

**BC's Coast Region:
Guide to using the SCCP's Species & Habitat Profiles
Version 3 2018**



October 2018

Cover images:

Top row left to right: Johnson’s Hairstreak – David Nunnallee, Northern Red-legged Frog – Ryan Durand, Townsend’s Big-eared Bat – Dave Bunnell (Wikipedia). Bottom row left to right: Pacific Waterleaf - Caroline Astley, Cultus Pygmy Sculpin – Sylvia Letay, Quatsino Cave Amphipod – Paul Griffiths [* Only images from creative commons sources e.g. Wikipedia, Flickr, US Government, may be used without permission and for non-commercial purposes only.]

The South Coast Conservation Program (SCCP), established in 2005 is a multi-partner, landscape-level conservation program. The primary objective of the SCCP is to coordinate and facilitate the recovery and protection of species and ecosystems at risk in the Lower Mainland eco-region of the South Coast of British Columbia. <http://www.sccp.ca/> | info@sccp.ca

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Executive Summary

The species and ecological community profiles on the SCCP’s website were developed to provide a comprehensive summary of information on the identification, biology, distribution and conservation approaches for regionally, provincially and federally significant species of BC’s Coast Region.

British Columbia is one of the most biologically rich provinces in Canada. Many factors have led to our species and ecosystems being naturally rare. Low dispersal capability (due to physiology or geographic barriers), association with specific environmental conditions or ecologically rare communities, or human activities are all contributing factors. Such limitations and pressures make these species increasingly vulnerable to extinction or extirpation. The result has been that an increasing number of species and ecosystems in BC have become of conservation concern.

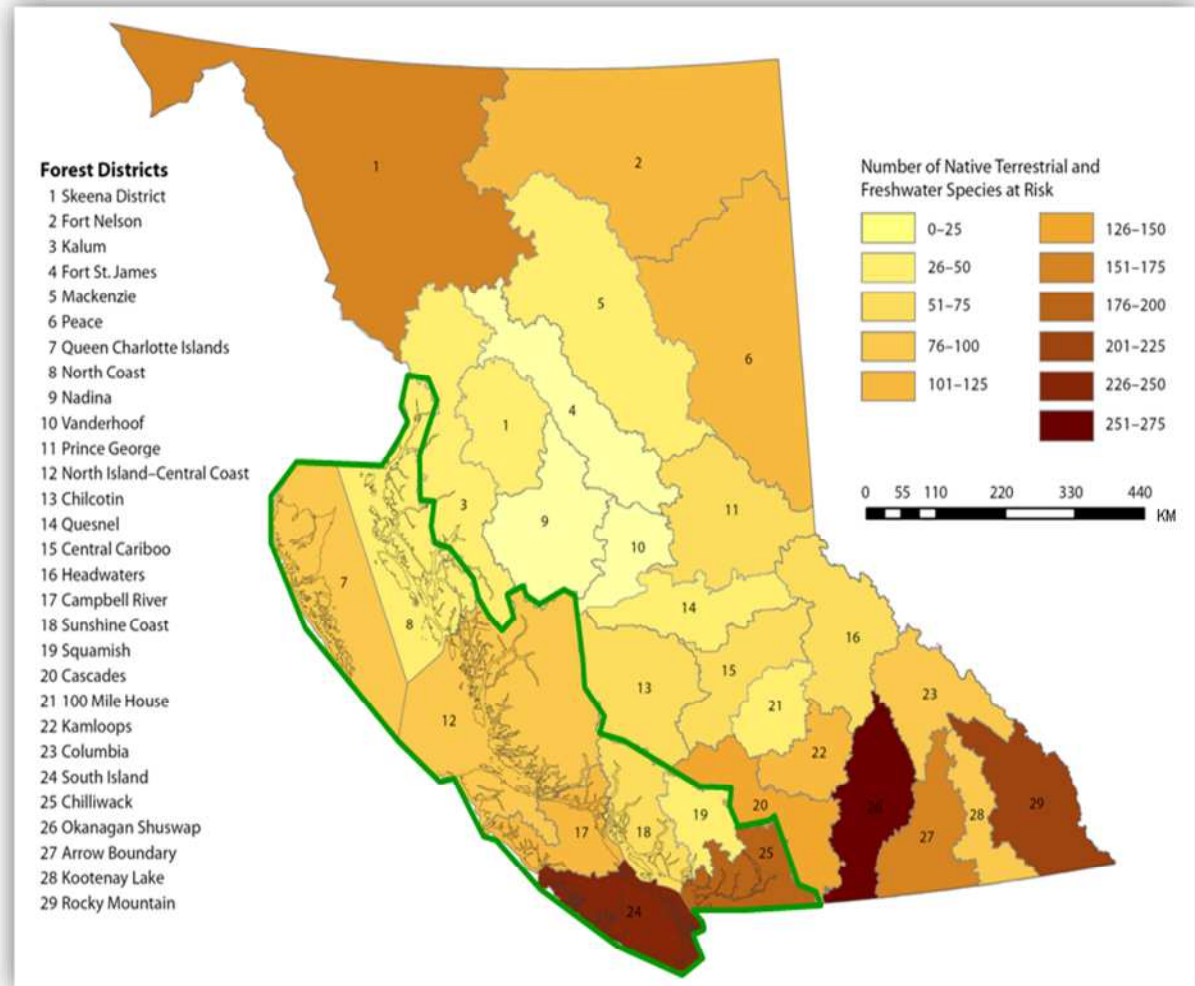


Figure 1. Hotspots of species at risk in BC by forest district (Coast Region outlined in green).

Map Source: “Rich Wildlife, Poor Protection: The urgent need for strong legal protection of British Columbia’s biodiversity.” David Suzuki Foundation 2007. Further species have been formerly scheduled under SARA since this report from 2007, adding to the at risk statistics for the Coast Region.

To address this, resource managers, policy makers, environmental professionals, land use authorities, and the public require an ever expanding array of up to date resources and tools to ensure decision making is effective, informed and conservation based.

The new profiles for BC's Coast Region are based on the 2003 publication "*A Field Guide to Species at Risk in the Coast Region of British Columbia*". Also included are priority (provincially red-listed) ecological (plant) communities representing a range of ecological associations across wilderness, urban, suburban, rural and agricultural landscapes.

Key to each profile are the references and resources found at the end directing users to more detailed, regulatory based requirements, science based resources and research for specific compliance and management information.

Whether exploring your own backyard or conducting research or assessments, this resource is intended to support improved recognition and protection of the Coast Region's incredible biodiversity.



Figure 2. The Coast Region of BC supports some of the most biodiverse landscapes in the province – with arguably some of the greatest challenges to conserving species at risk and their habitats.

Image credits: Top left - Random Truth (Flickr), Middle left - Canada Parks Agency, Bottom Left - Calypso Orchid (Flickr), Top right - Pamela Zevit, Middle Right - Province of BC, Bottom right - Teero Laakso (Wikipedia)

Background

In 2003, a partnered publication, “A Field Guide to Species at Risk in the Coast Region of British Columbia” was produced by the provincial government and International Forest Products (Interfor).

In 2008 the South Coast Conservation Program (SCCP) began development of an updated version of the guide, with a specific focus on species of conservation concern for the South Coast area of BC. In late 2009 International Forest Products approached the SCCP about a joint application with the BC Ministry of Environment and Capacity Forest Products to secure funds, finalize and publish the work. The project was funded by the Sustainable Forestry Initiative (SFI) in spring 2010.

“BC’s Coast Region: Species & Ecosystems of Conservation Concern” profiles are the product of that partnership. The SCCP expanded the project scope from the South Coast to the original area of interest – the Coast Region. The product went from being a hardcopy field guide compilation to online profiles which can be updated easily and downloaded as individual PDF ‘profiles’.

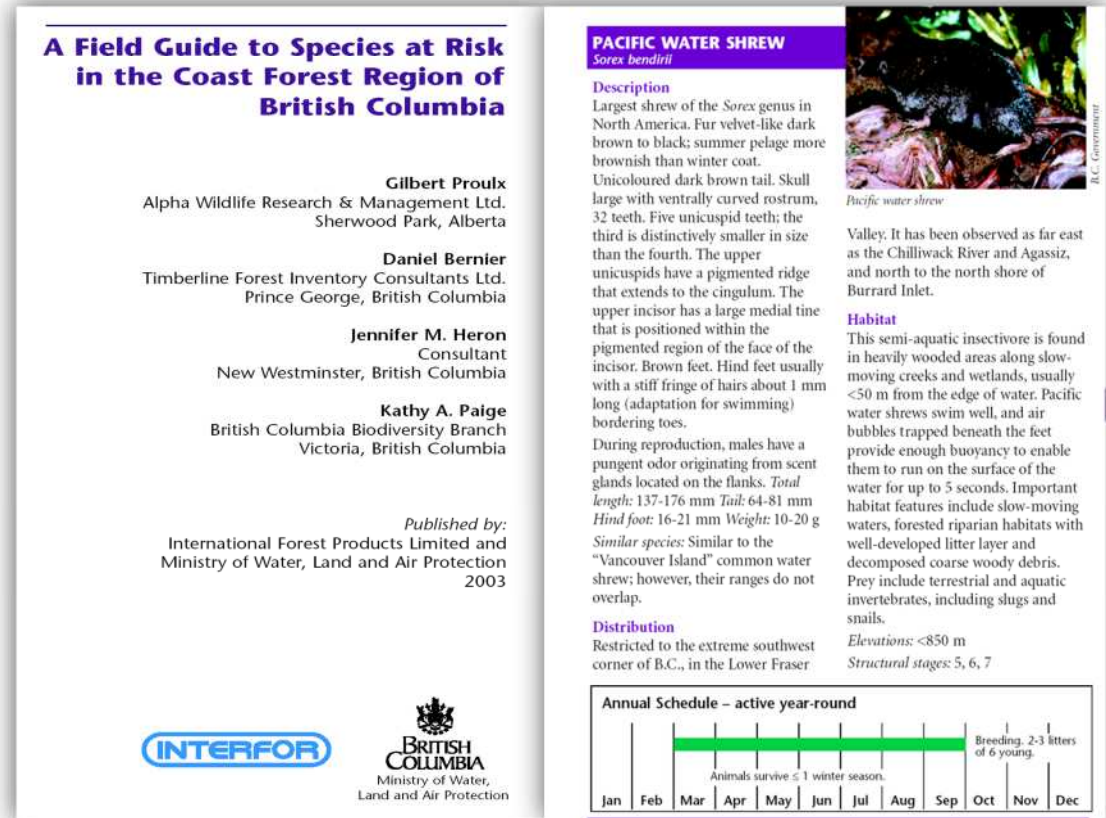


Figure 3 The 2003 publication “A Field Guide to Species at Risk in the Coast Region of British Columbia” was a hardcopy limited-distribution product that compiled species and ecosystem information in short, one and two-page style synopses.

Each profile provides a comprehensive menu of information relative to the up to date status of a given species, its biology, habitat associations and a more in-depth summary of conservation objectives and management practices. In comparison to the 2003 product, the new profiles incorporate a wider range of local expert knowledge and occurrence data as well as recent research from BC and beyond.

By moving to an online format, using open access sources, the information can be easily updated and distributed to a wider range of audiences. User's will be able to focus on the species information they want for their area and can access the information anywhere either online - or off by printing or digitally archiving individual profiles. Each profile is also synced to the SCCP's South Coast Endangered Species Finder app so that as a profile is updated, information on the app is updated for easy access offline in the field. The app is available in Android and iOS and can be downloaded through the SCCP's homepage www.sccp.ca



Who is this Product For?

The profiles are designed to be a resource for a wide range of audiences. They are not designed as recovery planning documents. More importantly, the information in the profiles is not a replacement for legal information on a species status or protection. Users must employ due diligence in respect to regulatory requirements, applying comprehensive best management practices or inventory standards.

Ideally, qualified environmental professionals or QEPs (e.g. Biologists, Engineers, Foresters, Planners, Agrologists, Landscape Architects, **other regulated** land care professionals etc.), resource managers, local government and First Nations operational staff will find the profiles a quick, easy to read reference for field or desktop use. As well, they can be printed out and provided to the public as supporting information in conjunction with development permitting, environmental reviews, or outreach on local or regional land use and conservation activities and should be used along with other species identification and recovery resources the SCCP has developed. For non-government organizations working on issues related to species and ecosystems at risk, the profiles can be used as part of environmental education, or for citizen science and community outreach efforts.

What Species are Included?

The majority of species and ecosystems covered are federally and or provincially listed, but not all provincial species that are a conservation priority are federally listed. All of the species selected are not just individual priorities for conservation. Collectively they form part of broader ecoregional, multi-species conservation and recovery efforts.

Each of the species and ecosystems profiled has associated conservation challenges and may be suffering population declines regionally or across their known range. Some are already considered extirpated. By raising their profile we can hope to become better informed of unknown occurrences or local populations yet to be identified.



Image credits: Left - top to bottom: Oregon Spotted Frog, William P. Leonard, Pacific Sideband, Ryan Duran, Pacific Waterleaf, Caroline Astley
Right - top to bottom: Pacific Water Shrew, Denis Knopp, Streaked Horned Lark *Strigata ssp*, Rod Gilbert, Salish Sucker, Mike Pearson

What Information is included?

Each account provides species conservation ranking, field identification tips and ecology including:

- ◆ High resolution photo of the species, distinguishing features and similar species.
- ◆ Distribution information and occurrence mapping.
- ◆ Life history details and seasonal timing.
- ◆ Ecological associations, habitat preferences and important features.
- ◆ Conservation objectives, management practices, assessment standards and options.
- ◆ Legal requirements and caveats.

The information is designed to assist users in determining 'who's who' and the potential for habitat suitability and occurrence. Specialists and peer reviewers have contributed significant input to the project. The information represents the best available science regarding the species, its conservation and management, from as many (mainly open access) sources as possible.

The screenshot displays the 'Pacific Water Shrew' profile on the South Coast Conservation Program website. The page includes a navigation menu with options like 'HOME', 'ABOUT', 'SPECIES PROFILES', 'RESOURCES', 'EVENTS & WORKSHOPS', and 'PROGRAMS'. The main content area features a large photo of a shrew being held, with a smaller photo of a shrew in its natural habitat. Text describes the species *Sorex bendirii*, noting it is one of three aquatic specialist species known as 'water shrews'. It provides details on its physical characteristics, such as its long tail and unique toe structure, and its habitat preferences. A 'STATUS' section lists its conservation status: Global Status: G5, Provincial Status: B1B2, SARA Status: Endangered, and BC List Status: Red (Candidates for Endangered, Endangered, or Threatened status). A 'SIMILAR SPECIES' section includes photos and descriptions of other shrew species. The 'ECOLOGY' section features a map of the species' range in British Columbia and Washington state, and text describing its distribution and habitat requirements.

What's in a Name – Taxonomic Classification

The following hierarchy is used for each species based on the most recent taxonomic classifications. Names are based on those found through the BC Conservation Data Center database¹:

- ◆ English name: The common name that is generally used for a particular animal or plant. In some cases there is also a commonly used but 'unofficial' alias. This is referenced in the "Notes on" section in the profiles.
- ◆ Scientific name: The scientific name of a species consists of the genus (*Capitalized and in italics*) and the species (*lower case and also in italics*). If an organism is further classified as a subspecies, a third *lower case italicized* word indicating the subspecies is added. This can be prefixed with "*ssp.*", or for plants "*var.*" For example, the scientific name of Pacific Water Shrew is *Sorex (genus) bendirii (species)*.

Home » Species & Habitat » Pacific Water Shrew

Pacific Water Shrew



Sorex bendirii

Of the 12 species of the family Soricidae ("shrews"), in BC, *S. bendirii* is one of three aquatic specialist species known as "water shrews". Also referred to as "Marsh Shrew" and "Bendire's Shrew", this species is at the northern end of its range in southwest BC and found nowhere else in Canada. Water shrews are the world's smallest diving mammal.



Pacific Water Shrew Chris Schmidt

¹ While all species have been checked against the most recent BCCDC classifications, the provincial database is generally only updated annually (i.e. June of each year). With the advent of refined DNA analyses it is expected that changes to species and subspecies classifications will occur frequently.

Species Status and Ranking Information

Up to date status and conservation ranking at the provincial, federal and international levels is also included for each species. Risk is assigned to plant and animal species and plant communities by various international, national and provincial bodies. In order to assess the degree of conservation risk for a given wildlife population and its habitat, The Nature Conservancy and the Natural Heritage network jointly established “NatureServe” in July 1999 to rank species according to a standardized set of criteria. NatureServe represents an international network of biological inventories in Canada, United States, Latin America and the Caribbean. These ranks are scientifically based, but have no legal implications.

Global conservation status ranks are based on a 1 to 5 scale, ranging from critically imperiled (G1) to demonstrably secure (G5):	National conservation status is further designated by an “N” (national) ranking using the same 1 – 5 criteria:	At the sub-national (i.e. provincial) status is further designated by an “S”, again using the same 1 – 5 criteria:
1 = critically imperiled 2 = imperiled 3 = vulnerable 4 = apparently secure 5 = secure. GX = extinct, GH = Presumed eliminated	NX = Presumed extirpated at a national level NH = Possibly extirpated at a national level	SX = Presumed extirpated at a sub-national level NH = Possibly extirpated at a sub-national level

Each species listing has the most current common and scientific name according to the BC Conservation Data Centre. As well, information about the species provincial and federal status (where it exists) is provided. Some species are not listed federally but may be covered under other legislation such as "Identified Wildlife under BC's Forest and Range Practices Act. The most common codes and their meanings are as follows:

Red	Blue	Yellow
Includes any indigenous species or subspecies that have- or are candidates for- Extirpated, Endangered, or Threatened status in British Columbia.	Includes any indigenous species or subspecies considered to be of Special Concern (formerly Vulnerable) in British Columbia.	Includes species that are apparently secure and not at risk of extinction. Yellow-listed species may have Red- or Blue-listed subspecies.

Extirpated taxa no longer exist in the wild in British Columbia, but do occur elsewhere. Endangered taxa are facing imminent extirpation or extinction. Threatened taxa are likely to become endangered if limiting factors are not reversed. Not all Red-listed taxa will necessarily become formally designated. Placing taxa on these lists flags them as being at risk and requiring investigation.

Taxa of Special Concern have characteristics that make them particularly sensitive or vulnerable to human activities or natural events. Blue-listed taxa are at risk, but are not Extirpated, Endangered or Threatened.

COSEWIC Ranks: These are the same as Species at Risk Act (SARA) listings although not all COSEWIC listed species are protect under SARA.

E = ENDANGERED	T = THREATENED	SC = SPECIAL CONCERN	NAR = NOT AT RISK	DD = DATA DEFICIENT
A species facing imminent extirpation or extinction	A species that is likely to become endangered if limiting factors are not reversed	A species of special concern because of characteristics that make it is particularly sensitive to human activities or natural events	A species that has been evaluated and found to be not at risk	A species for which there is insufficient scientific information to support status designation

Conservation Actions Required

Many species and ecosystems at risk in BC have a number of previous or ongoing recovery strategies or management plans developed. These are referenced, but the profiles are not designed to repeat this information in detail.

Users are urged (and should) to investigate the various provincial and federal conservation and management resources as well as investigate the numerous research citations and references provided (see next page).

Regulatory ‘Caveats’

A summary of relevant and potential federal, provincial and regional legislative information is provided at the end for each species. Some species, like Wolverine and its subspecies (*Gulo gulo* & *ssp.*) have numerous ‘layers’ of regulatory requirements which must be recognized and adhered to.

It is important to remember that species protection is an evolving process. Many species may become listed or de-listed, or their status changed as new information becomes available. Users of the profiles are strongly urged to familiarize themselves with all municipal or senior agency regulatory guidelines or requirements that may govern the protection or management of a given species or its habitat. Consultation with senior agency staff (provincial and federal) is strongly recommended to ensure full understanding of regulatory and legal responsibilities.

Resources and References

At the end of each profile is the summary of all resources used for content development. It is recognized that there is ongoing research, new policies being developed and a wealth of local information and expertise out there. The best available and, preferably most openly accessible information on conservation science about each species has been used. Web links are not included as they are subject to frequent change. Citations are provided and each reference indicates whether it can be found on the internet for a quick search. In some instances certain information is only available through the paper’s author or via senior agencies.



THREATS

- Habitat loss, degradation and fragmentation in riparian zones causing damage and destruction of nests/den sites, litter abandonment and possibly extirpation of local populations due to urban development, agriculture and logging.
- Loss of habitat components important to foraging and nesting due to removal of dead trees and down wood in riparian zones.
- Increase in vehicle mortalities and population fragmentation due to roadways that cut through core habitat areas and lack wildlife passage structures.
- Limited reproductive success and population sustainability due to short lifespan reducing the potential for 'backup' populations in the event of local population declines.
- Adverse effects of contaminated runoff from roads and other impervious surfaces on water quality and turbidity, affecting species aquatic prey base and potentially the insulating capability of the shrew's pelage.
- Direct mortality from by-catch in minnow traps or small mammal traps from inventory activities, as well as potential mortality from rodent pest control activities in developments adjacent to riparian areas.
- Predation from free ranging and feral domestic pets (i.e. cats).

CONSERVATION AND MANAGEMENT

Apply conservation and management objectives as set-out in the "Recovery Strategy for the Pacific Water Shrew *Sorex bendirii* in British Columbia" and "Best Management Practices Guidelines for Pacific Water Shrew in Urban and Rural Areas (BMP; working draft)". Complementary objectives can be found in "Accounts and Measures for Managing Identified Wildlife – Accounts V, 2004 Pacific Water Shrew *Sorex bendirii*". This species is listed under the Federal Species At Risk Act (SARA), is Identified Wildlife under the BC Forest and Range Practices Act and subject to protections and prohibitions under the BC Wildlife Act. Habitat for this species may also be governed under provincial and federal regulations including the Fish Protection Act and Federal Fisheries Act as well as Regional and local municipal bylaws. Contact the Provincial regional species at risk biologist and/or the recovery team for the most up to date information.

RESOURCES

- [Species Are Sacred – A Stó:lō World View on Species at Risk Pacific Water Shrew \("heewahwt"\)](#)
- [Best Management Practices Guidelines for Pacific Water Shrew \(Draft\)](#)
The most recent draft (2010), please also refer to the more recent Pacific Water Shrew Recovery Strategy (2011) or contact the South Coast Regional Species at Risk Biologist in Surrey
- [Habitat Suitability/Capability Modelling for Pacific Water Shrew \(2007\)](#)

The references are the key point from which investigation of detailed management, regulatory and conservation requirements should occur. Familiarity and understanding of the range of recovery strategies, research, best management practices etc. is an essential component of required due diligence.

Wherever possible, citations for open access resources have been provided.

Next Steps - Building the Knowledge Base

Effective conservation of species and ecological communities at risk requires extensive knowledge and information about where a species occurs, its habits and life history. To inform ongoing efforts, the most up to date information must be available to land use decision makers, professionals and the public. This requires a concerted effort in data gathering and sharing that ensures credible, verifiable information is available in the most accessible formats.

There are a number of mechanisms to achieve this, however one of the first steps is to ensure that reporting happens and those gathering the data know where it can best be made openly available. In BC some of the main web-based data portals information can be contributed to, and checked for, are:

- ◆ The BC Conservation Data Center
- ◆ E-Flora BC
- ◆ E-Fauna BC
- ◆ Species at Risk and Local Governments a Primer for British Columbia
- ◆ Birding in British Columbia – Rare Bird Alert

The BCCDC provides one of the most centralized and widely used data warehouses. However information is only as good as what is provided. The volume of information received by many data providers often outstrips the resources to enter and purvey it in a timely manner. Work is underway to improve linkages between individual systems so that information is updated more seamlessly. However users should check all sources as regularly as possible.



Tips for contributing information

Once an occurrence or identification has been confirmed, the following information is suggested for reporting:

- ◆ General description of the habitat, noting any special features; include dominant plants, moisture (inundated, mesic, xeric, etc.); in the case of plants and plant communities, estimate abundance and landscape context, elevation in meters, slope gradient (%) and aspect (degrees) biogeoclimatic zone, subzone and variant.
- ◆ Geo-referenced location (e.g. through Google Earth, from an air photo, map, or GPS reading).
- ◆ Revisit the area where you encountered the species, and search for signs such as tracks or feathers that may confirm identification.
- ◆ Reading field signs (nests, tracks, droppings, claw marks, trails) are not easy. For example, some birds may use the old nests of other species. If there is evidence of an old nest being reused, one must see eggs, nestlings or birds to be sure of the 'resident'.

SARnet – the Species at Risk Network

The Species At Risk Network for the South Coast of BC is a pilot data hub developed in partnership between the SCCP and the Province of BC. It is designed to provide up-to-date information and improve communication and collaboration between researchers, practitioners and the public around species at risk conservation. As a networking tool, SARnet is designed to be user-friendly and accessible to a range of audiences. The SCCP sees SARnet as an opportunity to engage the public on species at risk conservation through allowing them to connect to the diverse actions, activities and research community on the South Coast. The network component of SARnet is facilitated through providing information on who is doing species at risk work, on what species and how to contact them.



SARnet Purpose:

Facilitate an improved understanding of what information is available on priority species and ecological communities at risk in BC's South Coast region on issues such as recovery, survival habitat, restoration and management, research and other activities;
Provide information on new inventorying and monitoring standards and protocols being developed or applied;
Initiate networking between those involved in various species and ecological communities at risk activities;
Provide a mechanism for gap analyses and identifying where future efforts could be best directed on species at risk conservation.

As the SARnet user community grows it is hoped it will reduce unforeseen overlaps in effort and research by providing the various communities of practice (researchers, industry, professionals and "citizen scientists") to become aware of current and past projects and the people and organizations involved in them. The records in the database and map base are open access, but contributors are needed to

ensure the network remains viable and current. If you have a project to share and the time to add it to the database, consider becoming a contributor².

Other Resources

This project is part of an evolving suite of tools to improve protection and management of species and ecosystems of conservation concern for the South Coast, Coast Region and beyond. All of these tools are being developed as living documents. They will evolve with our knowledge and understanding of the distribution of species and their habitat needs, unique ecology and changing taxonomy. All essential elements for what is needed to affect conservation of BC's species and ecosystems for the long-term.



The SCCP has developed a number of quick ID guide compilations for amphibians, owls and land snails that can be downloaded off our website as PDFs or saved on your mobile device through our South Coast Species Finder app.

² Want to become a contributor? Go to <http://www.sccp.ca/become-sarnet-contributor> and submit a request to become part of the SARnet community.