

SPECIES ACCOUNT

Species Data

Common Name:	Northern Rubber Boa
Scientific Name:	<i>Charina bottae</i>
Species Code:	R-CHBO
BC Status:	Yellow
COSEWIC / SARA Status:	Special Concern



Project Data

Project Name:	Middle Shuswap River Sensitive Ecosystems Inventory
Project Type:	Terrestrial Ecosystem Mapping
Ecoprovince:	Southern Interior
Ecoregions:	Thompson-Okanagan Plateau
Ecoregions:	Northern Okanagan Highland (NOH), Shuswap Highland (SHH)
BGC Units:	IDFmw1, ICHmw2
Map Scale:	1:20 000

Distribution

Provincial Range

The Northern Rubber Boa is patchily distributed within montane forests and woodlands of the major river basins in the southern third of British Columbia, as far north as Quesnel and east to Radium Hot Springs and Canal Flats in the Kootenay region (Cameron and St. Claire 2003, Matsuda et al. 2006). Most records are from the Thompson River basin south (Cannings et al. 1999).

They are absent from the coast, except for one record from Vancouver (B.C. Conservation Data Centre 2011a).

Elevation Range

Sea level to 3050 m, but probably lower in BC (Teske and Ohanjanian 2000); 1292 m in Washington and 1890 m in Oregon (Brown et al. 1995)

Distribution in the Project Area

Two records are known from the Mid-Shuswap study area, both north of the Shuswap River near Woodward Creek (H. Davis pers. comm.).

Ecology and Habitat Requirements

The Northern Rubber Boa is active from March to November (B.C. Conservation Data Centre 2011b). Like all of B.C.'s snakes, Rubber Boas spend the winter hibernating in underground dens (hibernacula), and will hibernate communally with other boas. Courtship and copulation begin immediately following emergence from hibernation

in March and April, and usually continue into early or mid-May (Cameron and St. Claire 2003). Young develop within the mother's body, and are born live and completely developed. While Rubber Boas can be active at relatively low temperatures, pregnant females need more sunshine and warmth for healthy development of their young. Pregnant females give birth to 2 to 8 young (neonates) in late August and early September; clutch frequency may be as infrequent as every 4 years (Cameron and St. Claire 2003).

Northern Rubber Boas are long-lived, surviving from 20 to 30 years in the wild, and longer in captivity (Cameron and St. Claire 2003).

The Northern Rubber Boa is one of the most cold-tolerant snake species in BC. It is a nocturnal feeder, and active at temperatures much lower than the majority of reptile species (6-28°C), but in the Creston Valley the daily preferred temperature was 30°C; low temperature activity may be the result of a trade-off between the benefit of feeding at night when fewer snake predators are active and the cost of being active at less than optimal temperatures (Cameron and St. Claire 2003).

Rubber Boas kill their prey by constriction. Their diet includes mice, shrews, lizards, lizard eggs, snakes, and small birds (BC Conservation Data Centre 2011b).

General Living All Year (Food and Security/Thermal Habitat)

Rubber Boas occupy a wide variety of habitats, including grasslands, shrub-steppe, coniferous woodlands, forest openings, and meadows, often within several hundred metres of water (Nussbaum et al. 1983, Stebbins 1985, Brown et al. 1995). Their major habitat requirements include rocky outcrops and an abundance of coarse woody debris or surface rocks that the snakes use for protective cover and to aid in thermoregulation. However, rubber boas spend the majority of their time underground in abandoned rodent burrows and rock crevice. Telemetry data from the Creston Valley population in British Columbia indicates that Rubber Boas spend 25% of their time under cover and the rest underground (St. Clair 1999, in Cameron and St. Claire 2003). Because they tend to use burrows, boas require deep soils and likely prefer sandy or loamy soils.

In the hottest parts of their BC range, Northern Rubber Boas tend to avoid the dry, hot habitats enjoyed by many other snake species, preferring instead more montane areas. According to St. Clair (1999, in Cameron and St. Claire 2003), the Rubber Boa's use of wildlife trees, both downed and standing, as reported in the Identified Wildlife guide of the Forest Practices Code may not be applicable to the Kootenays. In these cooler climates, rock cover is more significant than woody material due to thermal constraints; coarse woody debris is not hot enough in forested habitats, and even in summer the forest cover creates an environment that is too cool at more northern latitudes.

Talus slopes and rock outcrops that allow boas to travel beneath the frost layer are required for hibernating habitat (Teske and Ohanjanian 2000). The use of radiotelemetry at Creston indicated that rubber boas hibernated in groups at about the depth of one metre in the soil, and that these hibernation sites were in the surrounding forest rather than in the open areas that the snakes used during the summer (St. Clair 1999, in St. Clair and Dibbs 2004). There is no information on home range sizes or distances travelled between winter hibernating dens and areas used at other times of year (Teske and Ohanjanian 2000).

Ratings

This model employs a 4-class rating scheme because there is insufficient knowledge of specific habitat requirements to use a 6-Class scheme yet there is sufficient knowledge to go beyond a 2-class rating scheme. This complies with the recommended rating scheme in the RIC (1999) standards manual.

Provincial Benchmark

Ecosection	Unknown, but Creston Valley considered “prime habitat”
Biogeoclimatic Zones	unknown (PP, IDF, ICH)
Habitats	Mesic sites within hot dry subzones (e.g. South Okanagan) and hot, dry sites within moister subzones (e.g. Creston, Shuswap); coniferous woodland, but in the study area rocky openings required.

Map Themes

Habitat Use	Life Requisite	Season	Rating Code	Ecosystem Attributes
Living	Food, Security/ Thermal	All year	LIA	<ul style="list-style-type: none"> Warm aspect open areas, preferably rocky

Ratings Assumptions

General Living (LIA) – Food, Security/Thermal	
Site Series	<ul style="list-style-type: none"> Ecosystem units with high solar insolation and abundant cover rated up to High (CWD only likely to be suitable cover in very hot & open sites)
Structural Stage	<ul style="list-style-type: none"> Structural stages with dense canopy (4 and 5) rated up to Low.
Aspect	<ul style="list-style-type: none"> w (warm and > 25% slope) rated up to High k (cool and >25% slope) rated Nil
Slope	<ul style="list-style-type: none"> Steep rated up to High; Very steep rated Moderate; Gentle rated up to Low.
Soil depth	<ul style="list-style-type: none"> Very shallow rated up to High; shallow up to Moderate; Deep up to Low (will use burrows 1m deep for hibernating, but unlikely in study area)

Map Interpretation

The general living in all seasons map theme, including hibernating in winter, reproducing, and foraging throughout the growing season, forms the sole layer of mapped habitat uses.

The model uses the highest-value method to display all suitable living habitats, even if it only forms a component of a habitat complex. This is due to the small rocky habitats that are used, and the microsite requirements of these sites.

Any potential den sites for Northern Rubber Boas should be carefully inventoried for the presence of snakes, at appropriate times of year, prior to any construction or disturbance.

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Personal Communications

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Northern Rubber Boa Suitability: Middle Shuswap River

