



# Finding Refuge

## The Wildlife Connectivity Project



Photo: Jillian Cooper / Canva



### Context & Focus

Understanding patterns of ecological connectivity and identifying land management actions that safeguard wildlife corridors for the movement of native animals and plants are widely recognized as foundational strategies to mitigate the effects of biodiversity loss and to enhance landscape resilience for future generations (IUCN)

The Wildlife Connectivity Project is a multi-year collaborative effort led by the Squamish Environment Society (SES), the Howe Sound Biosphere Region Initiative Society (HSBRIS), and a coalition of partners who share a mandate for biodiversity conservation planning in the Átl'ka7tsem/Howe Sound UNESCO Biosphere & surrounding Sea-to-Sky region of southwest British Columbia. These include

Sḵwxwú7mesh Úxwumixw (Squamish Nation), the District of Squamish, the Squamish-Lillooet Regional District, the Squamish Community Forest, Conservation Northwest, and Provincial/Federal agencies who are collectively responsible for land and resource management in the southern Coast Mountains.

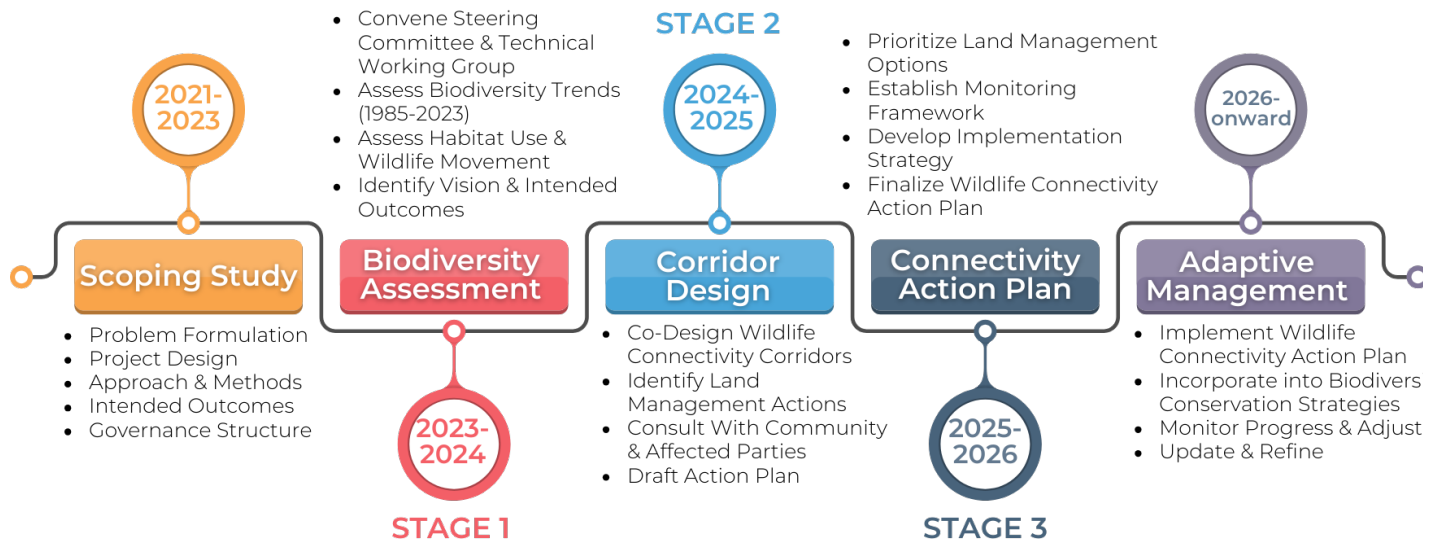
Through ongoing collaboration, we aim to:

- **Promote Shared Understanding:** by leveraging the strengths of both Western and Indigenous ways of knowing and the insights they provide about the root causes and historical trends of biodiversity loss in our region.
- **Enhance Wildlife Connectivity:** by identifying the best available routes to maintain pathways of wildlife movement and enhance ecosystem resilience for the broadest possible range of native species.
- **Empower Conservation Planning:** by establishing an authoritative base of evidence and the capacities needed to develop conservation strategies that effectively safeguard vulnerable habitat and pathways of wildlife movement for its own sake, and for future generations through an ongoing process of adaptive land management.

Our work builds on and contributes to other related conservation planning efforts led by the province to support implementation of an integrated *Biodiversity and Ecosystem Health Framework* for British Columbia. These include the *Cumulative Effects Framework* and related *Stewardship Baseline Objectives Tool* for the southern Coast Mountain region and the *Sea-to-Sky Visitor Use Management Framework*. Collectively, these efforts contribute to broader goals and objectives of *Canada's 2030 Biodiversity Conservation Strategy*.

# Project Plan

Tasks and related activities required to achieve project outcomes are staged within each of three fiscal year cycles. Each stage represents a scope of work with discrete milestones and deliverables.



**Stage 1 (April 2023 - March 2024):** This initial stage of work involves establishment of the overall governance framework and the refinement of Project approach and methods of assessment. It includes a longitudinal assessment of environmental change using a framework of indicators developed in partnership with *TerrAdapt.org*. Indicators monitor historical trends in habitat loss, ecosystem integrity, wildlife connectivity and natural capital over the last ~40 years (1985-2023). Model outputs are used to identify hotspot areas of biodiversity loss, habitat core areas and regional pathways of wildlife movement for umbrella species (Grizzly, Wolverine, Fisher & Lynx). Environmental variables are combined with wildlife occurrence data for more localized indicator species to assess patterns of habitat use and pathways of movement at scales that will be relevant to land management decisions at the site level.

**Stage 2 (April 2024 - March 2025):** This stage of the assessment process involves a more in-depth analysis of environmental values within wildlife habitat areas and connectivity pathways that are relevant to conservation planning activities led by Project Partners. Outputs will be used to co-design an integrated network of wildlife corridors and to identify specific land management actions that are effective in protecting, restoring, and maintaining critical habitat and pathways of movement for the broadest possible range of native species. The delineation of wildlife corridor networks will build on the strengths of both Indigenous and Western knowledge systems and input from the community and affected parties.

**Stage 3 (April 2025 - March 2026):** Final stages of the project are focused on planning scenarios that help make evident the strengths and weaknesses of proposed land management strategies in achieving biodiversity goals and targets identified by Project Partners. The intended outcome is co-development of a Wildlife Connectivity Action Plan that can be incorporated into ongoing planning processes by Project Partners and updated on an ongoing basis as conditions change or as new information becomes available. Land management actions may include measures to restore and protect linear landscape corridors (e.g., riparian and wetland habitat) and “stepping-stone” patches that facilitate the movement of wildlife species between intact core areas; and measures that allow animals to move safely across roads and/or other human-made barriers through a variety of mitigation structures (e.g., culverts, underpasses, overpasses, directional fences).

## Intended Outcomes

### Regional Biodiversity Assessment

We have completed an initial baseline assessment of environmental change using a framework of indicators developed in partnership with *TerrAdapt.org*. Indicators monitor historical trends in landscape disturbance, habitat loss, ecosystem integrity, wildlife connectivity and natural capital over the last ~40 years (1985-2023). Model outputs are used to assess the underlying drivers of biodiversity loss, to identify areas of high habitat integrity and connecting pathways of wildlife movement for representative umbrella species (*Grizzly*, *Wolverine*, *Fisher & Lynx*). Over the coming months, we will be working with Project partners to incorporate biodiversity assessment results into existing planning support systems and web-based mapping platforms. This will provide a capability to explore trends in ecosystem risk and resilience for land management areas of interest, including landscape units, watersheds, and administrative areas.

### Local Species Distribution Models

We are also in the process of developing a suite of integrated species distribution models (iSDM's) to identify habitat use and potential pathways of wildlife movement at scales relevant to land management decisions at a local scale. The models assess how environmental conditions influence the use of terrestrial habitat by representative mammal and herpetofauna species at local scales and predict the likely occurrence of wildlife communities in areas where we do not have field-based observations. Our modelling efforts complement a separate but parallel effort that will be led by Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) members to identify changing patterns of wildlife connectivity within their territory. Results will be used to inform the design of wildlife corridors and to identify corresponding land management actions needed at a local scale to protect, restore, and maintain critical habitat and pathways for the broadest possible range of native species.

### Indigenous Knowledge about Wildlife Habitat and Connectivity

The approach and methods used to represent Indigenous knowledge in this Project will be developed independently by the Squamish Nation through collaboration with Project team members, where appropriate. Assessment methods may include a compilation of field-based observations and/or information gathered through community engagement and mapping workshops with key knowledge holders. The intent is to assess the cumulative effects of environmental changes within lands of the Sk̓wx̓wú7mesh Úxwumixw territory and to identify conservation strategies that advance strategic goals and objectives of the X̓ay Temíxw Land Use Plan.

### Planning Support Resources

We will be working with Project partners to design and develop planning support resources that can be incorporated into their existing applications and workflows to support both strategic and operational planning activities on the ground. Outputs of this work are likely to include interactive web-mapping applications and indicator dashboards that make accessible available information on biodiversity values and wildlife connectivity corridors for a given location and/or planning area. Dynamic linkages to biodiversity assessment information on the TerrAdapt-Cascadia platform will allow regular updates of planning support applications as new information becomes available.

### Story Map Series

Story maps offer a way of presenting geospatial information with narrative text and interactive media to share knowledge and insights with diverse audiences. In the content of this project, we are proposing to develop a series of story maps that help promote a shared understanding of environmental change and evolving patterns of wildlife connectivity in the AHSUBR and surrounding areas of the Sea-to-Sky corridor. The series

*For additional information, see our [website](#) or contact us by email: [wildlife@squamishenvironment.ca](mailto:wildlife@squamishenvironment.ca)*

will include story maps designed for a general audience, which help establish a broad base of understanding, and more focused story map applications that facilitate knowledge exchange with project partners.

### **Webinar Series**

We are proposing to design and host a series of online webinars to share knowledge and insights emerging from this Project and to learn from others involved in similar work at the community level. Webinars will cover technical aspects of biodiversity assessment and wildlife connectivity modelling and examples of how this information is being used to inform conservation planning across local and regional scales. The primary audience will include project partners and members of our Steering Committee and Technical Working Group. Events will be advertised and made available to others who may be interested in attending.

### **Community Engagement Workshops**

We plan to host a series of community open houses and workshops to share information and results of the Project. We will also solicit input from those who may be more directly affected by land management actions being considered by Project partners. The events will be co-designed with Project partners. They will be facilitated by an independent third-party who has experience in working with a diverse group of stakeholders to both solicit input on values and goals and to identify potential issues of concern. Insights and knowledge gained through this process will help inform ongoing development of the Wildlife Connectivity Action Plan.

### **Participatory Planning Workshops**

We are designing and hosting a series of participatory planning workshops to co-design an integrated wildlife corridor network, and to identify the corresponding land management actions needed to protect, restore, mitigate and/or maintain pathways of movement for the broadest possible range of wildlife species. The planning process will be informed by outputs of both western science and Indigenous knowledge components of the Project and will be facilitated by a registered professional biologist with background and expertise in both landscape ecology and adaptive land management.

### **Wildlife Connectivity Action Plan**

An important output of our Project will be a Wildlife Connectivity Action Plan that can be implemented by Project partners within the context of their jurisdictional mandates. As part of the process, we are aiming to develop an evidence-based conservation planning framework that can be implemented at local and regional scales in accordance with goals and objectives of BC's Biodiversity and Ecosystem Health Framework and Canada's 2030 Biodiversity Conservation Strategy.

