



Western Yellow-bellied Racer

Photo: © Karl W. Larsen



Scientific name

Coluber constrictor mormon

Taxon

Reptiles

COSEWIC Status

Threatened

Canadian range

British Columbia

Reason for Designation

The Canadian distribution of this snake is confined to arid valleys of south-central British Columbia, an area with intensive agricultural development and an expanding human population and tourism industry. While relatively little is known of this elusive snake, it likely faces similar threats as other large snakes with which it shares its habitat (Western Rattlesnake, Great Basin Gophersnake). Migratory behaviour of snakes between overwintering dens on valley slopes and lowland foraging habitats, together with increasing numbers of roads and traffic volumes, make populations particularly sensitive to road mortality and habitat loss and fragmentation. Life history characteristics, such as small clutch size and infrequent reproduction by females,

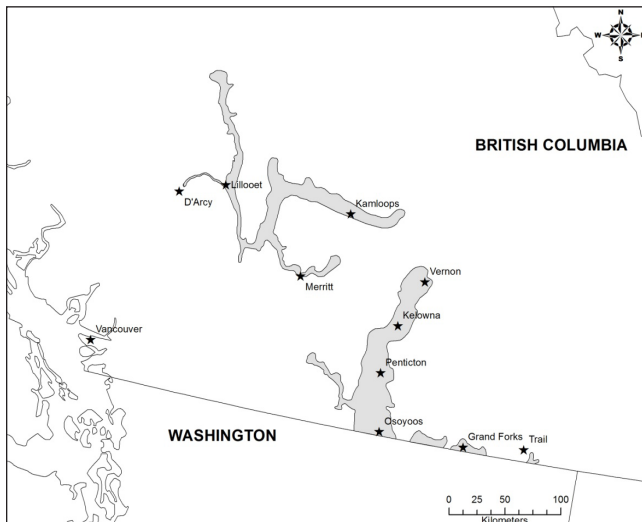
increase vulnerability of populations to disturbance, persecution, and changes in land use.

Wildlife Species Description and Significance

The racer species complex (*Coluber constrictor*) has a broad distribution throughout North America, with three subspecies occurring in Canada: Eastern Yellow-bellied Racer (*Coluber constrictor flaviventris*), Western Yellow-bellied Racer (*C. c. mormon*), and Blue Racer (*C. c. foxii*; addressed in a separate status report). Racers are long, slender snakes with whip-like tails. The Eastern and Western Yellow-bellied Racers are olive-green to blue-grey with cream to bright yellow undersides, from which the name “Yellow-bellied Racer” is derived. Juvenile racers have dark saddle-shaped dorsal markings that fade as the snakes mature. Their sleek body form helps make them extremely fast, while their colouration provides excellent camouflage. In Canada, racers are at the northern extent of their global distribution, where they are of high conservation value as such populations often possess unique ecological adaptations. Racers are non-venomous and harmless to humans. They feed mainly on rodents and insects and are beneficial to local ecological processes.

Distribution

Racers are broadly distributed across North America, but the Eastern Yellow-bellied Racer and Western Yellow-bellied Racer have more restricted ranges. In Canada, the distribution of the Eastern Yellow-bellied Racer extends into three discrete river valleys in southern Saskatchewan and one in southeastern Alberta. The Western Yellow-bellied Racer is restricted to the arid south-central interior of British Columbia, where it occurs in five discrete river valleys.



Canadian distribution of the Western Yellow-bellied Racer (*Coluber constrictor mormon*), showing broad areas (shaded), where the subspecies occurs in British Columbia.

Habitat

In Canada, racers overwinter in communal rock dens. Western Yellow-bellied Racers may also use rodent burrows or other refuges and hibernate singly, as shown for the sympatric Great Basin Gophersnake. Rock dens are often located on south-facing slopes of steep river valleys, and suitable sites appear to be a limited resource within the landscape. During the active season, racers move from their dens into grassland foraging areas in adjacent lowlands. While Eastern Yellow-bellied Racers occur in mixed-grass prairie, Western Yellow-bellied Racers most frequently occur in Ponderosa Pine and Bunchgrass habitats. Both subspecies forage in riparian and valley bottom habitats.

Biology

In more southern areas of their range in the United States, female racers mature at 2 - 4 years of age and produce one clutch of eggs per year, although, depending on body condition, some may reproduce

only every second year. Limited data are available on the age of maturity and survivorship of racers in Canada. The generation time is presumed to be 7 - 8 years. Racers mate after emerging from their winter dens in spring. Females lay a clutch of 3 - 12 eggs, which hatch in approximately 2 months (usually August or September), at which time neonates find their way to a den to hibernate for the winter. Individuals often exhibit strong fidelity to specific hibernacula. The diet of juvenile Eastern and Western Yellow-bellied Racers consists mainly of insects, including crickets and grasshoppers. Adult racers will also take larger prey such as small mammals, reptiles, birds, and amphibians.

Population Sizes and Trends

Racers are well-camouflaged, fast, wary snakes, which makes it difficult to accurately estimate population sizes or even their presence/absence. Based on recent research conducted in Saskatchewan and Alberta, it is evident that Eastern Yellow-bellied Racers are uncommon on the Canadian prairies, and that population dynamics may be negatively affected by habitat fragmentation. The Canadian population size is most likely less than 10,000 adults, distributed among four discrete major valleys on the prairies. Within the past 10 years, the population has declined as a result of a terrain slumping event in Grasslands National Park that killed and displaced snakes from the largest known den of this subspecies in Canada.

Western Yellow-bellied Racers in British Columbia are also uncommon, and their numbers have likely declined from historical levels as a consequence of habitat loss associated with the expansion of urban and agricultural areas. There are potentially five subpopulations of Western Yellow-bellied Racers in major river valleys in the arid interior of the province. Continued threats from road mortality and habitat loss, deterioration, and fragmentation suggest that the population is declining.

Threats and Limiting Factors

Both Eastern and Western Yellow-bellied Racers are vulnerable to habitat loss and fragmentation. These snakes exhibit a high degree of fidelity to specific hibernacula, nesting sites, and summer foraging areas, and appear not to tolerate significant disturbance to these habitats. Racers are limited

by the availability of suitable den sites and are unlikely to be able to relocate to other areas if dens are destroyed. Large geographic distances or habitat-barriers isolate small subpopulations, further decreasing the probability of individuals dispersing between sites. Both subspecies are regularly killed on roads, but the threat of road mortality varies greatly across their ranges, being considerably greater for the western subspecies. The overall threat impact was rated as “high” for the Western Yellow-bellied Racer and “medium” for the Eastern Yellow-bellied Racer according to the COSEWIC threat calculator.

Protection, Status, and Ranks

COSEWIC assessed the Eastern Yellow-bellied Racer as Threatened and the Western Yellow-bellied Racer as Special Concern in 2004. Both are listed in Schedule 1 of the *Species at Risk Act*. Provincially, the Saskatchewan *Wildlife Act* and the

British Columbia *Wildlife Act* prohibit unauthorized killing or possession of racers, but they have no legal protection in Alberta. NatureServe lists both the Eastern Yellow-bellied Racer and the Western Yellow-bellied Racer as Secure (G5T5) globally, Vulnerable (N3) in Canada, and Vulnerable (S3) provincially, except in Alberta where racers are considered Unrankable (SU) because of a lack of information. The General Status Rank of *C. constrictor* (subspecies are not ranked separately) is considered Sensitive (rank 3) in Canada, Sensitive in British Columbia, and At Risk (rank 1) in Saskatchewan. The IUCN lists *C. constrictor* as a species of Least Concern.

Source: COSEWIC. 2015. COSEWIC assessment and status report on the Eastern Yellow-bellied Racer *Coluber constrictor flaviventris* and Western Yellow-bellied Racer *Coluber constrictor mormon* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xvii + 64 pp.

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