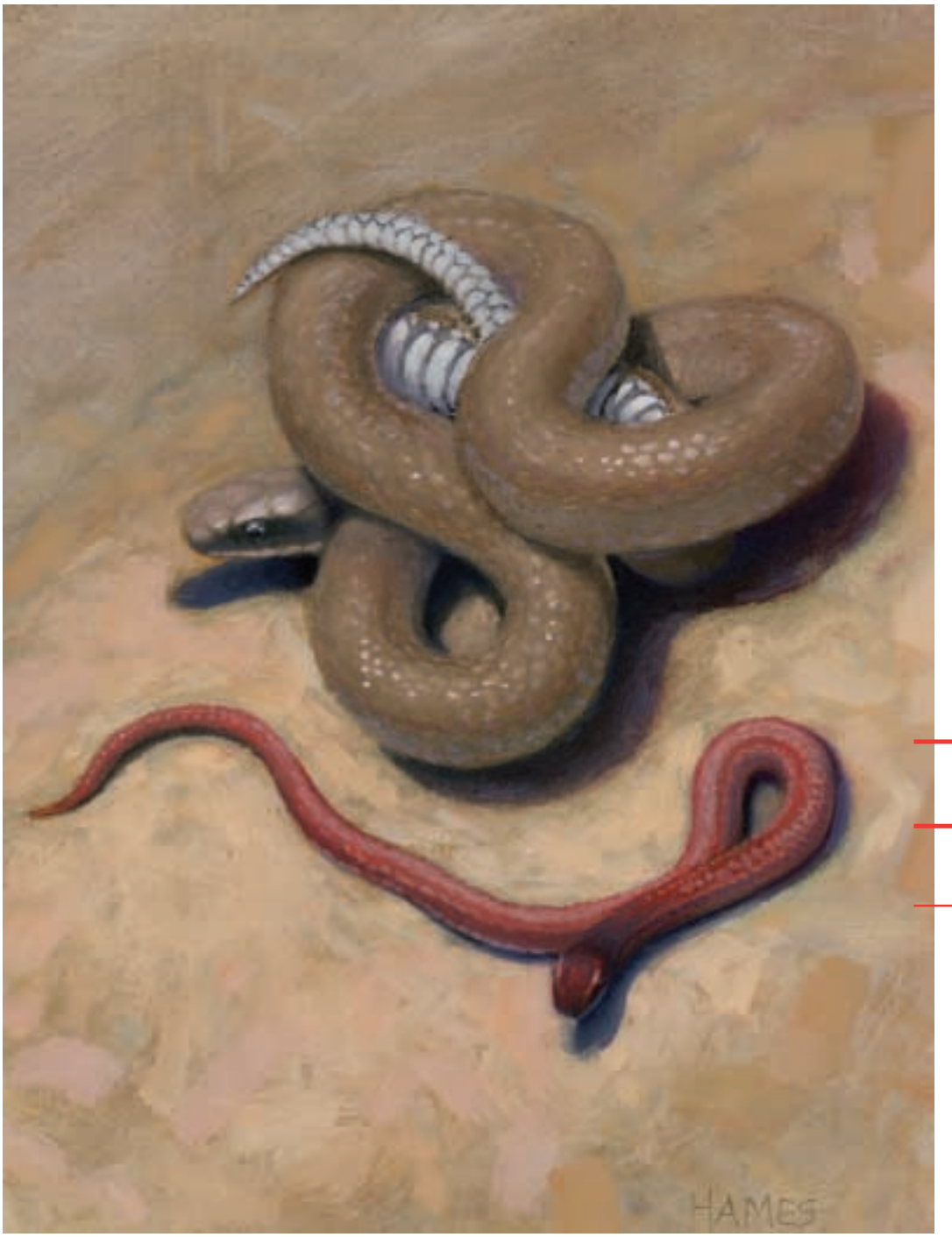
WILDLIFE IN BRITISH COLUMBIA AT RISK



Sharp-tailed Snake

This slug-eating snake is Endangered and is found at only a handful of sites in coastal British Columbia.

BRITISH COLUMBIA
Ministry of Water, Land & Air Protection

Why are Sharp-tailed Snakes at risk?

The Sharp-tailed Snake has a very restricted geographic range in Canada and is found in only a few localities in southwestern British Columbia: in the Gulf Islands (North and South Pender, Saltspring, and Galiano) and on southern Vancouver Island. Because these populations are small and isolated, they are vulnerable to extinction from human disturbance, natural catastrophes, and chance events. The rarity of these snakes, combined with the loss and fragmentation of their forest habitats, raises concerns about the persistence of the species in British Columbia.

The Sharp-tailed Snake occurs in a relatively densely populated part of the province where natural habitats have undergone extensive modification since European settlement. Little remains of the coastal Douglas-fir ecosystems that once covered the southeast coast of Vancouver Island, the Gulf Islands, and a strip of land along the lower mainland coast. Housing, agricultural and other kinds of development now take up about 30 percent of the land-base, and only about 0.5 percent is older forest (over 120 years old). All recent locality records for the Sharp-tailed Snake are from less densely populated parts of this region. These areas are now experiencing a high rate of human population growth, which results in more housing developments and a consequent loss of wildlife habitats. In the southern Gulf Islands the human population has increased about 32 percent over the past decade (1991–2002), and is expected to increase a further 50 percent over the next 30 years.

Other threats to the Sharp-tailed Snake include loss of critical habitats or cover because of landscaping practices or recreational activities. Snakes may also be run over by vehicles, or be killed by domestic cats or other predators.

What is their status?

The Sharp-tailed Snake exists at the northern limits of its distribution in British Columbia, and its rarity in the province is probably due to historical factors, such as past climatic fluctuations. The geographic range of the species extends from southwestern British Columbia south to central California. The entire northern portion of this range, from British Columbia to central Oregon, is highly fragmented. In the southern part of its range in southern Oregon and California, however, these snakes appear to be more widespread and locally abundant.

Black-and-white barring on the underside and a tiny, thorn-like spike on the end of the tail are characteristic of this species.

The first recorded specimen of a Sharp-tailed Snake from British Columbia was collected from Vancouver Island during an exploratory voyage by H.M.S. Plumper in 1857–1861. The exact place where the specimen was collected is uncertain, although one source places it in the Cowichan district. The next record from the province is from North Pender Island in 1949, almost a century later. A few locality records have been added since then, including one from the district of Metchosin at the southern tip of Vancouver Island, several from Pender and Saltspring Islands, and one from Galiano Island. An isolated record from near Chase in the interior of the province is most likely an error. Recent records (since 1996) come from North Pender, South Pender, and Saltspring islands and from the district of Metchosin. Additional undiscovered populations may exist along the coast, but it is unlikely that there are many of these. At each of the known sites, the area occupied by these snakes appears to be very small (patches less than 3 kilometres long; and areas less than a hectare in some localities). Populations in British Columbia are probably small, but there is little information on their densities, and there are no estimates of population size.

The Sharp-tailed Snake is on the provincial Red List (highest risk category) and is considered critically imperilled. Because this species is so rare and its habitats are so threatened, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated the Sharp-tailed Snake as Endangered in 1999.

What do they look like?

The Sharp-tailed Snake (*Contia tenuis*) is a small, slender snake with smooth scales and a small head. Adults are about 20 to 30 centimetres long and the thickness of a pencil; newly hatched young are only 6 to 7 cm long. The back is reddish brown and a faint, paler stripe, bordered by black from below, may be present on each side. Juveniles are typically more brightly coloured than are adults. The face usually has a dark stripe on each side, across the eye. Black-and-white barring on the underside is characteristic of this species. The Sharp-tailed Snake gets its common name from its tail, which ends abruptly in a tiny, thorn-like spike.

The Sharp-tailed Snake may be confused with young garter snakes (adult garter snakes are much larger), three species of which occur within its range in British Columbia. The Sharp-tailed Snake is different from these in

the following ways: 1) smooth rather than keeled (rough to the feel) body scales; 2) divided rather than single anal plate (a scale immediately before the anus, or vent, when viewed from beneath); 3) a tail that tapers abruptly into a sharp, thorn-like scale rather than tapering gradually; 4) distinct black-and-white barring on the underside; 5) the absence of a stripe along the mid-back (usually present in garter snakes).

What makes them unique?

The Sharp-tailed Snake has no close relatives and is the only currently recognized species of the genus Contia. However, recent morphological and genetic evidence suggests that a different form of the Sharp-tailed Snake exists in parts of California and southern Oregon and this form may represent a separate species. The relationship of this genus to other members of the cosmopolitan family Colubridae (harmless snakes, which also include garter snakes) is unclear.

The Sharp-tailed Snake is a unique component of our native Coastal Douglas-fir ecosystems.

Southwestern British Columbia is the northern limit of the Sharp-tailed Snake's distribution. Some scientists argue that such populations are important for the persistence of a species, because they may possess unique adaptations that enhance the species' ability to respond to broad-scale environmental changes, such as climate change.

The Sharp-tailed Snake is a unique component of our native coastal Douglas-fir ecosystems, many of which are rare and at risk in British Columbia. These snakes are harmless to humans, and they can be beneficial because they feed mainly on slugs, some of which are introduced garden pests. These attractive, non-threatening animals have a high potential as a subject for environmental awareness and educational programs.

How do they reproduce?

Unlike garter snakes that give birth to live young, the Sharp-tailed Snake is an egg-layer. The female lays from three to five soft-shelled, leathery eggs in the spring or early summer in suitable sheltered, warm locations. Because the embryo's development depends on heat from the environment, the availability of suitably warm egg-laying sites is very important. The eggs hatch in the early autumn into tiny snakes that, coiled up, fit on the surface

of a quarter. In British Columbia, the young snakes may reach adult size in about three years, but little information exists on their growth rates and the age when they reach sexual maturity. Individual snakes can live six or seven years or more in the wild, but whether females reproduce each year is unknown.

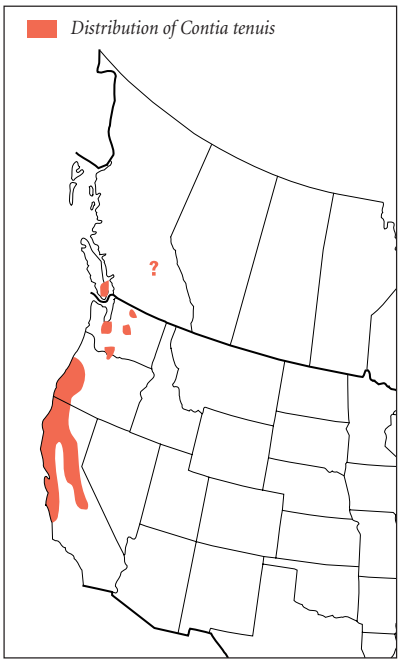
What do they eat?

Sharp-tailed Snakes feed mainly on slugs and slug eggs. Their teeth are long compared to those of other forest-dwelling snakes of similar body size and are thought to be an adaptation for feeding on this slippery prey. Unlike garter snakes, Sharp-tailed Snakes are most active during relatively moist and cool conditions; these are the same conditions in which slugs are most active.

Where do they live?

The Sharp-tailed Snake inhabits woodlands and open forests. In British Columbia, the species is found in coastal Douglas-fir ecosystems. Several sites where the species occurs are dominated by Douglas-fir and arbutus. The snakes probably also use Garry Oak woodland habitats. The Sharp-tailed Snake's specific habitat requirements are largely unknown, but small forest openings with a rocky substrate and a southern exposure are thought to provide egg-laying and nursery sites. Talus slopes (accumulations of weathered rock rubble on slopes and at their bases) in forest openings provide particularly suitable habitat because snakes can hide from predators in the cracks and crevices between rocks. Rocks also retain heat and provide warm conditions for developing eggs and young snakes.

The Sharp-tailed Snake is secretive and spends much of its time under cover or in underground burrows; it is rarely found on the surface away from cover. Consequently, these snakes are seldom seen, even at locations where they are known to be present. Their activity patterns are highly seasonal, further restricting opportunities for observation. In British Columbia, these snakes are most readily observed in the early spring (from March to April) and again in the autumn (from late September to early November). They probably spend the dry summer and cold winter months inactive in underground burrows.



Unlike garter snakes that give birth to live young, the Sharp-tailed Snake is an egg-layer.

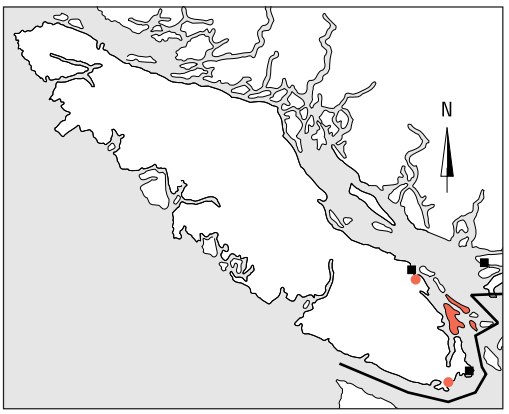
Individual Sharp-tailed Snakes confine their movements to relatively small areas and maintain distinct home ranges; in one study on North Pender Island, the average home range diameter was about 25 metres. There is no evidence that the snakes migrate when the seasons change.

The Sharp-tailed Snake can live in forests of varying ages, and is not restricted to old-growth stands. It can tolerate some degree of human disturbance and can coexist with low-density urban developments, if enough cover is retained for refuges and egg-laying sites.

What can we do?

The Sharp-tailed Snake is rare in British Columbia. Because it has specific habitat requirements and does not appear to move long distances, the number of localities where the snake is found is unlikely to increase substantially through natural dispersal. All existing populations are thus important for the continued persistence of this species in British Columbia. In the long term, it may be possible to down-list the species if threats to its habitat diminish.

A recovery team has been formed to oversee and coordinate recovery efforts for the Sharp-tailed Snake. The team includes members from provincial, federal and regional district agencies, universities, and conservation organizations. The recovery team works closely with local conservation groups, other non-governmental bodies, and private landowners. The long-term goal of the recovery activities is to ensure that the Sharp-tailed Snake will continue to persist across its natural range in Canada. The main short-term goals are to ensure that known



Sharp-tailed Snake populations will continue to thrive, and to locate and protect any additional populations that may exist.

Because much of the habitat for the species is on private lands, stewardship by landowners and residents is essential for the survival of Sharp-tailed Snake populations. The recovery team will help interested landowners with habitat restoration and protection measures that will best suit their individual needs.

The Sharp-tailed Snake can co-exist with humans in urban landscapes, and adopting "snake-friendly" gardening and landscaping practices will benefit the species. These practices include retaining or providing cover for the snakes, restricting the use of chemical pesticides, controlling invasive plants and introduced predators, and leaving a portion of the property in its natural state. The use of chemical slug-bait may harm snakes that consume the poisoned slugs. Non-chemical methods of slug-control include a combination of hand-picking, trapping, and using barriers around individual plants or vegetable beds. Dry-stack stone-walls (built without mortar) and rock piles provide suitable hiding places for snakes and lizards. Hedges and vegetated borders along paths and gardens also provide cover for snakes and other small wildlife. Native plants, such as ocean spray, Nootka rose, snowberry, or salal, are preferable. Invasive, alien plants such as Scotch broom and Himalayan black berry can shade small openings, and removing these plants from rocky slopes probably improves habitat for the snakes. Controlling introduced predators, such as pheasants and feral cats, will potentially reduce the number of snakes killed. Perhaps the best recovery measure that landowners can take is to leave a portion of their property in its natural state. Retaining and protecting south-facing rocky slopes is especially important, because these provide potential egg-laying habitat for the Sharp-tailed Snake.

SOUTH-FACING, ROCKY SLOPES (TOP) ARE THOUGHT TO BE IMPORTANT FOR NESTING AND NURSERY SITES. SUNNY SITES WITH REFUGE, SUCH AS THIS OLD COMPOST PIT (BOTTOM), ARE USED FOR THERMOREGULATION IN EARLY SPRING.
Kristiina Ovaska and Christian Engelstoft photos

Stewardship by landowners and residents is essential for the survival of Sharp-tailed Snake populations.

Several options are available for landowners interested in protecting important habitats on their property. Conservation covenants are entered into voluntarily by the landowner and provide for the long term protection of habitat features while still allowing specified uses of the property. Covenants are legally binding, permanent agreements that are registered on title, and are transferred with ownership. Many local conservation organizations and land trusts can provide assistance with setting up conservation covenants or other stewardship agreements. Other options include transfer of titles by sale or gift. Tax credits or incentives may be available to landowners that register a covenant on their property or donate land for conservation. Because the Sharp-tailed Snake appears to be able to use small habitat patches, stewardship options such as these provide an excellent means for ensuring long-term survival of the species.

Respecting snake habitat during recreational activities in the woods and along trails will benefit this species and other wildlife. Restricting activities on important areas such as talus slopes will avoid inadvertent damage to sensitive habitats. Keeping a lookout for small wildlife when biking along forest trails, especially at dawn and dusk, will reduce accidental mortality. In addition to helping

JUVENILE SHARP-TAILED SNAKES OFTEN ROLL INTO A BALL WHEN HANDLED, WHICH IS LIKELY AN ANTI-PREDATOR BEHAVIOUR *Kristiina Ovaska and Christian Engelstoft photo*

SHARP-TAILED SNAKES SEEK SHELTER UNDER COVER OBJECTS OR WITHIN DECAYING WOOD. *Kristiina Ovaska and Christian Engelstoft photo*

THE LAST SCALE ON THE TAIL IS MODIFIED INTO A SHARP POINT THAT RESEMBLES A THORN. *Christian Engelstoft photo*

HATCHLING SHARP-TAILED SNAKES ARE VERY SMALL EVEN COMPARED TO A BIC PEN. *Kristiina Ovaska and Christian Engelstoft photo*

the Sharp-tailed Snake, all the above measures also benefit other native fauna that inhabit the coastal Douglas-fir ecosystems.

FOR MORE INFORMATION ON THE SHARP-TAILED SNAKE, CONTACT:
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PO Box 9338, Stn. Prov. Govt., Victoria, British Columbia V8W 9M1
http://wlapwww.gov.bc.ca/wld

For more information on habitat acquisition and stewardship programs, check the website of the Stewardship Centre for British Columbia at http://www.stewardshipcentre.bc.ca
or Habitat Conservation Trust Fund
PO Box 9354, Stn. Prov. Govt., Victoria, British Columbia V8W 9M1
http://www.hctf.ca

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