Species at Risk and Critical Habitat Protection on Non-federal Lands

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Canadian Wildlife Service: Undiné Thompson
March 2, 2023, 1:00 p.m. - 2:30 p.m.

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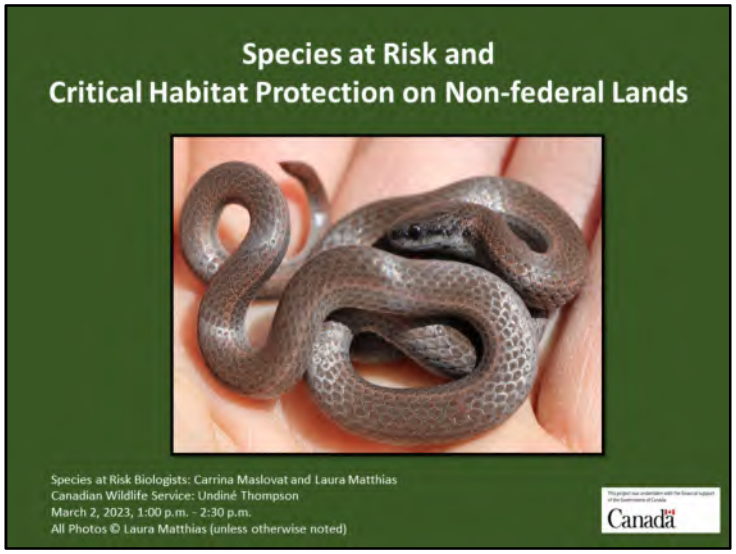


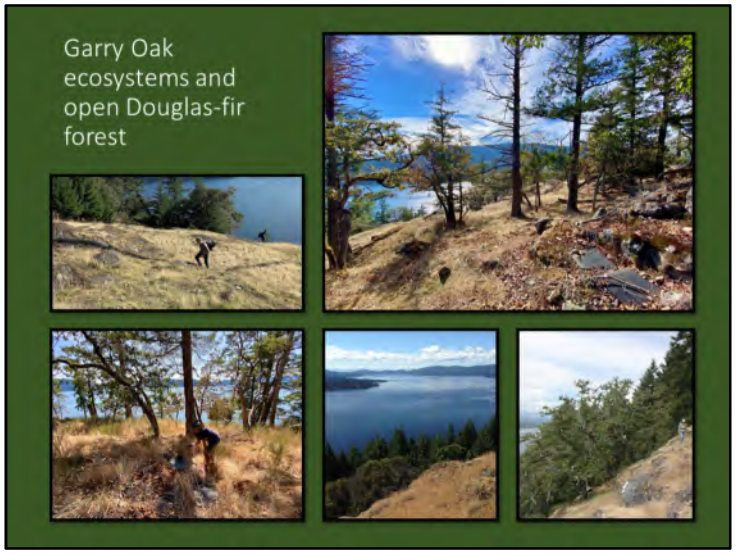
1) Thank you to Wendy for inviting us to be part of the seminar series. We presented this talk to a group of land managers that we work closely with and we're looking forward to sharing with all of you. We've left time at the end to answer questions.

Two Key Questions:

1. What does it mean to have Critical Habitat on lands you manage?

2. What stewardship actions can you take to protect rare species?

Garry Oak ecosystems and open Douglas-fir forest



Garry Oak and associated ecosystems and open Douglas-fir forests are extremely rare in the CDFmm biogeoclimatic zone. Less than 5% remains. These areas have habitat for over 100 SAR including many that are federally listed under COSEWIC. The remaining areas are under extreme pressure by the public for recreation use since these ecosystems are found in highly populated areas of the province.

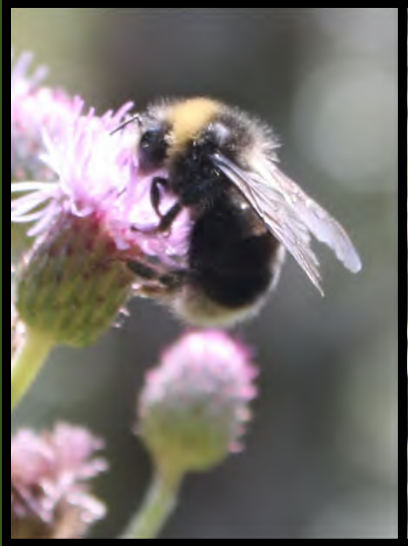
Sharp-tailed Snake (*Contia tenuis*)

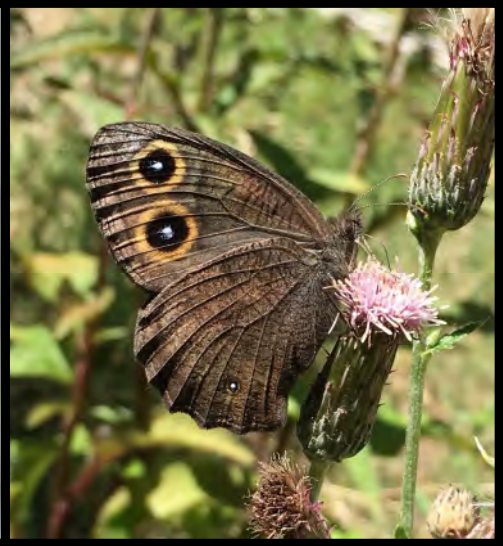
* Coastal Population is Threatened federally (Committee on the Status of Endangered Wildlife in Canada-COSEWIC)
* Endangered under the *Species at Risk Act*
* Red-listed provincially

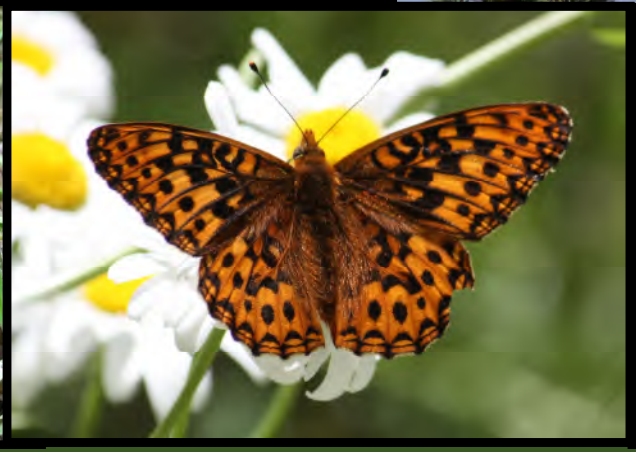
Much of our work has been focused on one of these rare species, STS, and we'll be using this species as an example in the presentation today. Many of the known STS sites have CH designated and all require some form of stewardship.

STS are a small, cryptic snake that spends most of its time below ground, often under loose woody debris or talus slopes. It's about the size of a pencil and its secretive nature makes it challenging to find during traditional surveys. STS lay eggs (unlike out local garter snakes that have live young) and therefore require warm sunny locations for incubation to keep their eggs warm. These snakes are non-venomous and do not bite.

Species at Risk associated with Sharp-tailed Snake habitat

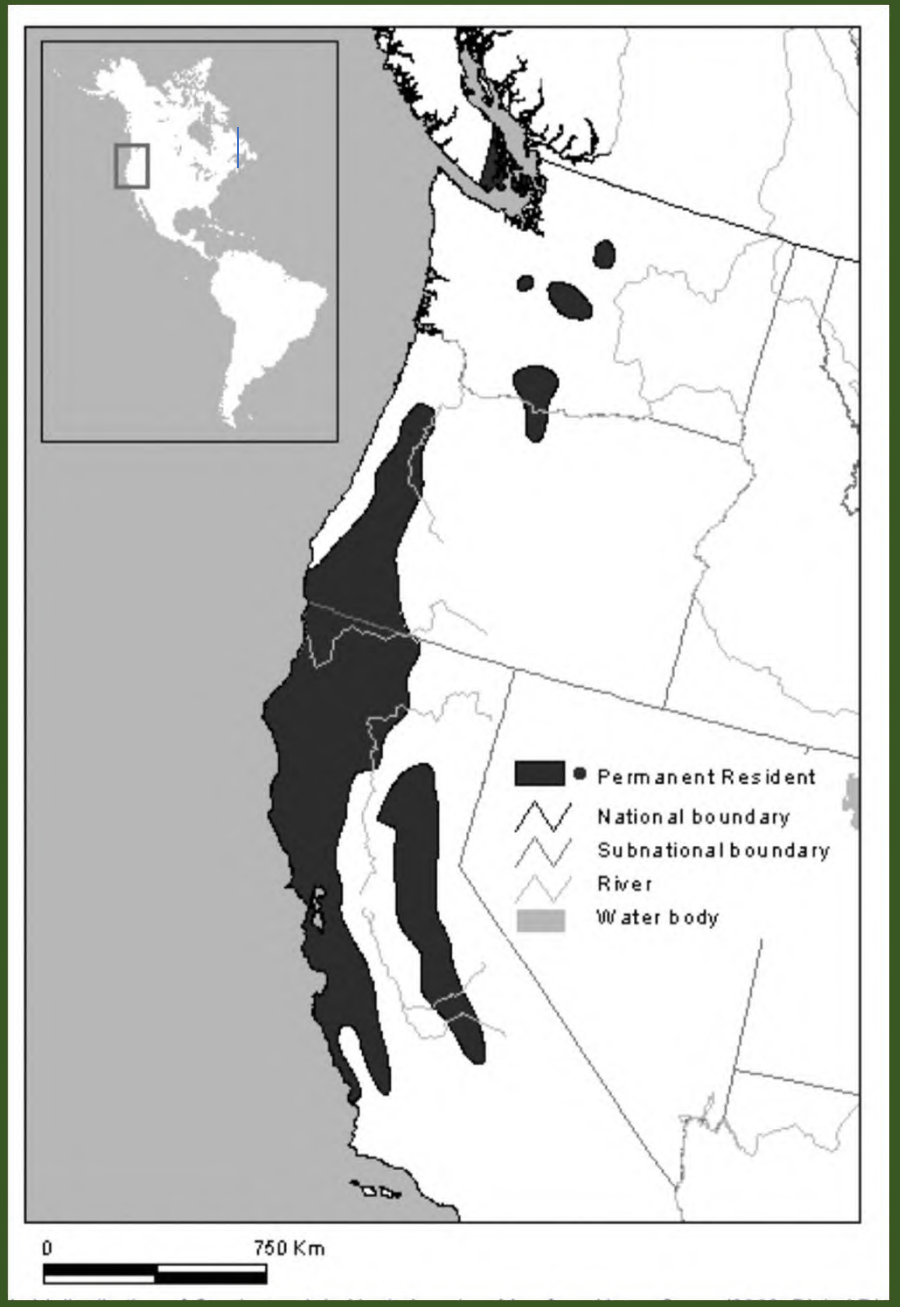






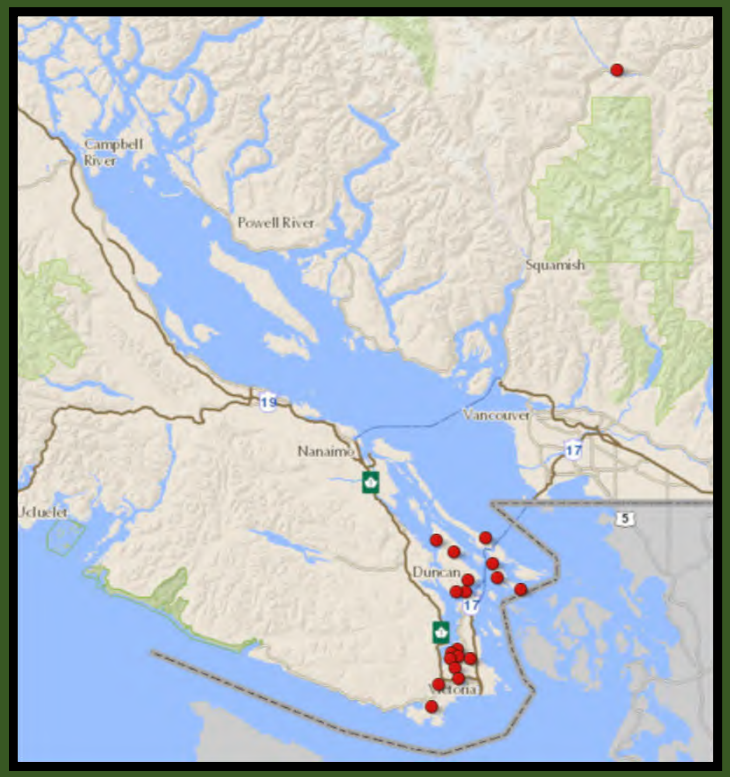
When we're out doing surveys, we also take note of other rare species so that landowners are aware of which species at risk are on lands that they manage. Some of these species are federally listed under the SARA and other species are listed as being at risk provincially. These photos show some of the rare species that we encounter when doing STS surveys. Protecting critical habitat for STS will also protect these species. Stewardship actions for STS will also protect these species. STS= umbrella species.

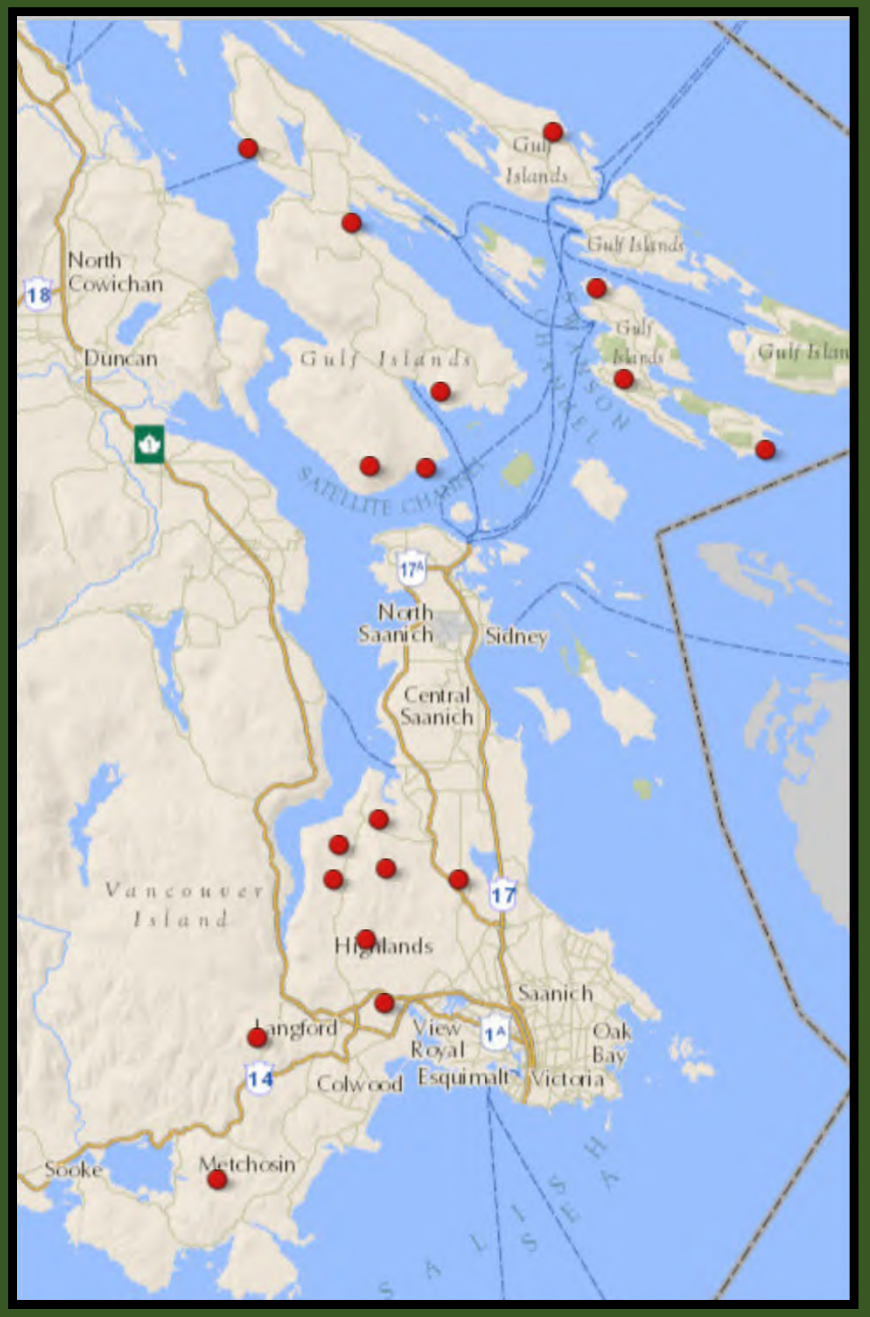
Where are Sharp-tailed Snakes found?



Global distribution. They are found in BC, Washington, Oregon and California.

Where are Sharp-tailed Snakes in Canada?





Map on the left shows the entire Canadian distribution. Snakes have been found in Pemberton (top right dot) and in 2021, the Pemberton snakes were recently considered a distinct population. **Two new locations were recently discovered near Ladysmith and Sooke Potholes in 2021 (not on map).** Map on the right shows the Coastal population including 5 locations on Salt Spring Island- Northwest, Northeast (unknown), Reginald Hill, and 2 in the Mt. Tuam area.

Species at Risk Act (SARA)

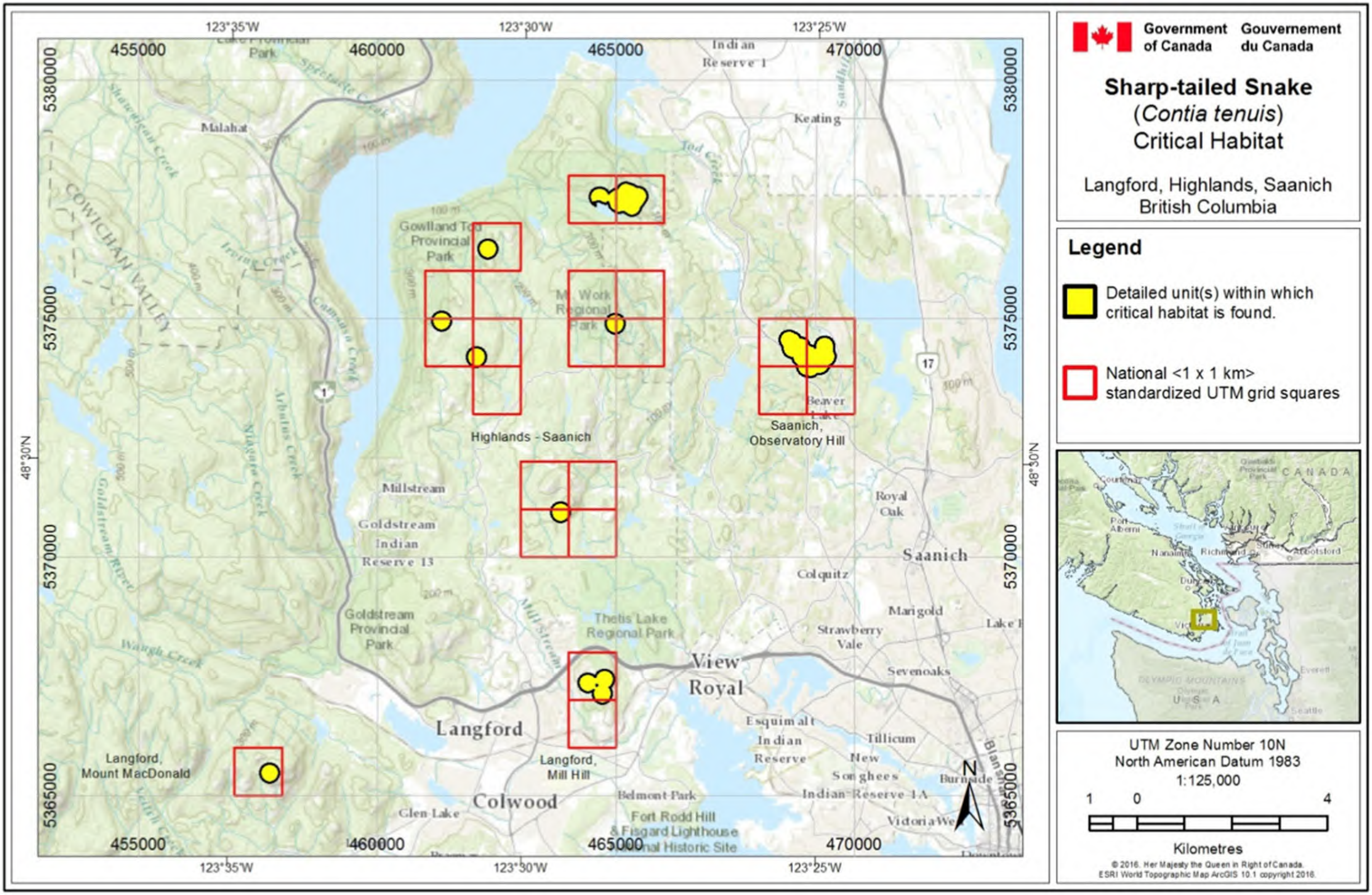
- Federal Species at Risk legislation enacted in 2003
- Uses Critical Habitat to protect habitat

So what protection measures are in place? There is the federal species at risk act which delineates CH. CH= habitat that is necessary for the survival or recovery of a SARA listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species.

Critical Habitat Protection on non-federal lands is focused on stewardship

Most sites in BC with species at risk are on non-federal land and are protected by the “safety net” clause of the *Species at Risk Act*

SARA was created on the premise that provincial governments would take the lead on SAR protection on non-federal lands. There is no provincial legislation to fill in the gaps, so it is imperative that land managers protect these species since there are no protections elsewhere. There is development right up to the boundaries of most protected areas and they are receiving increasing recreation pressures which have multiplied with the pandemic. Stewardship is essential.



Government of Canada
Gouvernement du Canada
Sharp-tailed Snake
(Contia tenuis)
Critical Habitat
Langford, Highlands, Saanich
British Columbia
Legend
Detailed unit(s) within which critical habitat is found.
National <1 x 1 km> standardized UTM grid squares
UTM Zone Number 10N
North American Datum 1983
1:125,000
1
0
4
Kilometres
© 2016. Her Majesty the Queen in Right of Canada.
ESRI World Topographic Map ArcGIS 10.1 copyright 2016.
123°35'W
123°30'W
123°25'W
48°30'N
455000
460000
465000
470000
5380000
5375000
5370000
5365000
Highlands - Saanich
Saanich, Observatory Hill
Langford, Mill Hill
Langford, Mount MacDonald
Gowlland Tod Provincial Park
Mt. Work Regional Park
Malahat
Keating
Indian Reserve 1
Cowichan Valley
Millstream
Goldstream Indian Reserve 13
Goldstream Provincial Park
Thetis Lake Regional Park
View Royal
Langford
Colwood
Glen Lake
Belmont Park
Fort Rodd Hill & Fisgard Lighthouse National Historic Site
Esquimalt Indian Reserve
New Songhees Indian Reserve 1A
Tillicum
Royal Oak
Saanich
Colquitz
Marigold
Strawberry Vale
Sevenoaks
Beaver Lake
Victoria West
Burnside
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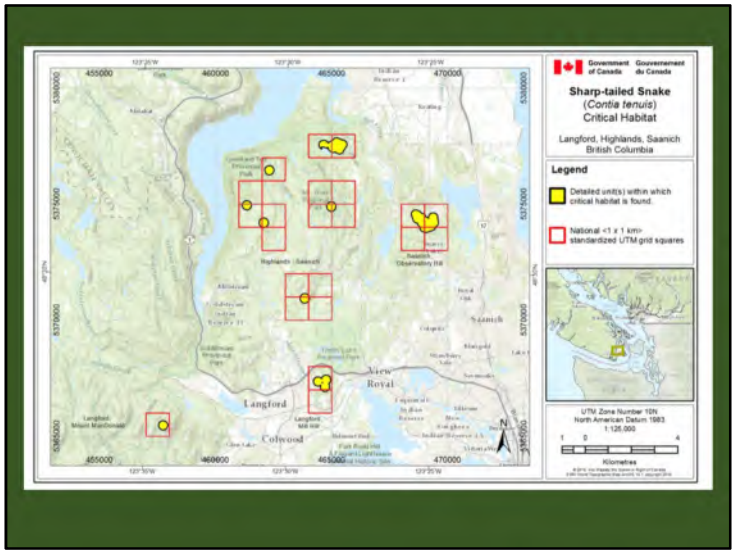
CANADA
Port Alberni
Nanaimo
Richmond
Surrey
Abbotsford
U.S.A
Everett
Seattle



Here is an example of CH mapped on Vancouver Island – it includes Mt. MacDonald, Mill Hill, Mt. Work (CRD Parks). CH is mapped in bounding boxes with the understanding that CH is defined by biophysical attributes within the boxes.

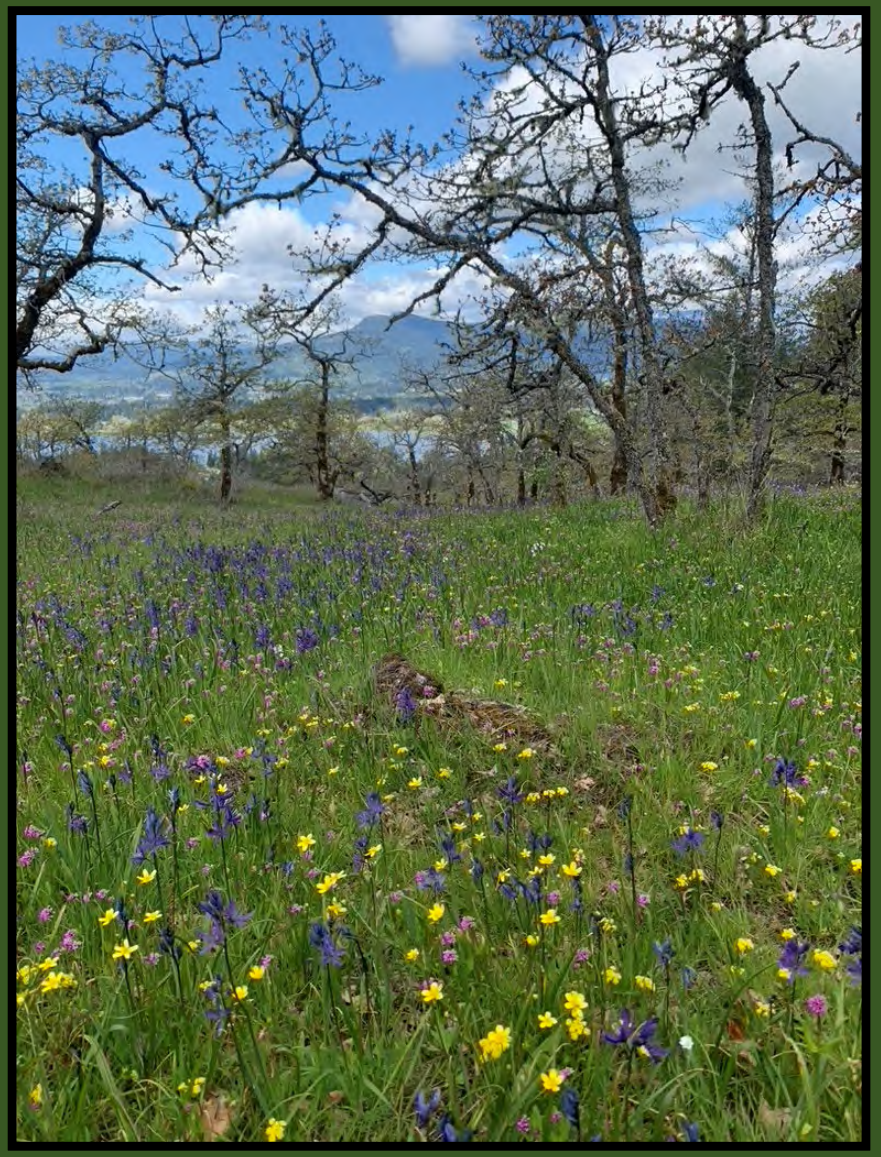
Stewardship Actions

- Land protection
- Support research and monitoring
- Limit mowing and brush clearing in areas with native vegetation (except for restoration)
- Restore areas with native plants where possible
- Control invasive species
- Maintain rocks and woody debris for habitat
- Limit conifer encroachment
- Limit or decommission trails, benches and other infrastructure
- Share data

Stewardship is essential on non-federal lands to protect rare species. There is a lot of work that can and should be done by managers of conservation lands.

Land Protection

- Acquisition
- Conservation Covenants
  - Conservation Agreements have cost savings of 65% compared to land purchase in the Salish Sea region (Schuster and Arcese 2015)
  - But there is a lack of data pertaining to long-term monitoring and legal defense costs



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Need top down approach through federal and provincial legislation plus bottom up protection. Even though only 5% of the land base in BC is privately owned, there is a disproportionate number of SAR on private land (e.g., 38% of BC's plant species at risk on private lands).

Stewardship begins with knowing where they are!

Traditional surveys for STS involve use Artificial Cover Object (ACOs). ACOs are small pieces of asphalt shingles that are placed in suitable snake habitat. The shingles warm up more than the surrounding habitat, so snakes move up under the shingles to thermoregulate. The ACOs are checked during times when snakes are more active in the spring and fall to try to detect them in an area. The ACOs help minimize disturbance to the environment (so you don't have to root through woody debris and overturn rocks, etc.). Figuring out the distribution of STS on each parcel of land is key to protecting them.

What do we know about Sharp-tailed Snakes?

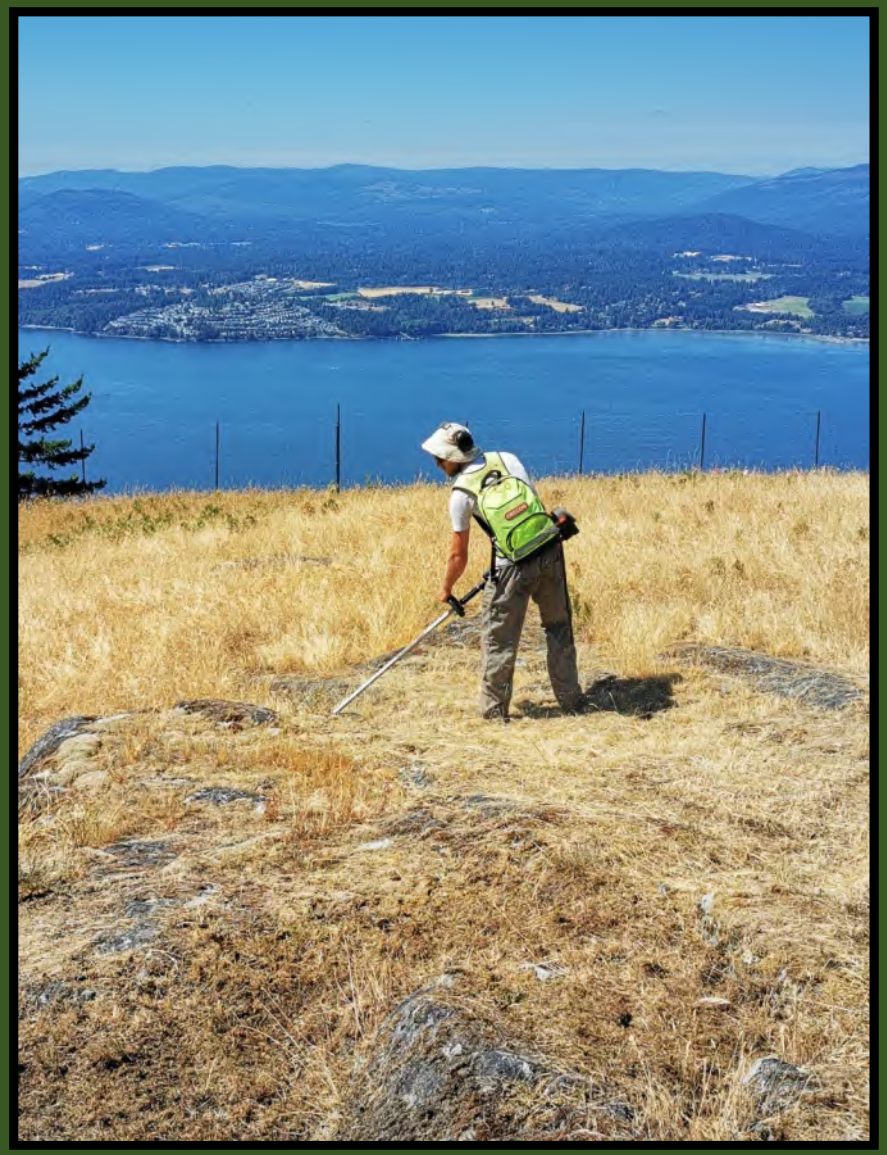
We know that each individual has a distinctive pattern on the throat and they can have different colour patterns on the underside of their tails (some have spots of red and others are totally white). By taking pictures of the throat pattern, and measuring weight and length and determining gender, we can get some information about the population including whether there are young snakes, male to female ratio. By re-capturing the same snake we can get some information about how far they move and how quickly they grow. One snake that was recaptured 3.75 years later grew only 2 cm and increased in weight by 0.5 g!

There are huge knowledge gaps

Very little is known about the biology of this species since they spend most of their lives underground. Eggs have only been found in the wild once. It is thought that they lay their eggs on south or southwest facing exposures so that their eggs can be warmed by the sun until they hatch. Eggs are laid in early spring or summer and hatch in the fall. We think they eat mostly slugs they have also been known to eat worms. In fall 2021, despite a number of surveys, we found only one snake on SSI and in 2022 in the fall we found no snakes so we're worried the heat dome and extended drought may be impacting them, but we're not sure. This is why research is so important.

Mowing and Brush Clearing

- Best to not mow unless for restoration purposes
- Walk through long grass before mowing if grass must be cut
- Or cut grass regularly enough that it stays short
- Leave leaf piles to decompose



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STS can be harmed by mowing your grass and brush cutting so it's best to be careful. Mowing and brush clearing can be used for restoration in GOEs as a surrogate for fire which is happening on Mt. Tuam. Important to have staff be knowledgeable in areas where STS occur.

Plant native plants in areas that need restoration

Planting native plants creates habitat for prey species and also supports native butterflies and aerial insectivores.

Control Invasive Species: European Wall Lizard

The invasive European Wall Lizard is potentially problematic for the STS as it may compete for habitat, for prey, and it may predate on STS eggs or juveniles. This invasive species has been spreading across southern Vancouver Island and has been recently detected on Salt Spring and Pender Islands.

Remove Invasive Plants

Maintain Open Habitat including woody debris

STS often burrow into woody debris, under rocks, leaf litter and into crevices. They spend almost all of their lives underground and so are very difficult to find. They need loose decayed logs and rock piles as habitat. We know almost nothing about their basic biology. We know they likely move into forest or deeper soil in the summer. Peak activity is in spring and fall seasons when there is more moisture for their preferred prey, which is native slugs.

Limit Conifer Encroachment

Conifers can shade out STS habitat. One site on Mt. Tuam had young conifers move in. No STS were found when the ACOs were shaded but after girdling, we re-found an STS under the boards.

Limit or Decommission Trails and Benches

Public access management is a challenging issue. Limiting foot traffic by decommissioning trails and not installing benches helps reduce compaction, access by dogs and the spread of invasive species.

Why Share Data?

- Sharp-tailed Snakes are an umbrella species. Protecting them helps protect the habitat for a wide range of other species.
- Knowing where they are found helps us understand how many snakes there are in Canada, where they occur and if populations are stable.
- Little is known about these snakes, so every little bit of information is important.
- Can inform Critical Habitat designation and associated increased protection.
- Submitting the data can help protect their habitat not just on your own land but also on neighbouring properties.

Thank you to Environment and Climate Change Canada, Habitat Conservation Trust Foundation and all our partners for supporting this work.

- Islands Trust Conservancy
- CRD Parks
- SSI Parks and Recreation Commission
- BC Parks
- Nature Trust of BC
- Water Preservation Society
- Private landowners

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