Parks Canada Parcs Canada

Canada

Guidance for the Use of Criteria for Ecological Corridors in Canada

Information to support individuals and organizations leading or involved in ecological corridor initiatives in Canada in using the Criteria for Ecological Corridors in Canada.

Aussi disponible en français sous le titre :
Lignes directrices pour l'utilisation des critères pour les corridors écologiques au Canada

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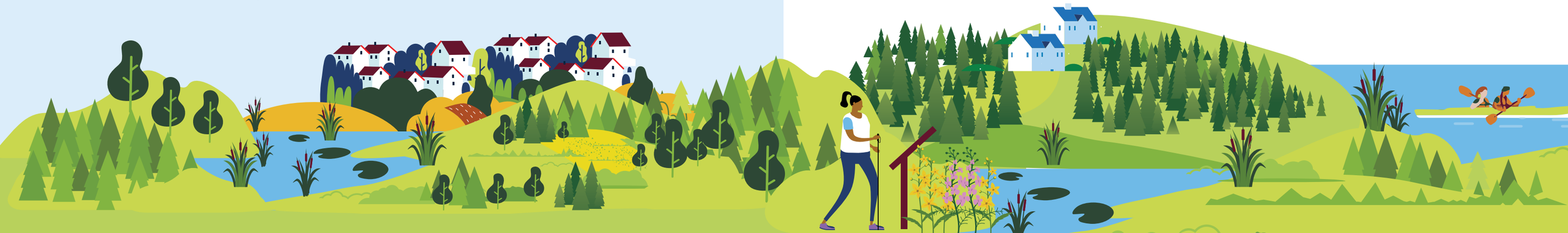
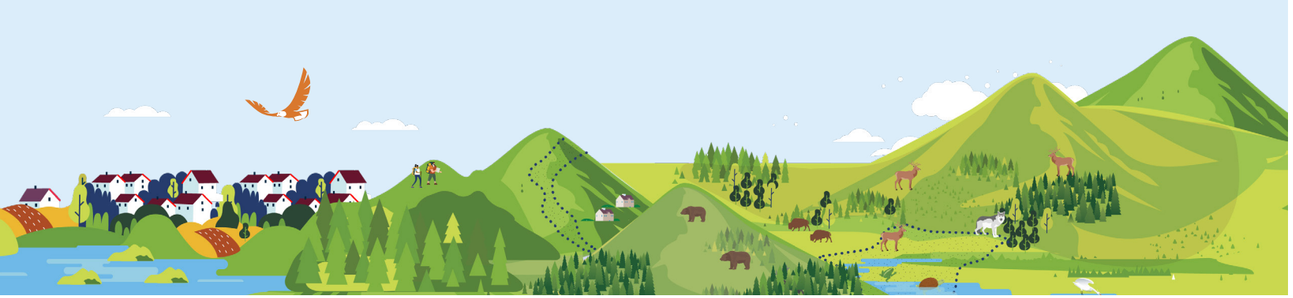




Introduction

This guidance document provides supplemental information to support individuals and organizations leading or involved in ecological corridor initiatives in Canada in using the Criteria for Ecological Corridors in Canada. The criteria provide a common approach to ensure ecological corridors' management and stewardship are effective in maintaining or restoring ecological connectivity and upholding Indigenous stewardship values.

Creating effective corridors is a long-term initiative that involves multiple steps and partners. This guidance is intended to help those leading existing corridors identify where potential improvements could be made to strengthen the governance and management mechanisms in place to achieve corridor goals and objectives. Similarly, those leading nascent corridor initiatives can use the criteria as a tool to build a solid stewardship plan, documenting where and why a corridor is needed, and how corridor lands and waters are/will be managed to achieve the corridor goals over time.

Context and Key Considerations

Protected and conserved areas, including those that are Indigenous-led, are key elements of Canada's strategy to halt and reverse biodiversity loss. However, few protected and conserved areas are large enough to allow a full range of wildlife movement and ecological processes to take place within their borders. To be effective at conserving biodiversity, protected and conserved areas must be well-connected. The creation of a system of ecological corridors in Canada is an area-based conservation strategy that will connect, and thereby strengthen, existing and future protected and conserved areas and contribute to ecological conservation networks.

This framework and approach for the identification and creation of ecological corridors uses an adapted definition of ecological corridors from Hilty *et al.* (2020):

> "A clearly defined geographical space where governance, management, and stewardship over the long term maintain or restore effective ecological connectivity while upholding Indigenous stewardship values".

"The Canadian amendment is absolutely in line with the intent of the IUCN definition of ecological corridors. I applaud Parks Canada's time for adapting the definition to the needs of people and nature in Canada and beyond."

Gary Tabor, Chair, IUCN-WCPA Connectivity Conservation Specialist Group

Ecological corridors should elevate Indigenous participation and leadership in conservation and advance Indigenous stewardship values. Indigenous stewardship values are perspectives, principles, or practices of importance or significance to Indigenous peoples based on Indigenous knowledge systems. They could include things such as traditional hunting and trapping routes, gathering practices for traditional medicines, and migration routes of culturally significant species. Indigenous stewardship values and ecological connectivity complement each other, and together can strengthen the effectiveness of ecological corridors and conservation goals.

Ecological corridors are not a substitute for the creation or establishment of new Protected Areas (PAs) or Other Effective Area-Based Conservation Measures (OECMs), but a supportive tool. Ecological corridors complement and strengthen protected and conserved areas and together form ecological networks for conservation (see Table 1).

Ecological corridors in Canada can be inclusive of human activities. However, corridor effectiveness is reliant on the ability to achieve positive outcomes for ecological connectivity and Indigenous stewardship values, through governance and management approaches that provide the ability to prevent or prohibit incompatible activities. As such, monitoring is essential for evaluating and demonstrating progress towards corridor goals and objectives.

Importantly, there may be negative consequences associated with maintaining or restoring connectivity such as the movement of invasive species or spread of undesirable ecological processes, like wildfires. Careful consideration should be given to situations where maintaining or restoring connectivity may not be desirable.

Interactions and exchanges between ecosystems and habitat types are fundamental to the ability to maintain and restore ecological connectivity. With this in mind, the criteria and approach to identify and create ecological corridors were developed with the intent of being applicable within and across terrestrial, freshwater, and coastal ecosystems. Marine environments are outside of the scope of the application of the criteria for ecological corridors presented herein.

TABLE 1. Differences in the role of protected areas, OECMs and ecological corridors. (Hilty *et al.*, 2020)

	Protected Areas	OECMs	Ecological Corridors
MUST conserve *in situ* biodiversity	●	●	
MAY conserve *in situ* biodiversity			●
MUST conserve connectivity			●
MAY conserve connectivity	●	●	

Criteria for Ecological Corridors in Canada

The Criteria for Ecological Corridors in Canada are derived from the approach to account for protected and other conserved areas in Canada (Pathway to Target 1, 2021). The criteria are aligned with the adopted definition of an ecological corridor, and each criterion is intended to evaluate one important element of the definition:

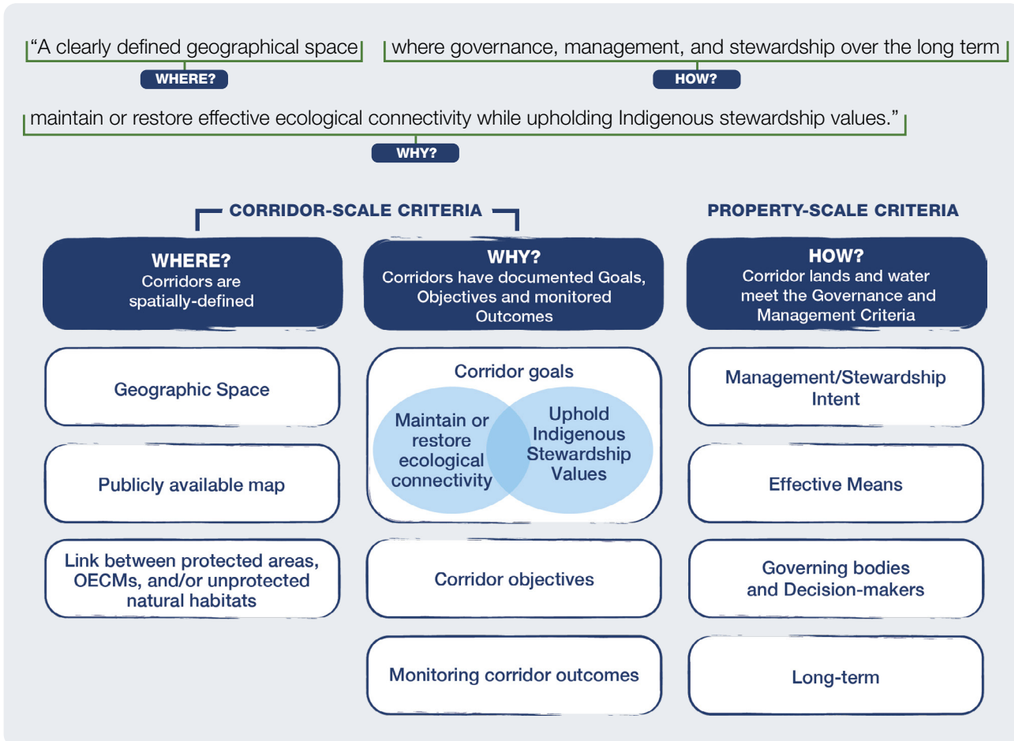


FIGURE 1. Relation between elements of the definition of ecological corridors and the criteria for ecological corridors in Canada

The approach centers around two scales of criteria:

Corridor-scale criteria are used to evaluate corridor-wide planning:

- **WHERE** – a clear indication of where the corridor will be pursued;
- **WHY** – documented goals and objectives and a monitoring plan with desired outcomes to provide strategic focus to the pursuit of the corridor.

Property-scale criteria are used to evaluate the parcels of lands and waters composing the corridor:

- **HOW** – documented record of the governance and management characteristics for each property (or group of properties under common governance or management) that contributes to the corridor goals and objectives.

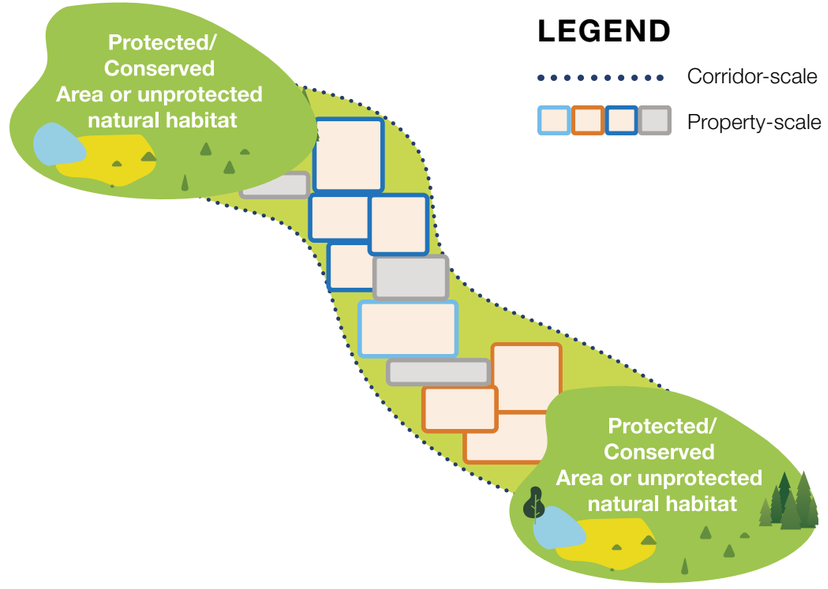


FIGURE 2. Application of corridor-scale and property-scale criteria. The different colours at the property-scale represent properties (or groups of properties under common governance or management)

1 WHERE – Designing and Delineating the GEOGRAPHICAL SPACE

This criterion applies at the corridor scale.

To meet the criterion, a corridor must:

- ✓ connect protected and conserved areas and/or unprotected natural habitat (see box below), and
- ✓ be spatially delineated on a publicly available map.

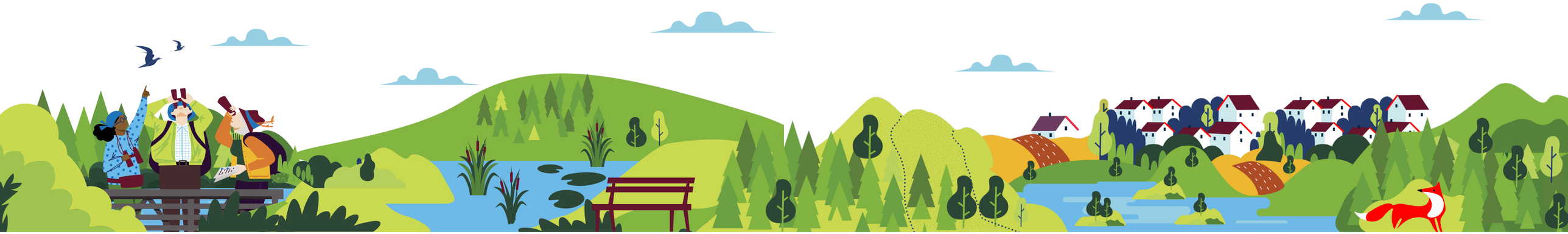
Ensuring that corridor mapping is publicly available supports the implementation of conservation measures, accounting and reporting, identification of relevant governing bodies and decision-makers, enhanced transparency, and raising public awareness of the corridor.

The requirement for a publicly available map may conflict with the need to respect data ownership and control. To address sensitivities, "fuzzy" boundaries are acceptable for publication. For example, when working with Indigenous communities, corridors can be delineated at a coarse scale using large polygons in order to maintain the privacy of the community's information. Data on precise boundaries of the corridor does need to be included in the corridor conservation plan and be known to relevant governing bodies and decision-makers.

Corridor delineations should reflect the needs and characteristics of the species, ecosystems and values relevant to the corridor. The size, type and location of the ecological corridor should be determined using the best available scientific and Indigenous knowledges. It may be pragmatic to utilize existing mapped ecological boundaries (i.e., watersheds), anthropogenic boundaries (i.e., a property line), or traditional territory boundaries when determining the corridor area.

Unprotected natural habitat

Unlike Protected Areas, and Other Effective area-based Conservation Measures, which are formally recognized for their biodiversity conservation outcomes, the term "unprotected natural habitat" refers to areas with documented and recognized ecological and cultural values but are not protected or conserved. Examples include, but are not limited to, Key Biodiversity Areas, Biosphere Reserves, Important Bird Areas and other sites that are not under formal protection.



The map of the corridor should represent the desired extent of the project area. It should provide adequate spatial extent to ensure management and stewardship of lands and waters can achieve identified corridor goals, objectives and outcomes. Corridor leads should also maintain spatial mapping data depicting the extent and coverage of all means and mechanisms used in corridor management.

Ecological corridors may consist partly or entirely of natural areas. Mapping of ecological corridors may include areas used for a wide range of human activities including communities and major land uses such as farming, forestry, ranching. When delineating a corridor, properties with a high likelihood of having a negative impact on the ability to achieve corridor goals and objectives should be noted and considered in the delineation.

Ecological corridors will experience land use and landscape changes over time. For example, a property could be converted from a forest to croplands, and a river may change course after a major flood event. Corridor leads should periodically re-evaluate the ecological state of the corridor and adapt the delineation as required. Boundaries should be regarded as dynamic and iterative and be adapted as new information becomes available.

2 WHY – Documenting GOALS and OBJECTIVES, and monitoring OUTCOMES

This criterion applies at the corridor scale.

To meet the criterion, an ecological corridor must have:

- ✓ clearly documented goals and objectives, and
- ✓ a plan to monitor progress towards desired outcomes.

Meeting the criterion is achieved through a conservation/stewardship plan that describes the goals, objectives and outcomes, the current state of the corridor, and related activities. Typically, this plan would be developed collaboratively by the corridor leads, with the participation of relevant landowners and stakeholders to ensure adequate consideration of social and geopolitical considerations, and to foster support.

- A *corridor goal* is the broad reason for the creation of an ecological corridor. The primary goal of every corridor should be to maintain or restore ecological connectivity, while upholding Indigenous stewardship values.
- A *corridor objective* is specific and measurable and advances the *corridor goal*.
- The *outcome* is the result of achieving the *objective* and is demonstrated through monitoring.

TABLE 2. Examples of Corridor Goals, Objectives and Outcomes

Corridor Goals	Examples of Corridor Objectives	Examples of Desired Outcomes
Maintain or restore ecological connectivity for wood turtles between Park XX and OECM XX	• By September 2024, complete modifications on road 123 for improved permeability for wood turtles.	• Reduced road mortality rates, as compared to 2022. • Stable or increased number of individuals in the 2025 June passage of wood turtles from Park XX to OECM XX, as compared to 2023 and demonstrated by wildlife cameras.
	• By June 2025, improved wood turtle habitat in OECM XX in at least XX hectares through invasive species removal.	• Stable or increased number of individuals in OECM XX, as monitored through annual wood turtle surveys.
Uphold Indigenous stewardship values through the stewardship of culturally and ecologically significant areas for the ABC Nation between Park XX and OECM XX	• By December 2024, establish a Stewardship Guardian Program for the ABC Nation to identify, monitor and steward culturally and ecologically significant areas in the corridor.	• Increased capacity for monitoring and stewardship activities, as demonstrated by number of program participants. • Better knowledge of the areas, demonstrated by results of inventories, surveys and research.
	• By September 2025, complete an Old Growth Management Plan for at least two additional areas within the corridor.	• Increased coverage of areas under management planning, as compared to 2022. • Increased/meaningful opportunities for cultural use, such as dugout canoe building and harvesting, demonstrated by community use.

Indigenous stewardship values refer to a broad spectrum of topics of significance to Indigenous peoples based on Indigenous knowledge and perspectives. Indigenous stewardship values are place-based and should be defined, identified, and stewarded by local Indigenous peoples.

To uphold Indigenous stewardship values means that the corridor leads, if not from the Indigenous Nation(s) whose traditional territory overlaps with the project area, should have, or strive towards having strong relationships with local Indigenous peoples to identify the values that are of cultural significance to them. A distinction-based approach with local Indigenous peoples should be taken and should be built on a relationship of mutual trust, respect, and cooperation.

Ecological corridors can provide a broad range of co-benefits to nature and people, including supporting sustainable livelihoods, providing ecological and cultural services, facilitating adaptation to climate change, reducing human-wildlife conflict, and providing access to nature. These additional benefits of corridors should be considered in planning, and wherever possible, tracked and communicated.

Outcomes resulting from conservation actions towards corridor goals and objectives should be meaningfully demonstrated through monitoring. Similarly, monitoring supports an effective adaptive management approach. Corridor conservation plans should include a monitoring plan with metrics and indicators specific to the objectives of the corridor, and a description of how monitoring will progress over time.

3 HOW – The MANAGEMENT/STEWARDSHIP INTENT

This criterion applies at the property scale.

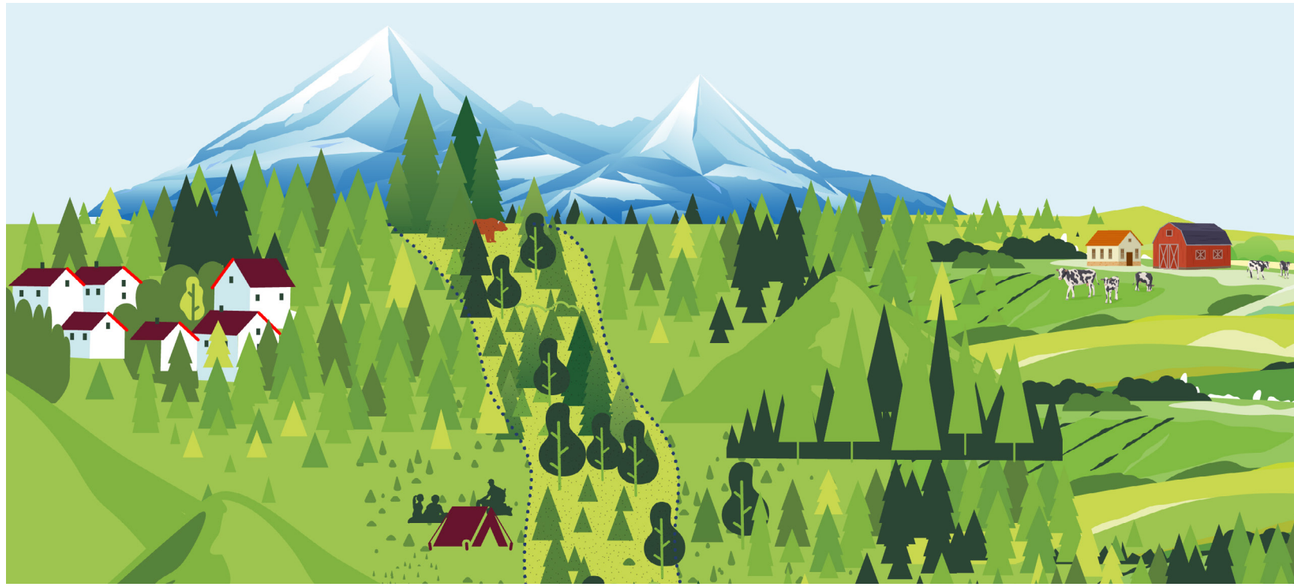
To meet this criterion, the management/ stewardship intent of the property should be:

- ✓ identified, and
- ✓ compatible with corridor goals and objectives.

Applying the management/stewardship intent criterion involves reviewing information that describes the way voluntary landowners or land managers have stated their intent to manage their property.

Ideally, an expression of intent is a clearly communicated statement or a set of management or stewardship objectives for the property found in a mechanism being used to manage the property – such as legislation and regulations, management plans or statements, easements or servitudes, stewardship agreements or other land management mechanisms. In the absence of an explicit statement, the management/stewardship intent can also be inferred from other related documentation or evidence, such as websites, activities, supporting materials or other documentation deemed relevant.

The intent does not have to be explicitly or exclusively related to ecological connectivity and Indigenous stewardship values, but it must not conflict with these goals – meaning it must not impair or impede the ability to achieve them. For example, the management intent of a farm may be to generate profits from agricultural activities to improve the livelihoods of the farmer and its community. The criterion could be met if the property, or a part of it, is managed following sustainable farming practices that are compatible with the corridor goals and objectives.



4 HOW – The ability to manage activities through EFFECTIVE MEANS

This criterion applies at the property scale.

To meet this criterion, properties must have governance, management or stewardship mechanisms that provide the ability to:

- ✓ prohibit, prevent, or influence the occurrence of incompatible activities, and
- ✓ manage or steward compatible activities (see box on next page).

Effective means refers to a broad suite of tools, often referred to as mechanisms, and include legal or non-legal means. Examples of legal means include Indigenous law (see side bar text box), legislation and regulation in common law, policy instruments and official plans rooted in law, bylaws, binding agreements, partnerships, or contracts. Other effective means include non-legal tools such as voluntary agreements or partnerships not rooted in law, incentive programs, outcomes of negotiation, cultural customs or recognized traditional rules.

To be effective, a mechanism by itself or in combination with other mechanisms must be able to prevent negative impacts to corridor goals and objectives from occurring on the properties.

All mechanisms relevant to the governance and management of all the properties that comprise the corridor should be identified, with a clear description of how they enable governing bodies or decision-makers to prevent or prohibit incompatible activities and manage or steward compatible activities.

Commonly, means or mechanisms will be 'layered' – meaning that more than one applies to the same property, or some portion of it. Where this occurs, their cumulative ability to control what activities occur on the property should be considered. A description and/or map of the spatial coverage of each mean or mechanism within the corridor should also be included.

Indigenous Law

Indigenous law can be accessed from a range of sources, including Elders and community knowledge keepers, published stories, oral histories and narratives, songs, ceremonies, language, dreams, the land, art, pots, petroglyphs, scrolls, and published anthropological and historical research. Given the diversity of Indigenous nations across the territory now known as Canada, there are multiple distinctive Indigenous legal orders.

(From Innes *et al.*, Indigenous Laws in the Context of Conservation)

In the *We Rise Together* report, the Indigenous Circle of Experts defines them as "Principles, rules of conduct and beliefs that have been informed by a given generation and transmitted from one generation to the next, and are recognized and practised by Indigenous Peoples. Such laws dictate the spiritual, political and social customs and conventions that guide the relationships between Indigenous Peoples and their lands and territories as well as between themselves. These ancient laws are unique to each community, and identify principles related to rights and standards of environmental governance. Indigenous laws are imprinted (transmitted orally) and distinct from Canadian laws (written and enforced laws)."

(From the We Rise Together report, 2018)

5 HOW – The GOVERNING BODIES and DECISION-MAKERS

This criterion applies at the property scale.

To meet the criterion, governing bodies and decision-makers must:

- ✓ be identified, and
- ✓ act in a manner that is compatible with, and does not jeopardize the achievement of corridor goals and objectives.

Having the ability to prevent, manage/steward activities through effective means is not the same as governing bodies and decision-makers using this ability to ensure that only compatible activities occur. In general, governing bodies and decision-makers are the entities responsible for determining the management/ stewardship intent of a property and for delivering its day-to-day management. They may include organizations, agencies, landowners, and Indigenous peoples with ownership or management/ stewardship responsibility. Examples include "Friends of…" organizations, municipalities, individuals, Indigenous Guardians, etc. However, in some situations, governing bodies and decision-makers may also include regulators and rights holders not responsible for the management of the property.

Compatible?

Human activities have the potential to negatively impact or impair ecological connectivity and Indigenous stewardship values. The nature and scale of an activity, the objectives for the property, and the decision-makers' ability to effectively manage activities will determine if the activity is compatible with the corridor's goals and objectives.

Compatibility is context and project specific. Assessment of activities should consider:

- how they impact connectivity within the corridor,
- the extent and likelihood of impacts occurring, and
- whether decision-makers have the capacity and willingness to manage those impacts over time.

In general, **compatible activities** do not compromise connectivity regardless of scale, intensity or extent of impact; whereas **incompatible activities** prevent or reduce connectivity and compromise the corridor goals and objectives. In some cases, the effective management of an activity can make it compatible with the goals and objectives of the corridor, by ensuring connectivity is not compromised.

(adapted from the Pathway to Canada Target 1 OECM Common Questions and Answers)

Incompatible activities may occur in an ecological corridor. Corridor leads can support collaborative efforts with willing landowners to modify or phase out these activities in order to achieve positive outcomes for ecological connectivity on their property. If incompatible activities cannot be effectively managed, alternate boundaries to the corridor can be considered.

In applying this criterion, corridor leads should identify rights holders and describe the current status of communication between rights holders and decision-makers responsible for governance and management.

Decision-making models and tools should be documented and described, including processes and approaches that address issues of transparency, accountability, participation and equity in decision making. Where they exist, track records of success or failure regarding the use of mechanisms should be considered. When multiple governing bodies or decision-makers are relevant to a mechanism or groups of mechanisms, the process, tools or approaches to working together should be described, where they exist.

Decision-making model

The Cootes to Escarpment EcoPark System is a voluntary initiative among nine local government, academic and non-government organizations to protect, enhance and connect more than 2,200 hectares of natural lands in the Hamilton-Burlington area.

It operates under a Memorandum of Understanding, which includes a framework for joint decision making based on consensus. A Governing Council, a Management Committee, and a Secretariat have clear roles and responsibilities, and code of conduct.

6 HOW – The LONG-TERM duration of mechanisms

This criterion applies at the property scale.

To meet the criterion, the mechanism applying to the property must:

- ✓ at a minimum, be in effect for a medium-term duration (see side box) with the opportunity or likelihood for extension, and
- ✓ be difficult to reverse (see box on next page).

Ecological corridors should be created with the intent of enduring over the long-term. Mechanisms do not need to be permanent. If permanent mechanisms are in place, the property should be considered for evaluation against the Pan-Canadian Standards for Protected Areas and OECM.

If a duration is not clearly stated in mechanisms, there should be a well-rationalized demonstration that the area will continue to be managed over the medium-term to meet the criterion.

In some cases, seasonal arrangements that accommodate a specific species' need, in combination with other mechanisms, may meet corridor goals and objectives. However, mechanisms that only provide connectivity during a specific seasonal timeframe and potentially allow for environmental degradation the rest of the year do not meet the criterion.

Long-term

The IUCN sets a "long-term intent" at a minimum of 25 years. In the context of creating ecological corridors, it can take time to put in place mechanisms that will endure over the long-term. Following this guidance, a duration of a minimum of 10 years is considered medium-term.

(From IUCN's Guidelines for privately protected areas)

Reversibility

The degree of difficulty associated with reversing a mechanism can be assessed by considering such factors as:

The level of authority at which decisions are approved:

- parliament or legislature = very high difficulty
- cabinet or board = high difficulty
- minister or chair = moderate difficulty
- director or staff = low difficulty

Requirements for public involvement:

- public approval = high difficulty
- public consultation = moderate difficulty
- no public involvement = low difficulty

Need for agreement amongst:

- multiple governing authorities = high difficulty
- single authority = potentially low difficulty

Requirements for:

- non-profit organizations to change by-laws or risk charitable status = high difficulty
- for-profit companies to change policy or divest of land = low difficulty

Agreements with landowners that:

- are binding and survive changes in ownership = high difficulty
- are voluntary and require ongoing landowner consent = low difficulty

(From the Pathway to Canada Target 1 Decision Support Tool)

Summary of Criteria

WHERE and WHY — Corridor scale

1. Geographical space

- ☐ Map of the corridor demonstrating linkage between protected and conserved areas, and/or unprotected natural habitat.
- ☐ Spatial mapping data depicting the extent and coverage of all means and mechanisms used in corridor management.

2. Goals, objectives and outcomes

- ☐ Corridor Conservation/Stewardship Plan describing goals, objectives and related activities, partnerships, timelines, and monitoring plan to demonstrate outcomes.

HOW – Property scale

3. Management/Stewardship Intent

- ☐ Identification of management/stewardship intent of the property/group of properties and demonstration of compatibility with corridor goals and objectives.

4 Effective means

- ☐ Identification of all mechanisms relevant to the governance and management of the property/group of properties, with a clear description of how they enable governing bodies or decision-makers to prevent or prohibit incompatible activities and manage or steward compatible activities.

5. Governing bodies and decision-makers

- ☐ Identification of all relevant governing bodies and decision-makers, decision-making model and track record of decision compatible with corridor goals and objectives, where it exists.

6. Long-term

- ☐ Demonstration of the medium to long-term duration of all mechanisms and the degree of difficulty to reverse them.