperative that assessments move away from being a process-oriented activity with key actors (e.g., proponent, Agency, review panel, Indigenous peoples, scientists, the public and stakeholders) acting independently of one another, to an activity based on collaboration and dialogue. As Simmonds *et al* (2020) note,[250] a high degree of coordination among proponents, authorities, decision makers, Indigenous peoples, the public and other relevant actors is required. The mitigation hierarchy is an iterative process of identifying key biodiversity values, potential effects, feasible alternatives, management and offset options, uncertainties, costs and risks, and deep, ongoing dialogue among the proponent, authorities, knowledge holders, scientists, community members and stakeholders is absolutely essential to its proper application.[251]

The mitigation hierarchy will not work if the IAAC merely solicits, compiles and shares information. It must, at the earliest stages of the planning phase, identify key knowledge holders, independent and government scientists, members of the public and other authorities and establish working groups that meet regularly to share information, values and needs, and work collaboratively towards achieving the objectives discussed in section B of this Chapter, above. The use of working groups aligns with the Akwé: Kon Guidelines, which state that authorities should have a formal process to identify Indigenous and local community members, experts and organizations, and relevant stakeholders, should establish a committee representative of those parties, and should give the committee a mandate to advise on each stage of the IA.

G. Proactive, early and ongoing use of independent experts and knowledge holders

Related to section F of this Chapter, above, the Agency should proactively request the expertise of independent experts and knowledge holders, beginning early in the planning phase and continuing throughout the assessment. The literature and international guidelines stress the importance of actively soliciting independent expertise to, among other things, advise on studies and scope, help identify key values, assist with predicting, assessing and evaluating likely effects, review impact statements and underlying analyses, and assist in the application of the mitigation hierarchy, including the development of offset plans.[252] Experts should include Indigenous and community knowledge holders, biologists with

https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance-considering-extent-project-contributes-sustainability.html#toc6.

[250] Jeremy S. Simmonds, "Moving from biodiversity offsets to a target-based approach for ecological compensation."

[251] International Union for the Conservation of Nature (IUCN), *Mitigating biodiversity impacts associated with solar and wind energy development: Guidelines for project developers*.

[252] See, e.g., International Finance Corporation, *Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources* (2012); African Development Bank Group (2013); World Bank, *Environmental and Social Framework* (2016); Inter-American Development Bank (2020); Aluminium Stewardship Initiative, *Performance Standard V3* (2022): https://aluminium-stewardship.org/asi-standards/performance-

specific knowledge of affected ecosystems and species, other physical and social scientists, and ecologists. We recommend that the Agency assemble a roster of experts with expertise in these fields and in different ecotypes and regions so that appropriate experts can be identified and contacted early in the planning phase. Experts and knowledge holders will need to be compensated for their participation, so that they have the capacity to engage meaningfully. Such participation could promote the design and implementation of studies that yield information critical to future assessments in the region, from baseline knowledge to testing of mitigation measures, to the training of highly-qualified personnel.

H. Employ a precautionary approach

Given gaps in our understanding of ecosystem functioning, the significant consequences of biodiversity loss, shortcomings in IA practice, difficulties in reconciling different priorities and values, and high risks associated with biodiversity loss, a precautionary approach should be applied in cases of scientific uncertainty when there is risk of significant harm to biodiversity, where baseline information is poor or there is uncertainty respecting mitigation effectiveness or impacts. The higher the risk or potential for harm and the more important the biodiversity values are, the more reliability and certainty are required. In practical terms, this means a shifting of the burden of proof away from demonstrating there will be harm to demonstrating there will be no harm. Many areas in Canada, particularly remote areas, are characterized by lack of scientific information (although Indigenous communities may possess relevant knowledge). Moreover, IA in Canada has not benefitted sufficiently from learning from previous assessments, especially the effectiveness of mitigation measures. A lack of attention to learning has been exacerbated by the lack of monitoring attention by government to inform baselines and the proprietary nature of data gathered by proponents.

All uncertainties, challenges in accessing expert input and other limitations should be acknowledged, and key assumptions about the strength of evidence used to predict ecological and cultural outcomes explained. Utmost caution should be applied when predicting the outcomes of restoration and offsetting measures, given time lags, high degrees of uncertainty and high risk of failure. Where there is risk of irreplaceable loss of biodiversity or ecosystem services, proponents must bear the burden of proof to show beyond a reasonable doubt that the offsets will succeed.[253]

Given the limitations of the scientific method, particularly when it comes to understanding ecosystem function and complex human-environment dynamics, Indigenous knowledge in the vicinity of the project has a critical role to play both in helping to elucidate biodiversity-related effects and risks and in identifying precautionary measures for avoiding them. Additionally, Indigenous peoples must be consulted and their consensus obtained on potential effects to Indigenous peoples and impacts on Indigenous rights, particularly where there is high scientific uncertainty.[254]

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standard#:~:text=The%20ASI%20Performance%20Standard%20V3%20(2022)%20defines%2062%20environmental%2C,in%20the%20aluminium%20value%20chain [ASI Performance Standard]; CBD COP 8 Decision VIII/28, Impact assessment: Voluntary guidelines on biodiversity-inclusive impact assessment: https://www.cbd.int/decision/cop/?id=11042 [CBD Voluntary Guidelines].

[253] Brownlie and Treweek.

[254] Nicolas Alberto Ojeda Zavala, *The Precautionary Principle and the Protection of Indigenous Peoples' Rights in the Case of Activities on their Lands,* Thesis Presented for the Degree of Doctor of Philosophy, The University of Edinburgh (2021): https://era.ed.ac.uk/bitstream/handle/1842/38113/Ojeda%20Zavala2021.pdf?sequence=1&isAllowed=y.

Where there is insufficient information or understanding to exclude the possibility of irreversible, non-offsetable or unacceptable effects on biodiversity or ecosystem services, less harmful alternatives should be sought or development delayed until there is greater assurance of ability to achieve net gain or no net loss.

Proponents should bear the burden of proof. Where adverse effects will be on less important biodiversity values (such as stable species) and predicted residual federal effects are likely to have a low extent of significance, the required proof may be on a balance of probabilities and consequences. However, where there is risk of irreplaceable loss of biodiversity or ecosystem services or effects on biodiversity of high extent of significance, proponents should bear the onus of proving beyond a reasonable doubt that there are no feasible alternatives and that offsets will succeed. Proponents should also be required to guarantee the technical, financial and other resources necessary to implement offset plans.

Where important biodiversity may be threatened and there is insufficient knowledge or information to quantify impacts and risks, evaluate extent of significance or implement effective mitigation measures, proponents should be required to incorporate additional safeguards into project design based on the "worst case" scenario. Additional research, studies or monitoring to improve certainty and confidence, and incorporation of that additional information into plans, should also be required.

I. Apply IA to all projects with important effects on biodiversity

To enhance IA's utility in helping Canada adhere to its biodiversity obligations, IA should apply to projects with effects on biodiversity that have a potentially high extent of significance, that may contribute to cumulative effects on biodiversity, or that may result in development that could significantly impact biodiversity. There are two main ways to ensure IA's application to projects with adverse effects on biodiversity: by ensuring that projects with likely effects on biodiversity (because of their type as well as their location) are included in the *Physical Activities Regulations* (Project List Regulations), and by developing screening criteria to apply to the section 16 determination as to whether an IA is required.

For the first, the upcoming five-year review of the Project List Regulations will provide a good opportunity to include additional projects with likely important implications for biodiversity not already listed in the regulations. Consistent with the CBD Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment,[255] the review should identify and ensure the designation of projects:

- Within a defined proximity or that could impact on protected areas;
- In Key Biodiversity Areas, e.g., threatened ecosystems, species at risk habitats, etc.;
- In ecological corridors important for ecological or evolutionary processes;
- In areas that provide important ecosystem services;
- That are extractive or that lead to a change of land use above a defined threshold;
- That include linear infrastructure that has the potential to induce growth within previously intact areas or leads to habitat fragmentation over a minimum length;

[255] CBD Voluntary Guidelines.

- That result in chemical, radiation, thermal or noise emissions or effluents in areas providing key ecosystem services; or
- In areas providing key ecosystem services and that lead to changes in ecosystem composition, ecosystem structure or processes responsible for maintaining ecosystems and ecosystem services. [256]

When making the section 16 determination, the Agency should consider whether:

- The project would have unacceptable effects on biodiversity because it would be inconsistent with international or national conventions, laws or policies and should therefore not proceed;
- The project may impact important biodiversity values and therefore an IA is required; and
- There is little risk of adverse effects or cumulative effects and therefore an IA is not required on the basis of biodiversity values (although one may be warranted due to other issues).

Following the CBD Voluntary Guidelines would also suggest that the Agency develop criteria to guide decisions respecting whether an IA is required, including biodiversity criteria. Biodiversity screening criteria can be developed based on information contained in national biodiversity strategies and action plans (NBSAPs) respecting conservation priorities, types and conservation status of ecosystems, ecosystem and species-level trends and threats, and planned conservation activities. It should be recognized at the outset that it may be appropriate to reject a proposal on the grounds of potential irreversible damage to or irreplaceable loss of biodiversity.

Biodiversity screening criteria may relate to types of projects known to cause effects on biodiversity and any relevant thresholds, the magnitude of biophysical impacts, or important biodiversity areas. Thus, federal authorities should develop three biodiversity screening tools to help determine whether an IA is required:

1. **A biodiversity screening map** indicating areas in which an IA is required. This map should be based on expert judgement and should include: protected areas; areas containing threatened ecosystems outside of formally-protected areas; areas important for the maintenance of key ecological or evolutionary processes; species at risk habitat; areas with important regulating services for maintaining natural processes; areas with important provisioning services; areas with important cultural services; and areas with other relevant ecosystem services.[257]
2. **A list of activities** for which an IA is required. This list should capture projects characterized by direct drivers of biodiversity change: change of land use or land cover above a defined area and underground extraction above a defined threshold; change in use of marine or coastal ecosystems above a defined area, and seabed resource extraction above a defined threshold; fragmentation above a defined length; emissions and effluents; and the introduction or removal of species, changes to ecosystem composition, structure or processes responsible for the maintenance of ecosystems and ecosystem services.
3. **Benchmark values** for whether an IA is required or undecided. This exercise is partly technical and partly political, and should take into consideration social and ecological contexts and cultural conditions. The technical process should describe categories of activities that create

[256] Examples of potentially relevant biodiversity aspects is provided in Appendix 3 of the CBD Voluntary Guidelines.
[257] An indicative list of ecosystem services is contained in Appendix 2 to the Voluntary Guidelines.

direct drivers of change (see 2 above), the area and duration of influence on biodiversity, and the biodiversity screening map described in 1 above. Benchmark values should also take into consideration other activities in areas and effects on biodiversity values, in order to account for cumulative effects.

Six basic questions should be applied during the screening process:

1. **Ecosystem diversity:**
    a. **Conservation:** Would the project lead, either directly or indirectly, to serious damage, collapse or total loss of (an) ecosystem(s), or land-use type(s), thereby resulting in a loss of ecosystem services of scientific/ecological value, or of cultural value?
    b. Sustainable use: Would the project affect the sustainable human exploitation of (an) ecosystem(s) or land-use type(s) in such manner that the exploitation becomes destructive or non-sustainable (i.e. the loss of ecosystem services of social and/or economic value)?
2. **Species diversity:**
    a. **Conservation:** Would the project cause a direct or indirect loss of a population of a species?
    b. **Sustainable use:** Would the project affect sustainable use of a population of a species?
3. **Genetic diversity:**
    a. **Conservation:** Would the project result in extinction of a population of a localized endemic species of scientific, ecological, or cultural value? Would it have adverse effects on genetic diversity?
    b. **Sustainable use:** Would the project cause a local loss of varieties/cultivars/breeds of cultivated plants and/or domesticated animals and their relatives, genes or genomes of social, scientific and economic importance?

J. Appoint review panels for IAs where effects on biodiversity may be of high extent of significance

Experience demonstrates that where review panels have been appointed, the most innovation has occurred, including when it comes to the treatment of biodiversity (see Chapter III). Where screening identifies potentially highly adverse effects on biodiversity, the Minister should appoint review panels for the assessment, and engage panel members on the development of the IA terms of reference (including the TISG). Assessments by review panel tend to be more comprehensive, more inclusive, more participatory, more rigorous, more credible and more transparent. Panel members can include members with relevant biodiversity knowledge and expertise, as well as expertise in cumulative effects, collaboration and partnership with Indigenous peoples, and meaningful public participation. Additionally, in our review of federal and substituted assessments that considered biodiversity in Chapter III, we found biodiversity mentioned only by panels and in one substituted assessment, suggesting that review panels may be better suited to considering relatively new issues and helping build the knowledge and capacity necessary to better assess biodiversity and apply the mitigation hierarchy.

K. Effective, comprehensive and focused scoping

The CBD Voluntary Guidelines, International Finance Corporation Performance Standard 1 (IFC PS1),[258] World Bank Offsets User Guide,[259] ASI Performance Standard (2022),[260] and IAIA Fastips 5 Biodiversity Assessment[261] all contain useful guidance on planning and scoping for biodiversity-inclusive IA. According to these sources, the planning phase should be used to focus the IA, identify key biodiversity values and issues to be studied in more detail, better scope the TISG, collaboratively design assessment plans, engage experts and participants on agreed-to methodologies, and identify alternatives to be assessed in depth in the IA. As noted above, the planning phase should entail the application of the mitigation hierarchy through a "positive planning approach" that identifies options to prioritize avoidance and use compensation only as a last resort. Scoping and IA are iterative, meaning that scoping activities such as identification of potential alternatives may need to continue in the IA as further information comes to light.

Early planning and scoping should be a joint effort by proponents, authorities, engineers, ecologists and other experts, along with the public and Indigenous rights and knowledge holders.[262] Below are recommendations respecting focusing the IA through its scope of information, spatial and temporal boundaries and identification of cumulative effects.

1. Focusing the IA and guidance to proponents

Scoping should begin by identifying all potential biodiversity loss and ecosystem damage, and determine the appropriate focus proportionate to the risks, probable impacts, benefits, likely importance, vulnerability and irreplaceability of the affected biodiversity. The focusing process must be highly collaborative. It should be acknowledged that focusing is an ongoing process that begins in the planning phase and that focuses may change as additional information comes to light, new alternatives explored and other alternatives deemed inappropriate or not feasible.

The focusing process should be aimed at identifying key issues and priority values that require a high degree of attention, including those identified by Indigenous communities and the public, as well as growth-inducing activities like roads and transmission lines. Baseline studies should capture key biodiversity components of intrinsic value, components that underpin the delivery of priority ecosystem services, and ecological processes and functions needed to sustain viable ecosystems and biodiversity. Particular attention should be paid to components likely to be most vulnerable to direct, indirect and induced adverse effects and cumulative effects.

2. Scope and quality of information

It should be acknowledged that low-quality studies can be more detrimental than no studies at all. For example, studies that yield too few data to draw conclusions, or are poorly designed in terms of timing or location can lead to highly misleading and unreliable information that will result in inaccurate predictions and inappropriate decisions. Again, the planning phase is a critical opportunity to identify

[258] IFC PS1.
[259] World Bank Group, *Biodiversity Offsets: A User Guide* (October 2016).
[260] Aluminium Stewardship Initiative (2022).
[261] https://www.iaia.org/uploads/pdf/Fastips_5Biodiversity.pdf.
[262] CBD Voluntary Guidelines.

the studies needed to assess adverse effects on biodiversity and apply the mitigation hierarchy properly, as well as to determine the methods to be used for those studies.

Regarding scope of information, proponents should be directed to:

- Identify priority biodiversity areas (e.g., Key Biodiversity Areas), major constraints, high risk areas and any identified ecological limits or thresholds;
- Identify possible measures to avoid, minimize and compensate for effects on biodiversity, including “no net biodiversity loss” or “biodiversity restoration and enhancement” alternatives, describe them in detail and include an analysis of their likely success and realistic potential to offset adverse effects;
- Identify, in collaboration with Indigenous peoples, potential impacts on biodiversity that may impact Indigenous rights, and possible measures to avoid, minimize, or accommodate for those impacts;
- Describe ecosystems and land-use types within the project’s range of influence, and any likely adverse effects on biodiversity for each;
- Identify ecosystem, habitat and species distribution patterns, ecosystem-level diversity, ecological processes, threat status, sensitivity and current levels of protection;
- Identify current and potential ecosystem services provided by ecosystems and land-use types, the values the services represent for society, their uses and main beneficiaries, and who would be most impacted, particularly Indigenous peoples and women, girls, racialized people, and people along other identity lines;
- Consider the full range of factors affecting biodiversity, including direct drivers (e.g., land conversion, disturbance, emissions) and indirect drivers (e.g., demographic, economic, socio-political);
- Describe expected biophysical changes, including biophysical changes induced by socio-economic effects of the project;
- Determine which ecosystem services would be significantly affected by the project after the application of the mitigation hierarchy, and explain the confidence of predictions, highlighting any irreversible adverse effects and irreplaceable losses;
- Describe potential transboundary effects, paying particular attention to ecosystem processes;
- Focus particular attention on cumulative effects, including those arising from plans, programmes and policies (see below);
- Evaluate impacts, including of alternatives, against the baseline and in comparison to biodiversity legal standards, thresholds, targets and objectives, with reference to NBSAPs and other relevant plans, policies and strategies;
- Evaluate the extent to which adverse federal effects are significant, and define the importance (weight) of expected impacts for each alternative in relation to the reference case (which may be current, historical, future without the project, or external). Determining importance should be done in light of geographic (local/regional/national/continental/global) importance and temporal dimensions;
- Where possible, quantify changes in biodiversity composition, structure and key processes, and ecosystem services, and explain the consequences of potential biodiversity loss, including the cost to replace ecosystem services; and

- Identify necessary surveys and knowledge gaps.[263]

Baseline studies should be designed so they support evidence-based approaches to assessing effects on biodiversity and ecosystem processes. Baseline data should include the pre-development and current state of biodiversity and ecosystem services, as well as plausible future development scenarios in the region, so that assessments can compare project effects against the existing, pre-development and potential future state of biodiversity without the project. Baseline studies should take into account the current status and condition of biodiversity and ecosystem services, historical (pre-industrial) conditions, targets and objectives, and the likely no-project future scenario, recognizing existing and predicted natural and human-induced trends (including climate change) in each scenario.[264] Baseline studies should take as much advantage as possible of data, information and learning from previous assessment and mitigation approaches applied to projects in the same region or similar ecosystems.

IAs must identify external threats and pressures that could contribute to cumulative effects. Baseline studies often need long lead times and a wide spatial scope. Baseline studies should be conducted to ascertain components of biodiversity of particular importance to Indigenous peoples and the public, and should include:

- Whether habitat types to be affected are represented and conserved elsewhere;
- Species inventories (including identification of cultural keystone species);
- Identification of species at risk;
- Identification of important habitat (as breeding/spawning grounds, remnant native vegetation, wildlife refuge areas including buffer zones and corridors, habitats and routes for migratory species) and crucial breeding seasons for at-risk and critical species;
- Identification of areas that are of economic and cultural importance to Indigenous peoples (e.g., hunting areas and trapping sites, fishing grounds, harvesting areas, etc.);
- Identification of important physical features and other natural factors that provide for biodiversity and ecosystems; and
- Identification of areas of religious, spiritual and ceremonial importance to Indigenous peoples.

To ensure the quality of information:

- Experts, including government and independent scientists and Indigenous knowledge-holders, should be engaged on methodology and timescale, which should be detailed in project-specific TISG. Scientific methodologies must be standardized in accordance with any industry-standard guidance on methods, or accepted in relevant peer-reviewed publications.
- Proponents should be required to clearly explain the strength of the evidence and provide a rationale for the scoping out of risks or impacts.
- Evidence may be qualitative, based on science or value-based knowledge or perspectives that are clearly defined and described.
- Studies must be of sufficient duration to take seasonal features into account.

[263] CBD Voluntary Guidelines; IAIA FasTips 5.
[264] Brownlie and Treweek.

3. Spatially and temporally-relevant scales

Ecosystem approach is a key principle of the CBD[265] that is carried through to the GBF. Accordingly, even IAs conducted at the project level should also adopt an ecosystem approach, allowing the importance of ecological changes to be assessed at ecologically-relevant spatial and temporal scales. In order to achieve sustainability objectives, IAs must assess implications for biodiversity and ecosystem services at ecologically-relevant, appropriate and meaningful scales, over a timeframe that allows consideration of the full range of risks and opportunities affecting their viability. Accordingly, it is necessary to select temporal and spatial scales that accommodate the area of influence of the project and associated activities, wider ecological considerations, and timeframes for likely effects.[266]

The spatial scope should go beyond project-affected areas to reflect ecosystem distributions and associated species populations, and incorporate all areas required to maintain their functions and processes that sustain them. IAs should consider the relationship between biodiversity associated with the project area and that of the wider ecosystem, landscape or seascape, and consider any implications for the integrity of Key Biodiversity Areas, biodiversity hotspots, ecological corridors, intact natural areas, habitat continuums and priority conservation or protected areas and the viability of species they support, taking into account existing threats and pressures.[267]

The ASI Performance Standard[268] recommends that the spatial scope encompass the "area of influence," which includes:

- The project's facilities and activities, as well as the effects of unplanned but predictable activities that may occur at a different time or location, and indirect effects on biodiversity or ecosystem services. These may include the project's sites, the airshed and watershed, or transport corridors, and indirect impacts include power transmission corridors, pipelines, canals, tunnels, relocation and access roads, borrow and disposal areas, construction camps, and contaminated land (e.g., soil, groundwater, surface water, and sediments).
- Associated facilities, which are those not controlled by the proponent but that would not otherwise have been constructed or expanded and without which the project would not be viable. These may include ports, dams, railways, roads, captive power plants or transmission lines, pipelines, utilities, warehouses, and logistics terminals.

The temporal scope should allow for effective consideration of seasonal differences, the dynamic nature and connectedness or interplay of ecosystems, uncertainty, and the unpredictability of ecosystem functions, behaviour and responses. Time frames should be appropriate for ecological processes such as migration, restoration of degraded or transformed ecosystems, and replenishment of depleted ecosystem services.[269]

Implementing spatially- and temporally-relevant scales is challenging given the clear limitations of project-level assessments. As Sinclair *et al.* describe, the ideal scenario occurs when sufficient planning

[265] As described by the Convention on Biological Diversity, the ecosystem approach is "a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way." https://www.cbd.int/ecosystem
[266] IFC PS1.
[267] World Bank, *Offsets User Guide* (2016).
[268] https://aluminium-stewardship.org/asi-standards/performance-standard.
[269] EBRD (2019).

exercises and data gathering in the region can inform project-level assessments, particularly in evaluating the potential for cumulative effects.[270] While most project EAs are faced with an inadequacy of such information, it is inappropriate to place the onus entirely on proponents of single projects to address these knowledge gaps. Time and resources should be afforded to appropriate government agencies or independent actors to conduct the appropriate studies where such gaps exist and cannot be filled by proponents.

4. Cumulative effects

Biodiversity loss is largely driven by the cumulative effects of multiple undertakings in the same geography (the "tyranny of small decisions"), demanding greater attention to cumulative effects at the project as well as regional levels.[271] Shortcomings of cumulative effects assessment in Canada are well documented,[272] and it is outside the scope of this report to provide detailed recommendation for its reform in IA. However, it must be noted that cumulative effects assessment needs to be featured prominently and throughout guidance to proponents, and in impact statements and impact assessment reports, rather than occur as an afterthought. It is critical that it be done at a regional level to inform project IA, which may require re-thinking the Agency's approach to regional assessments to date.

The ASI Performance Standard recommends assessing cumulative effects that result from the incremental effects in combination with effects from other existing, planned or reasonably defined developments. Examples of cumulative effects include incremental contribution of gaseous emissions to an airshed; reduction of water flows in a watershed due to multiple withdrawals; increases in sediment loads to a watershed; interference with migratory routes or wildlife movement; and more traffic congestion and accidents due to increases in vehicular traffic on roadways.[273]

L. Transparency and disclosure

Transparency is key to IA efficacy and credibility. To ensure transparency and disclosure of biodiversity assessment:

- Impact assessment reports should detail how projects will help or hinder Canada's ability to achieve its biodiversity obligations, with anything short of net gain (or NNL in specified circumstances) meaning a hindrance. All Agency and review panel conclusions and recommendations (in the case of review panels) must be accompanied by a detailed analysis and rationale, including demonstration of how conclusions align or depart from scientific advice, Indigenous advice or public comments, and be made available for public comment.
- Biodiversity action, management and offset plans must be assessed during the IA wherever possible, rather than produced as a condition of approval. Where plans are to be produced post-

[270] A.J. Sinclair, M. Doelle, & P.N. Duinker, "Looking up, down, and sideways: Reconceiving cumulative effects assessment as a mindset" (2017) *Environmental Impact Assessment Review*, 62: 183–194. DOI: 10.1016/j.eiar.2016.04.007.
[271] B.R. Muir, "Consequences and implications of British Columbia's failed cumulative effects assessment and management framework for Indigenous peoples" (2022) EAIR 95: https://doi.org/10.1016/j.eiar.2022.106764.
[272] See, e.g., P.N. Duinker and L.A. Greig, "The Impotence of Cumulative Effects Assessment in Canada: Ailments and Ideas for Redeployment" (2006) Environmental Management 37; J Blakley, B. Noble, & J. MacLean, "The Scope and Focus of Cumulative Effects and Regional Assessment." Chapter 11 in Meinhard Doelle and A. John Sinclair, eds, *The Next Generation of Impact Assessment* (2021), Irwin Law.
[273] https://aluminium-stewardship.org/asi-standards/performance-standard.

assessment, they must be subjected to the same degree of expert oversight, Indigenous consent-based collaboration and meaningful public participation as would occur in impact assessments, and proponents must be required to clearly detail methods, outcomes, timelines, roles and responsibilities.

- Impact assessment reports must clearly explain the expected consequences and costs of any biodiversity loss or ecosystem degradation in relation to no net loss and net gain outcomes, taking into account government policies, corporate commitments and in light of international and domestic obligations. Any trade-offs, and particularly any impacts that would hinder Canada's ability to meet its environmental obligations, must be clearly explained and justified.

M. Follow-up, monitoring, adaptive management and auditing

Finally, IA should be learning-oriented, designed to improve predictions through monitoring and auditing, and employ adaptive management where appropriate. We recommend that all follow-up, monitoring and auditing occur in accordance with the CBD Voluntary Guidelines. Specifically:

- Management plans should include clear management targets, performance indicators, responsibilities and appropriate monitoring to ensure that mitigation is effective, unforeseen effects or trends detected and addressed, and expected benefits achieved. They require sound baseline information or pre-implementation monitoring against which to assess changes to biodiversity, should provide for emergency response or contingency planning, and define responsibilities, budgets and any required training.
- Monitoring should focus on indicator organisms or ecosystems that are most sensitive to the predicted effects, and any appropriate complementary indicators. Indicators should be specific, measurable, achievable, relevant and timely. Monitoring results should result in adaptive management where necessary, and data should be made publicly available and useable, including in other IA processes.
- Conditions should be enforceable and enforced.
- Regular auditing should occur, in order to verify compliance.

Additionally, mitigation plans must include timelines, roles and responsibilities (including those of actors beyond the proponent), and show how the combined mitigation measures will achieve no net loss or net gain. The Agency or relevant federal authorities should obtain assurance of adequate financial resources to cover predicted costs of implementing all mitigation measures, and ensure regular monitoring, using sensitive indicators, and periodic performance audits, to inform any adaptive or corrective changes needed. Indigenous peoples should be invited and supported in playing a leadership role in monitoring, such as through Guardians Programs.[274] The public should also be involved in and supported in monitoring. Monitoring results, any non-compliance and adaptive management should be made publicly available. Performance indicators, targets or criteria should be measurable and able to be tracked over defined time periods, with independent experts retained to verify monitoring information and compliance.

[274] See, e.g., Government of Canada, "Indigenous Guardians": https://www.canada.ca/en/environment-climate-change/services/environmental-funding/indigenous-guardians.html; Indigenous Leadership Initiative, "Indigenous Guardians:" https://www.ilinationhood.ca/guardians.

Chapter VI: Conclusion: Gaps, Challenges and Key Recommendations

With increasing attention being paid to the biodiversity crisis, impact assessment plays an essential role in managing and avoiding biodiversity loss and degradation that occurs through development. As we have reviewed in this report, the literature and international guidance is replete with recommendations for how to better employ impact assessment to avoid, minimize and restore effects on biodiversity.

While there is relatively little direct experience with biodiversity assessment in Canada, the *Impact Assessment Act* reflects a growing awareness of the need to better consider biodiversity through its broadened scope of factors to consider, and in particular through the requirement to consider the extent to which a designated project hinders or contributes to the Government of Canada's ability to meet its environmental obligations.[275] Biodiversity is also relevant to the assessment of positive and adverse environmental effects,[276] sustainability,[277] effects on Indigenous peoples and impacts on Indigenous rights,[278] and the intersection of sex and gender with other identity factors.[279] Biodiversity will also be a key consideration in the public interest determination, through both the impact assessment report and the factors enumerated in section 63. In some cases (for example, where there will be effects on aquatic species) the biodiversity effects will be federal effects; in other cases (such as where a proponent requires a *Species at Risk Act* permit to harm a listed wildlife species or its habitat), the effect may be considered to be a direct or incidental effect. In either case, the effects must be considered in the assessment and the public interest determination, along with the extent to which the project hinders or contributes to Canada's ability to meet its environmental obligations related to biodiversity, the extent to which it fosters sustainability, and its impacts on Indigenous groups and the rights of Indigenous peoples.

As a result of the multiple ways in which biodiversity may be considered under the IAA and in light of the recent adoption of the Kunming-Montreal Global Biodiversity Framework (GBF), which has reinvigorated attention to the biodiversity crisis, we anticipate that biodiversity will be a prominent issue in IAs under the IAA. However, in spite of this increased attention, best practice in the true sense of the term (i.e., practices for which there is robust evidence for effectiveness) on this particular dimension of IA remain elusive. This chapter explores the challenges and gaps in assessing biodiversity in project IA and sets out ten recommendations for addressing those challenges in the IAA, based on the literature and regulatory review and analysis in the preceding chapters of this report. Our aim is to be as practical as possible, while aligned with the principles we presented in Chapter V.

A. Challenges and gaps

In Chapter III our analysis of provincial environmental assessment (EA) laws exposed a number of gaps as they pertain to the assessment of biodiversity, which are compounded by holes in the federal biodiversity legislative and policy landscape described in Chapter II. It is notable that the only assessments IAAC identified for us that considered biodiversity under the *Canadian Environmental*

[275] IAA, s 22(1)(i) and 63(e).
[276] IAA, s 22(1)(a).
[277] IAA, s 22(1)(a).
[278] IAA, s 22(1)(c).
[279] IAA, s 22(1)(s).

Assessment Act (CEAA) or *Canadian Environmental Assessment Act,* 2012 (CEAA, 2012) were reviewed by joint panels, which suggests that panels are more likely to be given a broader scope than IAAC gives for assessments it leads, or that panels are more inclined to broaden their own scope. These gaps, along with inconsistent, rare and often weak consideration of biodiversity in federal and joint assessments to date, pose a number of challenges. We list key gaps and challenges identified in the law and policy landscape and the literature below.

1. Gaps in the treatment of biodiversity in Canada

1. **Provincial EA regimes are inconsistent and often weak.** Arguably the greatest gap in the treatment of biodiversity in environmental assessment (EA) in Canada is the fact that biodiversity is an explicit factor to consider in just one provincial EA law (Nova Scotia), and sustainability is only referenced in some (e.g., British Columbia, Alberta, Quebec, Nova Scotia) other provincial EA laws. Many (e.g., Ontario, New Brunswick, Saskatchewan, Manitoba, PEI) do not require the assessment of cumulative effects, and most (with the possible exception of Quebec) enable highly discretionary decisions with few or no guardrails to protect or even guide the consideration of biodiversity. In some provinces (e.g., Saskatchewan, Ontario, PEI) EA is only applied to a small fraction of undertakings that have the potential to negatively affect biodiversity.

2. **The best opportunities for robust and transparent treatment of biodiversity have come from panel reviews.** It is notable that in its survey of EAs conducted under CEAA and CEAA 2012, the Agency found that biodiversity was considered only in assessments that had been led by joint review panels. It was outside the scope of this project to explore why that may be, but it should be noted that review panels seem to offer the greatest possibility for more expansive treatment of biodiversity and innovative approaches.

3. **The biodiversity law and policy regime is fragmented.** A recent study of 201 provincial, federal and territorial biodiversity-related laws and policies found that the biodiversity legal safety net is inconsistent and lacks integration, and as of 2021 no provinces had current biodiversity strategies or policies. Only two (BC and Alberta) had species at risk or wildlife strategies or plans, and only five had sustainable development strategies containing biodiversity as an element.[280] This impoverished provincial biodiversity law and policy landscape suggests that provincial EA and federal IA processes should play a more significant role in efforts to safeguard biodiversity. It also means that where IAs identify potential biodiversity impacts, provincial law and policy likely cannot be relied on to address those impacts. Similarly, federal biodiversity law and policy (e.g., the *Species at Risk Act, Migratory Birds Convention Act, Wildlife Act*) take a narrow approach to biodiversity that focuses almost exclusively on individual species at risk (a fraction of Canada's 80,000 species), with little attention to genetic or ecosystem diversity, and so can only provide a partial view of biodiversity values, needs and measurements.

4. **There is a lack of a standard definition of, or methodology related to biodiversity effects.** In the laws and assessments we reviewed, biodiversity has tended to not be defined, and only in

[280] Monitoring framework for the Kunming-Montreal global biodiversity framework – Draft decision submitted by the President: https://www.cbd.int/doc/c/179e/aecb/592f67904bf07dca7d0971da/cop-15-l-26-en.pdf; Ray et al, "The biodiversity crisis in Canada: failures and challenges of federal and sub-national strategic and legal frameworks" (2021) FACETS 6: 1044-1068.

federal-provincial joint review panel assessments of oil and gas projects in Alberta was methodology given for how effects on biodiversity were considered or conclusions drawn. Only in rare cases (such as the Voisey's Bay EA) were international instruments such as the Convention on Biological Diversity (CBD) referred to or (as in the case of Cedar LNG) were domestic policy used to guide conclusions. In none of the cases studied were international frameworks such as the mitigation hierarchy or International Finance Corporation Performance Standard 6 (described in Chapter V) referred to. As a result, biodiversity assessment has remained haphazard and highly subjective in Canada, when it occurs at all, and has tended to focus only on protected species and their habitats with limited consideration of common species or the varying scales of biodiversity (i.e., genes and ecosystems).[281]

5. **There is a lack of sufficient guidance specific to biodiversity and its components**, which limits consideration of all levels of biodiversity. Left to broad interpretation, proponents may choose to do less rather than more or select interpretations that favour faster, easier and more likely approvals.

6. **IAs do not apply criteria or detailed principles.** Because of the complex, multi-faceted nature of biodiversity and potential biodiversity-related effects and interactions, assessments would benefit from clear criteria to guide the selection of valued components, the identification of feasible alternatives, the comparative assessment and review of biodiversity effects and their interactions, the drawing of conclusions and making of recommendations with respect to changes to biodiversity. However, IAAC guidance to date (e.g., on environmental obligations and climate commitments, sustainability, and effects assessment) lacks specificity, instead setting out broad, high-level language for practitioners. Absent clear criteria and a direction to identify project-specific criteria to guide assessments, biodiversity assessment is unlikely to become consistent, credible or fully transparent.

7. **There is a lack of sufficiently comprehensive biodiversity information across Canada**. As the second largest country in the world, with much of its geography in remote and inaccessible areas, the availability and documentation of biodiversity-related information is characterized by major gaps. For examples, there are considerable gaps in species description and geographic distribution data, and systematic inventories. While the U.S.[282] and Mexico[283] both have standardized systems to describe and map their ecosystems, our understanding of the diversity, distribution and conservation status of Canadian ecosystems lags far beyond. Most of Canada's existing ecosystems mapping and classification schemes have been developed to support forest inventory mapping or are only regional in scope.

   While some groups such as birds and vascular plants are well-documented, almost 80% of the 80,000 wild species in Canada are "grey biodiversity": biodiversity that is undiscovered or remains poorly documented. It is sometimes impossible to distinguish whether ecological

[281] Patrick Gannon, "The time is now to improve the treatment of biodiversity in Canadian environmental impact statements" (2021) EIAR 86.
[282] Michael D. Jennings *et al*., "Standards for associations and alliances of the U.S. National Vegetation Classification," (2009) Ecological Monographs 79(2): https://www.natureserve.org/sites/default/files/jennings_faber-langendoen_loucks_standards_for_association_and_alliance_em2009.pdf.
[283] Miguel Martínez-Ramos *et al*., "Natural forest regeneration and ecological restoration in human-modified tropical landscapes" (2016) Biotropica 48(6): https://onlinelibrary.wiley.com/doi/10.1111/btp.12382.

information exists but is inaccessible, or is non-existent.[284] An expert panel convened in 2010 on the state of taxonomy in Canada[285] sounded the alarm bells about the limited data available on which to base decisions related to the management of biodiversity.

When it comes to impact assessment, scientific information and Indigenous knowledge are critical to all phases and aspects of the assessment process, ranging from baseline information to impact predictions. One consequence of the information deficit is that baseline information necessary to underpin impact assessments is routinely inadequate. As Gannon (2021) identified, proponents' impact statements frequently leave out important information such as on study length, and study scales are often not temporally or spatially ecologically relevant. Impact assessments often ignore or downplay habitat fragmentation and other landscape-scale effects, and quantitative information on biodiversity remains sparse.[286]

2. Key challenges in assessing biodiversity under the IAA

1. **Cumulative effects assessment at the project level remains inadequate.** Cumulative effects are a key driver of biodiversity loss, and there are considerable barriers to effectively addressing cumulative effects in project-level assessment. Cumulative effects assessment (CEA) under CEAA and CEAA 2012 (as elsewhere) is widely acknowledged as having been deeply inadequate.[287] Failure to adhere to the guidance may be a partial cause of CEAs routinely falling short of the mark: for example, despite the 1999 guide recommending a valued component-centric approach that looks at the combined impacts of various activities on components and the integration of effects, impact statement guidelines issued to proponents – and the resulting impact statements and assessment reports that flow from the guidelines – treat CEA as a piecemeal afterthought that is too easily dismissed. Other issues related to lack of background data, lack of transparency, lack of ecological goals, limits or thresholds, and lack of independent expert oversight (to name just a few) are pervasive. Ideally, biodiversity impacts, along with other cumulative effects, would be assessed first at the regional level, with results informing and guiding project-level IA.

2. **Biodiversity is a broad matter that lacks simple measurements**. Unlike assessment of climate, which can compare projects' emissions and other climate implications against federal or provincial greenhouse gas reductions targets, biodiversity does not have discrete proxies against which to weigh effects. The recently-adopted GBF, for example, contains 23 targets and four goals, while its (still incomplete) monitoring framework contains dozens of global-scale headline and component indicators and hundreds of complementary indicators. Additionally, biodiversity's close integration with sustainability, Indigenous rights, and socio-economic well-being means that biodiversity values and measurements will often be specific to the local and regional human and environmental context. In addition to the difficulty in identifying key values

[284] Poisot et al. 2019. Ecological data should not be so hard to find and reuse. Trends in Ecology and Evolution. DOI:10.1016/j.tree.2019.04.005.
[285] The Expert Panel on Biodiversity Science (2010) Canadian Taxonomy: Exploring Biodiversity, Creating Opportunity. Council of Canadian Academies. https://cca-reports.ca/wp-content/uploads/2018/10/biodiversity_report_final_e.pdf
[286] Patrick Gannon, "The time is now to improve the treatment of biodiversity in Canadian environmental impact statements" (2021) EIAR 86.
[287] J. Blakley, B. Noble & J. MacLean, "The Scope and Focus of Cumulative Effects and Regional Assessment," Chapter 11 in Meinhard Doelle and A. John Sinclair, eds, *The Next Generation of Impact Assessment* (2021), Irwin Law.

and measurements of biodiversity for each assessment, its multifaceted nature presents challenges in weighing and comparing outcomes in determining the significance of biodiversity effects and the extent to which those effects help or contribute to Canada's ability to meet its environmental obligations. A related challenge is the lack of baseline information and failure to account for gaps and limitations of data that compound this challenge. As Gannon (2021) notes, EAs have included "limited consideration of the full breadth of biodiversity, across multiple levels of organisation (genes, species, ecosystems) and multiple aspects (composition, structure, function)."[288] While proponents will invest in baseline data, studies are often insufficiently rigorous and poorly designed. Weak data has consequences for impact predictions, which tend to be limited to a calculation of habitat area lost from the project footprint or zone of effect/influence.

3. **Biodiversity is relevant to multiple factors.** Biodiversity's interactions with such other priorities as sustainability, climate, and Indigenous rights will pose challenges in assessments as well as decisions. As seen in some of the assessment reports we reviewed and described in chapter III (e.g., Jackpine Mine Expansion, Grassy Mountain Coal), biodiversity may be featured throughout valued component (VC) assessments as well as itself comprising one or more stand-alone VCs. Alternatively, biodiversity may be confined to one report section, often towards the end (e.g., Cedar LNG, Marathon Palladium, Voisey's Bay). Either way, there is potential for biodiversity to be sidelined in comparison to other values, or weakly integrated to the point that it becomes watered down. Another challenge occurs in dealing with trade-offs: for example, where an alternative means of carrying out a project means lower greenhouse gas emissions, but also means unavoidable impacts on an at-risk species or carbon-rich ecosystem. Absent clear principles or rules for dealing with trade-offs, it is likely that biodiversity will continue to be treated inconsistently and under-valued compared to economic benefits.

4. **Legislated timelines are brief and rigid.** The IAA imposes mandatory timelines throughout each phase, with little discretion or opportunity to extend or suspend the time limits. The timelines are short: 180 days for the planning phase, 300 to 600 days for the assessment, and 30 days for the Minister's decision, which will almost certainly preclude rigorous information-gathering, analysis and review, especially by public and Indigenous participants or experts.

5. **Alternatives assessments are weak.** In his review of environmental assessments under CEAA and CEAA, 2012, Gannon (2021) found that alternatives assessment was the weakest component of biodiversity assessment in 14 EAs studied. Alternatives assessment tends to focus on economic and technological feasibility over comparative evaluation of the effects of alternatives, and the level of detail provided in alternatives assessment tends to vary considerably.[289] As discussed in Chapter V, rigorous alternatives assessment is a core requirement of the mitigation hierarchy and must be improved in order to effectively avoid and minimize effects on biodiversity.

[288] Patrick Gannon, "The time is now to improve the treatment of biodiversity in Canadian environmental impact statements" (2021) EIAR 86 at 5.
[289] Patrick Gannon, "The time is now to improve the treatment of biodiversity in Canadian environmental impact statements" (2021) EIAR 86.

B. Key Recommendations

The following are specific recommendations aimed at improving the treatment of biodiversity in impact assessment under the IAA. While the principles detailed in Chapter V are intended to reflect the entire regime and all relevant actors, this section is specific to IAAC's purview. As such, some gaps and challenges listed above, including (but not limited to) the fragmented state of biodiversity information in Canada, will need to be addressed by others, such as other government agencies and through regional assessment. This set of recommendations is also not intended to be exhaustive, but rather targeted towards the most immediately important and doable actions that stand to bring about immediate improvements in attention to biodiversity, if enacted.

1. **Adopt the CBD definition of biodiversity**. First and foremost, we recommend that IAAC adopt the CBD definition of biodiversity: "the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."[290] In other words, IA should recognize that biodiversity is more than just species at risk, and includes common species, cultural keystone species, ecosystem services, and genetic diversity.

2. **Establish working group(s) of Indigenous knowledge holders and technicians, independent and federal scientists, the proponent, members of the public and relevant stakeholders for each assessment**. As noted in Chapter V, to be effective IA must be a highly collaborative process involving deliberative, iterative dialogue among key parties and experts, including knowledge holders. To that end, we recommend that IAAC establish working groups early in the planning phase (or even prior to the planning phase where IAAC has sufficient notification from a proponent that it will be submitting an initial project description and thereby entering into the process). Working groups should be comprised of the proponent, government experts, independent scientists, Indigenous knowledge holders and scientists, key members of the public (such as members of local conservation organizations), and other involved governments (such as local governments). Together, these working groups should advise on each stage of the IA, from scoping, identification of baseline information needs, methodologies and alternatives, survival and recovery feasibility, the application of the mitigation hierarchy and the selection of preferred alternatives.

3. **Clearly identify relevant environmental obligations and adopt an objectives-based approach for all IAs**. IA should be oriented towards clear biodiversity-related objectives. While the IAA purposes set out some objectives (such as fostering sustainability) and IAAC guidance describes four principles of sustainability,[291] these occur at such a high level as to lack coherence or measurability. The international guidance and literature on biodiversity assessment abounds with recommendations to identify clear objectives to guide the assessment and ensure that all actors (including working groups) share mutual understanding of what the IA is working

[290] *Convention on Biological Diversity*, Article 2.

[291] Impact Assessment Agency of Canada, "Guidance: Considering the Extent to which a Project Contributes to Sustainability" in *Practitioner's Guide to Federal Impact Assessments under the* Impact Assessment Act: https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance-considering-extent-project-contributes-sustainability.html#toc6.

towards. An outcomes-oriented approach will better facilitate the type of whole-of-government approach envisioned by the recently-approved GBF, as it will push proponents to conduct high-quality assessments and will shift the mindset away from a timelines-focused process.

Generic objectives should be set out in policy, while case-specific objectives should be identified during the planning phase. They should include relevant biodiversity-related environmental obligations, such as those described in Chapter IV of this report. Those obligations are necessary for assessing the extent to which projects hinder or contribute to Canada's ability to meet its environmental obligations (see recommendation 7), and may contain specific, measurable targets. Additional targets can be found in domestic policy and implementation mechanisms, such as Canada's updated national biodiversity strategy and action plan, and species at risk recovery strategies and action plans.

Case-specific objectives should be identified with the consent of Indigenous peoples and be based on Indigenous knowledge, independent and federal science, Indigenous communities' and the public's levels of dependence on ecosystem services, and any culturally-appropriate thresholds and non-negotiables according to Indigenous peoples, the public and ecosystem needs. Detailed criteria can help provide a transparent, credible determination of the adversity of predicted biodiversity and ecosystem service impacts and help guide judgements about options. Principles can similarly guide deliberations and decisions about which alternatives will best achieve the objectives and how to deal with trade-offs.

4. **Establish ecologically-relevant spatial and temporal boundaries and emphasize ecosystem-scale analyses based on credible information and Indigenous knowledge**. We recommend applying the CBD Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment in the planning phase when designing the tailored impact statement guidelines (TISG).[292] The guidelines are a helpful starting place for information about the studies that proponents should be directed to provide. Scoping should begin by identifying all potential biodiversity loss and ecosystem damage, and determine the appropriate focus proportionate to the risks, probable impacts, benefits, likely importance, vulnerability and irreplaceability of the affected biodiversity. IAs should adopt an ecosystem approach, allowing the importance of ecological changes to be assessed at ecologically-relevant spatial and temporal scales, meaning that baseline studies should be based on long lead times and a wide spatial scope. Accordingly, it is necessary to select temporal and spatial scales that accommodate the area of influence of the project and associated activities, wider ecological considerations and timeframes for likely effects. The focusing and scoping process must be highly collaborative and involve Indigenous knowledge holders and communities, affected and interested groups, independent and government scientists, IAAC or review panel and the proponent.

5. **Encourage a federal mitigation hierarchy policy that accords with international best practice, with offsetting applied only as a last resort**. The mitigation hierarchy is widely recognized as a critical tool for helping ensure that projects contribute to rather than hinder parties' ability to meet their biodiversity obligations, goals, strategies and targets. It requires proponents to take all measures to first avoid effects on biodiversity, then minimize them, then restore them, and

[292] CBD COP 8 Decision VIII/28, Impact assessment: Voluntary guidelines on biodiversity-inclusive impact assessment: https://www.cbd.int/decision/cop/?id=11042.

only as a final step, if necessary and if possible, to offset them. Establishing one mitigation hierarchy policy will better enable regulatory policy coherence across the various branches of government. For the mitigation hierarchy to be effective:

- It should be applied at the earliest stages of the IA, and continue to be applied throughout;
- It must entail the early and ongoing identification and comparative evaluation of alternatives against the objectives discussed in 3 above;
- All feasible alternatives for achieving each step of the mitigation hierarchy should be exhausted before "stepping down;"
- Agency (or Environment and Climate Change Canada) guidance should define the circumstances in which residual biodiversity harms may be permitted, to avoid IAs becoming overly-focused on whether to allow such harms;
- The goal of the mitigation hierarchy should be net gain, except in prescribed circumstances where no net loss may be acceptable;
- Offsetting must be the option of last resort, only after all other feasible options have been exhausted; and
- Offset design should align with the purposes of fostering sustainability and advancing reconciliation.

6. **Make the most of the planning stage**. Many of our recommendations emphasize the need for early planning. A robust process established at the outset of the assessment process will: facilitate early identification of issues, concerns, and opportunities, before options are effectively precluded; enable meaningful, open and inclusive participation in a manner that builds confidence among rights holders and the public; and bring in experts and knowledge holders to help design studies that matter for the relevant biodiversity, which will lead to improved data quality and appropriate scoping of studies. This, combined with a biodiversity outcomes orientation (see recommendation 2) will help the development of a TISG that is truly tailored to relevant biodiversity considerations, as discussed throughout Chapter V. This will also prevent deferral of controversial issues about project effects and mitigations to post-approval stages.[293]

   One key priority, as noted in recommendation 5 above, is the early and ongoing identification and comparative evaluation of alternatives as a cornerstone of the mitigation hierarchy (and indeed, of good IA). Effective alternatives assessment for the sake of limiting biodiversity loss should be a consent-based process with Indigenous peoples and involve the meaningful participation of experts and the public, and should be an iterative part of the IA. Alternatives assessment should go beyond simply describing feasibility; alternatives should be assessed against biodiversity objectives, targets, and criteria, and identify the costs associated with the loss of any biodiversity values or ecosystem services.

   It is likewise vital that the *Species at Risk Act* Policy on Survival and Recovery be considered at this early stage of the assessment process. The policy states that a species will be deemed to

[293] Bernauer, W. et al. (2022). Undermining Assessment: EIA follow-up, stake-holder advisory groups, and extractive industries in Nunavut, Canada. Impact Assessment and Project Appraisal. https://doi.org/10.1080/14615517.2022.2139469.

have an acceptable chance for survival when it is considered to be stable, resilient, widespread or have population redundancy, connected (i.e., not fragmented in its distribution) and protected from anthropogenic threats, or may be considered to be above the survival threshold if it is connected with populations or habitat outside of Canada that would enable it to persist within Canada.[294]

7. **Assess Canada's ability to meet its environmental obligations and commitments using a net gain benchmark, or no net loss in prescribed circumstances**. Assessment of the extent to which the project hinders or contributes to the Government of Canada's ability to meet its environmental obligations must be based on clearly-identified environmental objectives, including any domestic policies, plans and strategies for achieving those objectives. It is not sufficient to simply list the instruments within which environmental obligations arise (such as the CBD); Agency policy should include a list of common environmental obligations, and TISG should identify (based on Indigenous consent, meaningful public participation, and the collaboration of experts) obligations and domestic implementation mechanisms specific to the project. When assessing the extent to which the project hinders or contributes to Canada's ability to meet a given obligation, residual biodiversity losses and offset goals must be compared against targets for the biodiversity value rather than against the baseline, with targets based on net gain rather than no net loss. Compensation ratios (the amount of improvement or maintenance needed per unit of residual loss to contribute to meeting targets) should be determined for each biodiversity feature and applied consistently to all projects. Compensation ratios should be commensurate with the target relative to the current status of the feature – for example, if the target is to double the currently available habitat for a species, the improvement should be double that which is lost. In the absence of federal policy that clearly prescribes circumstances in which NNL may be appropriate, NG should be the objective by default.

8. **Incorporate biodiversity into the assessment of the extent to which the project fosters sustainability using criteria and trade-off principles**. Biodiversity is a highly relevant component of sustainability and must be included in the sustainability assessment. IAAC guidance on sustainability states that the four principles of sustainability are the consideration of interconnectedness and interdependence of human-ecological systems, the consideration of well-being of present and future generations, the consideration of positive effects and reduction of adverse effects, and the application of the precautionary principle.[295]

   Given the multi-faceted nature of sustainability and the potential for trade offs among various environmental, social, health and economic conditions arising from project decisions, it is critical that IAs be explicit about how effects on biodiversity intersect with other values such as climate, Indigenous rights, and the intersection of sex and gender with other identity factors, and that they be explicit about trade offs. IAAC sustainability guidance[296] should be updated to recognize,

[294] Government of Canada (2016). Species at Risk Act *Policy on Survival and Recovery*: https://registrelep-sararegistry.gc.ca/virtual_sara/files/policies/Survival_and_Recovery_EN1.pdf.
[295] Impact Assessment Agency of Canada (2021), "Guidance: Considering the Extent to which a Project Contributes to Sustainability" in *Practitioner's Guide to Federal Impact Assessments under the* Impact Assessment Act: https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance-considering-extent-project-contributes-sustainability.html#toc6.
[296] https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance.html.

reflect, and emphasize the centrality of biodiversity to sustainability, as should its template TISG, and any definition of biodiversity should include recognition that it is a component of sustainability. As Brownlie and Treweek argue, the consistent development and use of criteria and trade-off rules "would introduce a firmer base for credible and justifiable judgments about which options may be most desirable and whether appropriate trade-offs are being made."[297]

9. **Incorporate biodiversity into the assessment of effects on Indigenous peoples and impacts on Indigenous rights.** As with sustainability, biodiversity assessment should recognize that biodiversity is central to Indigenous rights, culture, health and well-being, and that Indigenous stewardship has protected biodiversity for millennia. Biodiversity values should include cultural keystone species and consider and properly evaluate Indigenous peoples' use of and benefit from ecosystem services. Indigenous peoples who indicate interest in doing so must be engaged on what biodiversity means to them and the identification of key biodiversity values for the purposes of the IA. Assessments should seek and respect Indigenous knowledge and adhere to the *United Nations Declaration on the Rights of Indigenous Peoples*, including by ensuring that Indigenous peoples' free, prior and informed consent is obtained with respect to impacts on Indigenous peoples and their rights.

   We recognize that the Agency is developing Indigenous cooperation agreement regulations, and is engaging the Indigenous Advisory Committee (IAC), a circle of experts, and national and regional Indigenous organizations. We recommend that the Agency work with the IAC, Indigenous organizations and Indigenous rights-holders to design principles for Indigenous engagement in IA, particularly respecting biodiversity and the related climate crisis.

10. **Take regional approaches to data collection and planning, biodiversity assessment and protection**. Finally, as noted in Chapter V, advancing sustainability and reconciliation, managing cumulative effects and meeting Canada's biodiversity obligations can only truly be accomplished at the regional scale. Regional assessment, provided for under the IAA, has the potential to enable the identification and recommendation of effective means of addressing regional cumulative effects, including effects on biodiversity, and provide authoritative guidance for planning towards a more sustainable future. It could fill in information gaps respecting the state of biodiversity values, identify ecological limits and baselines, and guide and even streamline project-level impact assessments. It could also promote reconciliation by identifying rights-based approaches to regional governance and biodiversity protection.

[297] S. Brownlie & J. Treweek, *Biodiversity and Ecosystem Services in Impact Assessment* (Special Publication Series No. 3. Fargo, USA: International Association for Impact Assessment) (2018): https://www.iaia.org/uploads/pdf/SP3-Biodiversity-Ecosystem-Services.pdf, at pages 3-4.

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Appendix A: Treatment of biodiversity in provincial assessment regimes

Legislation	Biodiversity References (Direct or Indirect)	Comments
British Columbia *Environmental Assessment Act*, SBC 2018, c 51 Environmental Assessment Office, *Guideline for the Selection of Valued Components and Assessment of Potential Effects*	s. 2(2)(b)(i) [Purpose of Environmental Assessment Office is to] promote *sustainability by protecting the environment* and fostering a sound economy and the well-being of British Columbians and their communities . . . (ii) support reconciliation with Indigenous peoples in British Columbia… s. 25(1) requires every assessment to take into account Indigenous nations and rights. (2) "The following matters must be considered in every assessment: "(a) positive and negative direct and indirect effects of the reviewable project, including *environmental*, economic, *social, cultural and health effects* and adverse *cumulative effects*; "(b) risks and uncertainties associated with those effects, including the results of any interaction between effects;" . . . (e) "effects on *biophysical factors that support ecosystem function*;" (f) "effects on current and future generations;" s. 29(2) The chief executive officer must recommend whether to issue an environmental assessment certificate and "whether the project is consistent with the promotion of sustainability by protecting the environment and fostering a sound economy and the well-being of British Columbians and their communities." (5) The ministers must decide whether to issue an environmental assessment certificate and in doing so consider the sustainability and reconciliation purposes of the Act.	No direct mention of biodiversity, wildlife, animals, plants, biota, biological. While not expressly enumerated, biodiversity is relevant to various factors enumerated under s. 25(1), including environmental effects, cumulative effects, interactive effects, intergenerational effects and effects on biophysical factors that support ecosystem function. Recommendation and decision must consider sustainability, and decision must consider reconciliation.

	Guidelines for the Selection of VCs Defines valued components as "components of the natural and human environment that are considered by the proponent, public, Aboriginal groups, scientists and other technical specialists, and government agencies involved in the assessment process to have scientific, ecological, economic, social, cultural, archaeological, historical, or other importance."	
Alberta *Environmental Protection and Enhancements Act*, RSA 2000, c E-12	s. 1(l) "conservation" means, except in sections 22 to 24, the planning, management and implementation of an activity with the objective of protecting the essential physical, chemical and *biological* characteristics of the environment against degradation. s. 1(t) "environment" means the components of the earth and includes… (iii) all organic and inorganic matter *and living organisms*, and (iv) the *interacting natural systems* that include components referred to in subclauses (i) to (iii); s. 2 The purpose of this Act is to support and promote the *protection, enhancement and wise use of the environment* while recognizing the following: (a) the protection of the environment is essential to the integrity of ecosystems and human health and to the well-being of society; (b) the need for Alberta's economic growth and prosperity in an *environmentally responsible manner* and the need to integrate environmental protection and economic decisions in the earliest stages of planning; (c) the principle of *sustainable development*, which ensures that the use of resources and the environment today does not impair prospects for their use by future generations;	No references to biodiversity or wildlife. "Living organisms" and "interacting natural ecosystems" only used as two of the elements in definition of environment. There are 16 references to "animals," several of which are negative, i.e., animals as pests and carriers of disease or toxins. Sustainable development one of the stated purposes of the Act and of environmental assessment. EIAs must consider positive and adverse environmental, social, economic and cultural effects, cumulative effects, and the significance of effects. EIAs must also consider alternatives and mitigation. EIA reports inform permitting decisions.

	(d) the importance of *preventing and mitigating the environmental impact* of development and of government policies, programs and decisions; … s. 40 The purpose of the environmental assessment process is (a) to support the goals of environmental protection and sustainable development, (b) to integrate *environmental protection* and economic decisions at the earliest stages of planning an activity, (c) to predict the environmental, social, economic and cultural consequences of a proposed activity and to assess plans to mitigate any adverse impacts resulting from the proposed activity, and (d) to provide for the involvement of the public, proponents, the Government and Government agencies in the review of proposed activities. s. 49 Environmental assessment reports must include: (c) an identification of *existing baseline environmental conditions* and *areas of major concern* that should be considered; (d) a description of potential *positive and negative environmental, social, economic and cultural impacts* of the proposed activity, including *cumulative, regional, temporal and spatial considerations*; (e) an analysis of the *significance* of the potential impacts identified under clause (d); (f) the plans that have been or will be developed to *mitigate* the potential negative impacts identified under clause (d); …	

	(h) a consideration of the *alternatives* to the proposed activity, including the alternative of not proceeding with the proposed activity;	
Saskatchewan *The Environmental Assessment Act*, SS 1979-80, c E-10.1	s. 2(e) "environment" means: (i) air, land and water; (ii) *plant and animal life,* including man; and (iii) the *social, economic and cultural conditions* that influence the life of man or a community insofar as they are related to the matters described in subclauses (i) and (ii);	This Act enables the Minister to require an environmental assessment of a development or undertaking, but says little about environmental objectives or sustainability and does not prescribe any factors to consider. No mention of biodiversity or equivalents.
Manitoba *The Environment Act*, CCSM c E125	s. 1(1) The intent of this Act is to develop and maintain an environmental protection and management system in Manitoba which will *ensure that the environment is protected* and maintained in such a manner as to sustain a high quality of life, including social and economic development, *recreation and leisure for this and future generations* s. 1(2) "environment" means (a) air, land, and water, or (b*) plant and animal life*, including humans; "pollutant" means any solid, liquid, gas . . . (a) affects the *natural*, physical, chemical, or *biological quality* of the environment, 12.0.2 When considering a proposal, the director or minister must take into account — in addition to *other potential environmental impacts* of the proposed development — the amount of greenhouse gases to be generated by the proposed development and the energy efficiency of the proposed development. 41(1) For the purpose of carrying out the provisions of this Act according to their intent, the Lieutenant Governor in Council may make such regulations and orders…	Prescribes licensing and assessment regime for 3 levels of development. No reference to biodiversity and few to biological components of the environment. EIAs must consider GHGs in addition to other environmental impacts. No mention of cumulative effects. The Act includes a regulation-making power authorizing the Lieutenant-Governor in Council to make regulations respecting biodiversity protection but it does not appear that any such regulations have been enacted to date.

	(c) setting out the policies for environmental management as they relate to economic development, conflicting land or resource use, and industrial density; (d) restricting or limiting the number and types of developments that may cause adverse cumulative effects that may be permitted to be constructed or operated in the province, or any part thereof; (d.1) governing or prohibiting any use, activity or thing that may cause adverse effects, including governing or prohibiting the construction, alteration, modification or expansion of developments or classes of developments; (e) respecting the setting of environmental quality objectives for part or all of Manitoba, the process for setting of those objectives, and the use of objectives;	
Ontario *Environmental Assessment Act*, RSO 1990, c E.18	s. 1(1) "environment" means (a) air, land or water, (b*) plant and animal life*, including human life, (c) the social, economic and *cultural conditions* that influence the life of humans or a community, (d) any building, structure, machine or other device or thing made by humans, (e) any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities, or (f) any part or combination of the foregoing and *the interrelationships between any two or more* of them. s. 2 The purpose of this Act is the betterment of the people of the whole or any part of Ontario by providing for the	Largely deals with process of EA, not substance. No direct mention of biodiversity, only by possible interpretation of italicized terms. Does not apply to private development unless designated via regulations.

	protection, conservation and wise management in Ontario of the environment. S 6.2(c) EIAs must consist of (c) a description of (i) the *environment that will be affected or that might reasonably be expected to be affected, directly or indirectly*, (ii) the *effects that will be caused or that might reasonably be expected to be caused to the environment*, and (iii) the actions necessary or that may reasonably be expected to be necessary to *prevent, change, mitigate or remedy* the effects upon or the effects that might reasonably be expected upon the environment, by the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking; (d) an evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking…	
Quebec *Environmental Quality Act*, CQLR c Q-2	Preliminary Provision: The purpose of this Act is to protect the environment and *the living species inhabiting it*, to the extent provided for by law. . . . The Act affirms the *collective and public interest* character of the environment, which is inseparable from its ecological, social and economic dimensions.	Broad-ranging legislation that covers many aspects of environmental protection. Primary stated purpose includes reference to living species inhabiting the environment. Also notable for recognizing collective and public interest in environment and invocation of sustainable development.

	The fundamental objectives of the Act ensure that *environmental protection, improvement, restoration, development and management* are of general interest. The Act ensures compliance with the principles of *sustainable development* as defined in the Sustainable Development Act (chapter D-8.1.1) and consideration of cumulative impacts. s. 1 Definitions: "environment": the water, atmosphere and soil or a combination of any of them or, generally, the ambient milieu with which living species have dynamic relations; s. 19.1 Every person has a *right to a healthy environment* and to its protection, and to the *protection of the living species inhabiting it*, to the extent provided for by this Act . . . s. 24 When assessing a project's impacts, the Minister shall take the following elements into consideration: (2) the characteristics of the milieu affected; (3) the nature, quantity, concentration and location of any and all contaminants that are likely to be released into the environment; (4) if the project results from a program that has undergone a *strategic environmental assessment* under Chapter V, the findings of the assessment; s. 25. On issuing an authorization, the Minister may prescribe any condition, restriction or prohibition the Minister deems advisable for protecting the quality of the environment and preventing adverse effects on the life, health, safety, welfare or comfort of human beings or on ecosystems, living species or property, and which may concern, among other things,	Includes reference to every person's right to healthy environment. Factors to consider do not refer to biodiversity or species.

	(1) measures to mitigate the impacts of the activity on the environment, human health or *other living species*, and measures to protect the quality of the environment . . . . . . (3) measures to ensure that the characteristics and *support capacity of the receiving environment* and its ecosystem are respected; s. 31.0.3 – Minister shall refuse authorization if (2) mitigation measures insufficient to adequately protect environment . . . protect other living species . . . s. 95.10 – All government programs to be subjects of strategic EA. "In the development of the Administration's programs, one objective of such an assessment is to promote fuller consideration of environmental issues, including those related to climate change, human health *and other living species*. Another objective of such an assessment is to take cumulative impacts into consideration and ensure respect for *the principles of sustainable development* provided for by the Sustainable Development Act (chapter D-8.1.1) in the development of the Administration's programs. . . . " Chapter II – Applicable to James Bay region south if 55th parallel s. 152 – In exercising their authority the various bodies having jurisdiction (including Cree Nation Government) shall take into consideration following principles: (d) the protection of the wildlife, of the physical and *biological milieu and of the ecological systems* of the territory contemplated in section 133, with regard to any activity connected with projects affecting the said territory;	
New Brunswick	s. 31.1(1)Notwithstanding the definition of "environment" in section 1, in this section	The Act is mainly focused on pollution control and the control of contaminants.

Clean Environment Act, RSNB 1973, c C-6	"environment" means (a) air, water or soil, (b) plant and animal life including human life, and (c) the social, economic, cultural and aesthetic conditions that influence the life of humans or of a community insofar as they are related to the matters described in paragraph (a) or (b); "environmental impact" means any change to the environment; "environmental impact assessment" means a process by which the environmental impact caused by or resulting from an undertaking is predicted and evaluated; 31.1(2)The Lieutenant-Governor in Council may make regulations… [various provisions respecting the carrying out of environmental impact assessments]	Environmental impact assessment is currently being modernized. Environmental impact assessment is considered but only required pursuant to regionals that the Lieutenant-Governor in Council may make. The Regulations do not list factors to consider. No requirement to consider cumulative effects or biodiversity.
Nova Scotia *Environment Act*, SNS 1994-95, c 1 And *Environmental Assessment Regulations*, NS Reg 26/95	s. 2 The purpose of this Act is to support and promote the protection, enhancement and prudent use of the environment while recognizing the following goals: (a) maintaining environmental protection as essential to the *integrity of ecosystems*, human health and the socio-economic well-being of society; (b) maintaining the principles of *sustainable development*, including (i) the principle of ecological value, ensuring the maintenance and restoration of essential ecological processes and *the preservation and prevention of loss of biological diversity* (vii) the comprehensive integration of *sustainable development principles* in public policy making in the Province;	Clear and direct reference to preventing loss of biological diversity in the purpose section of the Act, as well as references to sustainable development. The regulations require EAs to consider impacts on species at risk species of conservation concern and their habitats, as well as alternatives.

	s. 3 Definitions (r) "environment" means the components of the earth and includes (i) air, land and water, (ii) the layers of the atmosphere, (iii) *organic and inorganic matter and living organisms*, (iv) the *interacting natural systems* that include components referred to in subclauses (i) to (iii), . . . (aw) "sustainable development" means development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs; s. 8(2) The Minister, for the purposes of the administration and enforcement of this Act, and after engaging in such public review as the Minister considers appropriate, *shall* (a) *promote sustainable development*, including pollution prevention; (b) establish and administer policies, programs, guidelines, objectives and approval processes pertaining to the *protection and stewardship of the environment*; (f) promote the rehabilitation and restoration of degraded areas of the environment; s. 32 – No work on undertaking until written approval from Minister, and (2) Minister may apply conditions on approval. s. 34 – Minister may require an EA report, and reject undertaking if likelihood that effects unmitigable. *Environmental Assessment Regulations* **19(1)** Where an environmental-assessment report is required, the Administrator shall prepare terms of reference for the preparation	

	of the environmental-assessment report which shall include, but not be limited to, the following information: (d) a description of alternatives to the undertaking; (e) a description of the environment that might reasonably be affected by the undertaking; (f) the environmental effects of the undertaking, including identifying any effects on *species at risk, species of conservation concern and their habitats*; (g) an evaluation of advantages and disadvantages to the environment of the undertaking; (h) measures that may be taken to prevent, mitigate or remedy negative environmental effects and maximize the positive environmental effects on the environment; (i) a discussion of adverse effects or significant environmental effects which cannot or will not be avoided or mitigated through the application of environmental control technology; (j) a program to monitor environmental effects produced by the undertaking during its construction, operation and abandonment stages;	
Newfoundland and Labrador *Environmental Protection Act*, SNL 2002, c E-14.2	s. 2 Definitions (m) "environment" includes (i) air, land and water, (ii) *plant and animal life, including human life,* iii) *the social, economic, recreational, cultural and aesthetic conditions and factors that influence the life of humans or a community*, . . . (vi) a part or a combination of those things referred to in subparagraphs (i) to (v) and the interrelationships between 2 or more of them; (dd) "rehabilitation" includes	This Act deals with a broad range of environmental matters including education and research, dangerous substances, waste management, air quality, pesticides, as well as environmental assessment. No direct reference to biodiversity, or any synonyms. Plant and animal life is acknowledged to be part of environment, in definition. Rehabilitation includes restoration of habitats and populations, seeming to recognize link between habitats and species. References to sustainable development limited to environmental education and research.

	(vi) the restoration of habitat, populations and the socio-economic integrity of valued ecosystem components (kk) "sustainable development" means meeting the needs of present generations without compromising the ability of future generations to meet their needs; Purpose of Part X – Environmental Assessment 46. The purpose of this Part is to (a) protect the environment and quality of life of the people of the province; and (b) facilitate the wise management of the natural resources of the province, through the institution of environmental assessment procedures before and after the commencement of an undertaking that may be potentially damaging to the environment. s. 48 – Prohibition on undertaking unless exempted or released under this Act.	
Prince Edward Island *Environmental Protection Act*, RSPEI 1988, c E-9	s. 1 Definitions (f) "environment" includes (i) air, land and water, (ii) *plant and animal, including human, life,* and any feature, part, component, resource or element thereof; s. 3(1) The Minister may take such action as he considers necessary in order to manage, protect or enhance the environment . . . s. 9(1) – Prohibition on proceeding with undertaking unless by6 written approval of Minister.	Main thrust of statute is concern with pollution and contamination. Very superficial and discretionary treatment of EIA. *EA Fees Regulation*, PEI Reg EC244/05, deals only with fees payable in EIA process. No mention of biodiversity or synonyms (and references to life largely limited to human life). Does provide for sand dune protection (one case of habitat protection).

	(2) – Minister has discretion to require EIA, and (3) to prescribe content of EIA. s. 22 – Prohibition on alteration of sand dunes without Minister's permission.	

Appendix B: J Ray and A Johnston Comments on CWS Draft Offsetting Policy

February 17, 2023

Comments on Canadian Wildlife Service Draft Offsetting Policy for Biodiversity

Transmitted by email: SCFEvaluationStrategique-CWSStrategicAssessment@ec.gc.ca

By: Justina Ray (Wildlife Conservation Society Canada) and Anna Johnston (West Coast Environmental Law)

Thank you for the opportunity to provide comments on the draft *Offsetting Policy for Biodiversity*. We do so in our capacity as biodiversity and legal experts in impact assessment; we have been contracted to research and write a report on the treatment of biodiversity in impact assessment for the Technical Advisory Committee on Science and Knowledge appointed by the Impact Assessment Agency of Canada. In this review we have benefitted from discussions from WCS colleagues and experts in offsets implementation Dan Kraus, Hugo Rainey, and Ray Victurine.

We focus here on four key themes we have identified as priorities for helping ensure that Canada meets its environmental obligations, particularly those arising under the Convention on Biological Diversity. Our overarching concerns are: 1) the lack of sufficient emphasis on the mitigation hierarchy as a necessary frame for addressing biodiversity impacts at the project level (p. 1), 2) the lack of consistence and clarity regarding the proposed offsetting policy goal (p. 4), 3) the unrealistic expectation that cumulative effects can be managed or mitigated through this policy (p. 6), and 4) the manner in which the role of Indigenous peoples are discussed (p. 6). Herein, we discuss each of these themes in turn, and provide 16 recommendations for improvements to this policy.

1. The draft policy is not clearly situated within a mitigation hierarchy framework that is aligned with best practice and Canada's environmental obligations

While an offsets policy is in theory commendable, we are deeply concerned that this policy is being drafted in the absence of an overarching mitigation hierarchy policy that establishes requirements that respect efforts to first avoid, then minimize, and then restore biodiversity before moving on to offsetting. The mitigation hierarchy is well-established in policy across the globe, is widely recognized as integral to addressing biodiversity impacts at the project level and is a critical tool to help countries meet their obligations under the Convention on Biological Diversity (CBD).

As the draft policy itself recognizes, offsetting is the last resort after options for pursuing the higher-priority steps within the mitigation hierarchy have been exhausted. However, absent a policy that explicitly delineates requirements respecting each of the higher-priority steps of the mitigation hierarchy, this document undermines the mitigation hierarchy despite its references to it. While use of the mitigation hierarchy is mentioned as a policy objective within this draft, its treatment is too superficial and not carried through with sufficient strength throughout the document to ensure its meaningful application. The policy's focus on offsetting together with the lack of clear guidelines for the preceding steps will encourage actors to 'skip ahead' to offsetting without guardrails preventing

biodiversity loss in unacceptable circumstances (such as impacts on species at risk and critical habitat where there is no clear overriding public interest).

Additionally, the policy objectives do not exhibit the necessary urgency to drive efforts to avoid and reduce impacts before they take place. Under a proper deployment of the mitigation hierarchy, reliance on offsets is an admission of failure. As a result, offsets should not be permitted unless the most stringent efforts have been made to identify all options to avoid and minimize biodiversity impacts at the earliest stages of and throughout project planning and assessment processes. Unless options for avoiding and minimizing impacts are identified and prioritized at the outset (i.e., in the earliest stages of project planning), project design and siting begins to take shape without adequate biodiversity consideration, and opportunities to leave minimal residual impacts become fewer, making it more difficult, if not impossible in some circumstances, to address biodiversity impacts that the project will incur. The draft policy fails to describe the necessity of early and ongoing efforts to identify all feasible options for avoiding and then minimizing biodiversity impacts, lacks clear guidance on comparatively evaluating those options, and fails to delineate when it may be appropriate to move on to offsetting. In doing so, it understates the centrality of the mitigation hierarchy to offsetting biodiversity loss.

As a result of these failings respecting the centrality of the mitigation hierarchy and guidance as to the application of its higher-priority steps, this offsets policy risks undermining Canada's ability to meet its international and domestic biodiversity obligations, rather than helping to achieve them. In light of Canada's commitment to implement the recently-adopted Kunming-Montreal Biodiversity Framework (KMGBF) domestically, the next version of this policy should be expressly designed as one component of Canada's commitment to meet Target 14:

> *Ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments and, as appropriate, national accounting, within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, fiscal and financial flows with the goals and targets of this framework.*

The mitigation hierarchy is a key tool for such integration, offering a broadly-accepted approach for addressing project-level biodiversity and climate impacts in a manner that could bring consistency to the variety of offsetting regimes under federal jurisdiction. We make the below recommendations in light of Target 14 and the above-described shortcomings of the draft policy regarding the centrality of the mitigation hierarchy.

<u>Recommendations</u>:

1) In collaboration with the Treasury Board and in accordance with Target 14 of the KMGBF,[298] create a whole-of-government policy for mainstreaming biodiversity and addressing project-level biodiversity impacts in Canada that centres a strong application of the mitigation hierarchy, just as the Minister has been mandated to create a climate lens.[299] A mitigation hierarchy and biodiversity mainstreaming policy could serve as an umbrella to appropriately position other

[298] Simmonds et al (2021) https://conbio.onlinelibrary.wiley.com/doi/pdf/10.1111/csp2.12634.
[299] https://pm.gc.ca/en/mandate-letters/2021/12/16/minister-environment-and-climate-change-mandate-letter. We recognize that the climate lens is intended to cover policies, plans and programs, in addition to projects.

offsets schemes, e.g., associated with the Fisheries Act and carbon offsets. An even stronger step would be to design a mitigation conservation hierarchy,[300] which unites impact mitigation with proactive conservation under a single framework. Establishing such an overarching framework becomes all the more important when considering that none of the statutes under which this policy could be applied (listed on p. 1 of the draft) make reference to the mitigation hierarchy or offsets. As a result a stand-alone detailed policy on the mitigation hierarchy is critical to mandate its use within ECCC as well as other federal departments and agencies.

2) Introduce the mitigation hierarchy immediately in the introduction to the policy to underscore the position of offsets as the last step of the mitigation hierarchy, and reiterate that it is to be the "last resort to address those significant residual impacts that could not be prevented through avoidance and minimization, or adequately corrected through restoration/rehabilitation"[301].
3) Emphasize the need for early and ongoing identification of options for avoiding and minimizing biodiversity loss in project planning, assessment and approval processes in order to guard against potential options to avoid or address biodiversity impacts being precluded by project design decisions.
4) Include a clear description in the "scope and application" section of how the offsets policy can be implemented under the listed statutes. This section should also include clear links to the KMGBF and the 2030 UN Sustainable Development Goals.
5) Re-write the objectives of this policy to clearly articulate offsets as the final step in the mitigation hierarchy, only after all proponents have demonstrated that there are no feasible options for avoiding impacts, in order to drive avoidance and reduction of impacts before they take place, with offsets as a last resort in specified circumstances.
6) Policy Statement #2 should establish that all projects *will* follow the mitigation hierarchy. It should also describe circumstances in which offsets will be inappropriate where avoidance is the only option, e.g., due to the vulnerability and irreplaceability of the biodiversity value in question, or because the risks of success are unacceptably high.
7) In the long description of Figure 1 (p. 5), it is important to note that impacts on biodiversity occur immediately and that offset implementation should begin at the same time that the project is implemented to avoid further losses. Ideally, funding for offsets should be provided up-front and guaranteed to best ensure that NNL or NG can be achieved.
8) Ensure that the key message of offsets as the last resort as per the mitigation hierarchy is consistently expressed throughout the policy documentation.

2. The offsetting goal is inconsistent and unclear

The offsetting goal (p. 2) states both that NNL is the goal and (in the next sentence) that offsets should be "designed to achieve NNL *or* net gain for biodiversity." In addition, there are inconsistencies

[300] https://conservationhierarchy.org/; https://www.birdlife.org/wp-content/uploads/2021/09/four_steps_for_the_earth_briefing_jan2021_with_links.pdf
[301] Biodiversity Consultancy (2015) A cross-sector guide for implementing the mitigation hierarchy. Available from: https://www.thebiodiversityconsultancy.com/knowledge-and-resources/a-cross-sector-guide-for-implementing-the-mitigation-hierarchy-117/

throughout the document with respect to NNL and net gain (NG). For example, none of the three policy objectives mentions NNL or NG, so the relationship between these objectives and the overall policy goal is unclear. Policy statement #4 first says that NNL is the target, followed by "in some situations" offsets must achieve net gain, and then that the goal of net gain is to apply "where possible."

We are inferring that the intention is to have NNL at a minimum, with NG in certain (undefined) circumstances. However, without careful and consistent attention to wording, this ambiguity risks implementation failure for several reasons:

- If the circumstances in which NNL or NG is appropriate as a goal are not specified, there is a serious risk that proponents or regulators will opt for the lower bar rather than what is most appropriate from an ecological and conservation standpoint. The policy goals of NNL and NG are fundamentally different from one another, and moving from one to the other is far from straightforward. "At its simplest, to achieve NNL, loss of biodiversity values must be fully compensated by commensurate gains in those values. To achieve the more positive objective of a Net Gain, the biodiversity status quo must be improved, either by overcompensating for loss in the biodiversity values affected, or by ensuring no net loss in those values and then providing additional gains in other biodiversity values."[302] This is to say that the circumstances under which NNL or NG are the most appropriate goals should be carefully considered and spelled out in the policy as much as possible.

- A significant body of research investigating effectiveness of achieving NNL outcomes[303] has provided evidence that achievement of NNL is, more often than not, unsuccessful. This occurs for various reasons, including (but not limited to) loss of biodiversity through ongoing declines that have not addressed, inadequate consideration of all types of impacts in offsets plans, inadequate offset implementation and high risk of failure.
- NG aligns with the KMGBF global goals and targets[304], as well as Canada's own commitment to "halt and reverse the loss of biodiversity in Canada."[305] To illustrate, the 2050 global goal for conservation of biodiversity (Goal A) focuses on maintenance, enhancement, restoration, and substantially increasing the area of natural ecosystems, as well as halting and reserving the decline of species. Moreover, to reach the 2050 vision of the KMBGF, a significant net increase in the area, connectivity, and integrity of natural ecosystems will be required, and "will need to be achieved by avoiding further loss of natural ecosystems, where possible, and otherwise by reducing current rates of loss. It will also require restoring both converted and degraded ecosystems."[306] Canada's responsibility in the global context (as the second largest country in the world) deserves careful consideration in the formulation of this and related policies that are part of domestic implementation of the KMGBF.

[302] Bull et al. (2017) https://www.cambridge.org/core/journals/oryx/article/transition-from-no-net-loss-to-a-net-gain-of-biodiversity-is-far-from-trivial/72A5E9F0871AE4071FBD0EEB19704D96
[303] See, for example: Emgassen et al. (2019) https://conbio.onlinelibrary.wiley.com/doi/10.1111/conl.12664; Theis et al. (2021) https://conbio.onlinelibrary.wiley.com/doi/abs/10.1111/cobi.13343; Sonter et al. (2020) https://www.nature.com/articles/s41467-020-15861-1.
[304] Simmonds et al (2021) https://conbio.onlinelibrary.wiley.com/doi/pdf/10.1111/csp2.12634
[305] https://pm.gc.ca/en/mandate-letters/2021/12/16/minister-environment-and-climate-change-mandate-letter
[306] Subsidiary Body on Scientific Technical and Technological Advice (2021). https://www.cbd.int/doc/c/e823/b80c/8b0e8a08470a476865e9b203/sbstta-24-03-add2-rev1-en.pdf

While the discussion on limits to offsets in policy statement #5 is important, the introduction of partial offsets is alarming, particularly as it appears as an acceptable alternative, even though it will, by definition, leave a net loss to biodiversity.

A project that has impacts that cannot be offset should be regarded as too risky to undertake and should be reconsidered altogether. In circumstances in which there are deemed to be imperative reasons of overriding public interest for a non-offsetable project to go forward, then the level of compensation or partial offset should have high scientific certainty of NNL or target NG as possible to minimize overall risk, and enhancement elsewhere should be required. If the project cannot be fully offset, the developer could also be required to pay into a conservation fund to undertake conservation actions that benefit similar species or ecosystems. In other words, proponents of non-offsetable projects must ultimately be required to do their share of helping ensure Canada meets its environmental obligations, with no use of partial offsets as a reward.

Recommendations:

9) Articulate clearly and consistently throughout the document the circumstances by which NG or NNL will be appropriate as a target and how these should work together. When to design for NG vs NNL should be in accordance with Performance Standard 6[307], and net gain required where biodiversity features are below targets. NG should be the primary choice of target to ensure biodiversity outcomes are consistent with policy targets and to address the ongoing decline in biodiversity from all sources. NNL should be for limited cases where avoidance of impacts has been substantial and residual impacts are very small, and in areas characterized by intact biodiversity values where achieving NG is not possible (by definition).

10) Emphasize that the NNL and NG are the goals of the mitigation hierarchy (rather than the offset), in order to better position offsetting as the last resort in the pursuit of that goal.

11) Re-write policy statement #5 to be clear about limits to offsets (see above), remove reference to partial offsets altogether, and encourage enhancements in addition to offsets.

12) Figure 2 should be adjusted to state that in circumstances whereby the risk to biodiversity is too large, no offset is possible and therefore the project should not be permitted to proceed (unless avoidance is possible). At present it merely states there would be no offset. Step 3 in the long description for this figure should also be adjusted accordingly. The issue is not the offset but the project which is not appropriate.

[307] https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps6.

3. It is not possible for this policy to prevent or manage cumulative effects

While this policy claims to apply to cumulative effects, effective management of cumulative biodiversity effects will only be feasible if there are regional targets set for biodiversity values that are aligned with the KMGBF and other obligations (e.g., the UN Declaration on the Rights of Indigenous Peoples) and that consider tools described in Target 14 to reduce cumulative impacts. A central challenge, however, is that the policy is focused on the project level and does not tend to take into account regional or landscape priorities – none of which have yet been set federally. If targets are set, projects would implement the mitigation hierarchy by avoiding priority areas in which development might lead to missing the targets, or else develop effective offset plans that ensure that the targets are met. Absent regional targets for specific values, addressing the cumulative effects of past, present and future undertakings on biodiversity will remain elusive.

Recommendation:

13) Set regional conservation and restoration targets in alignment with the KMGBF that would enable authorities and proponents to consider and address their contributions to cumulative impacts.

4. The language around Indigenous peoples fails to adhere to international or federal instruments.

While the policy does discuss the role of Indigenous peoples in implementation, the emphasis is on "engagement" rather than jurisdictional cooperation and reconciliation. The draft policy lacks specificity, particularly respecting resources to support Indigenous involvement and decision making, ensuring free, prior and informed consent, and ensuring that Indigenous peoples benefit from offsetting programs. The absence of a requirement for seeking and supporting long-term Indigenous involvement in offsets management or oversight as authorities and rights-holders is inadequate. Target 22 of the KMGBF requires parties to:

> *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, respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by women and girls, children and youth, and persons with disabilities and ensure the full protection of environmental human rights defenders*.

The Akwé: Kon Guidelines[308] were developed to help parties achieve Article 8(j) and related provisions of the CBD. Article 8(j) requires parties to:

> *… respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of*

[308] Akwé: Kon Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessments Regarding Developments Proposed to Take Place on, or which are Likely to Impact on, Sacred Sites and on Lands and Waters Traditionally Occupied or Used by Indigenous and Local Communities (2020): https://www.cbd.int/doc/publications/akwe-brochure-en.pdf.

the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.

Best practice[309] stresses that the use and views of stakeholders and Indigenous and local communities in areas affected by a project or a biodiversity offset must form the basis of application of the mitigation hierarchy, offset design, plans or offsets implementation and oversight.

Recommendation:

14) The offsets policy should require compliance with Article 8(j) of the CBD and Target 22 of the KMGBF, and direct practitioners and authorities to follow the Akwé: Kon Guidelines in the application of the mitigation hierarchy and the design and approval of offsets plans.

In closing, we have two additional overarching concerns and corresponding recommendations that address the needs to explicitly define biodiversity and ecosystem service, and to seek independent expertise in designing offsets plans:

15) The next version of the policy should adopt the CBD definition of biological diversity, i.e., *the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems*.[310] This draft inappropriately narrows biodiversity to species at risk, wetlands and migratory birds. In addition, we strongly recommend that the scope of the policy also include ecosystem services (or nature's contributions to people). This would not only be in keeping with the CBD (e.g., the second objective of the CBD and the 2050 Vision, Goal B, and several supporting targets of the KMGBF), but also with the increasing levels of understanding of the essential supporting role of biodiversity that underpins sustainable development and human well-being.

16) In addition to recommendation # 14 regarding collaboration with Indigenous peoples, there is a strong need for independent expertise and that of local communities in the application of the mitigation hierarchy and design of offsets plans, starting in the earliest stages. Public and independent expert engagement remains predominantly (if not exclusively) a check-box exercise comprised of comment periods and occasional meetings. For implementation of the mitigation hierarchy, including the identification and design of offsets programs, to reflect community use of ecosystem services, community values and needs, Indigenous and community knowledge, and leading expert thinking (particularly among those with local and regional expertise), engagement must go beyond comment periods to collaboration and learning-based dialogue. We recommend the appointment of working groups or committees representative of Indigenous rights holders and authorities, non-Indigenous communities, knowledge holders and independent western scientists, proponents and government experts.

Thank you for the opportunity to provide input. We would certainly be open and interested in any further discussions on this important topic.

[309] BBOP Principles on Biodiversity Offsets https://www.forest-trends.org/wp-content/uploads/2018/10/The-BBOP-Principles_20181023.pdf

[310]

Yours sincerely,

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