



## Sheathed Slug

Photo: © Kristiina Ovaska



### Scientific name

*Zacoleus idahoensis*

### Taxon

Molluscs

### COSEWIC Status

Special Concern

### Canadian range

British Columbia

### Reason for Designation

In Canada, this slug is confined to a small area in the Kootenay region of southeastern British Columbia, generally within 25 km of the Canada-U.S. border. Most records are from older shady coniferous forest stands ranging from approximately 50 to >200 years. The species often inhabits riparian areas and other very moist microsites. Threats include logging and wood harvesting, and projected consequences of climate change including an increase in drought condition and wildfires. A decline is projected in the area, extent, and quality of habitat. The low number of scattered subpopulations makes the species vulnerable to both natural and human disturbances.

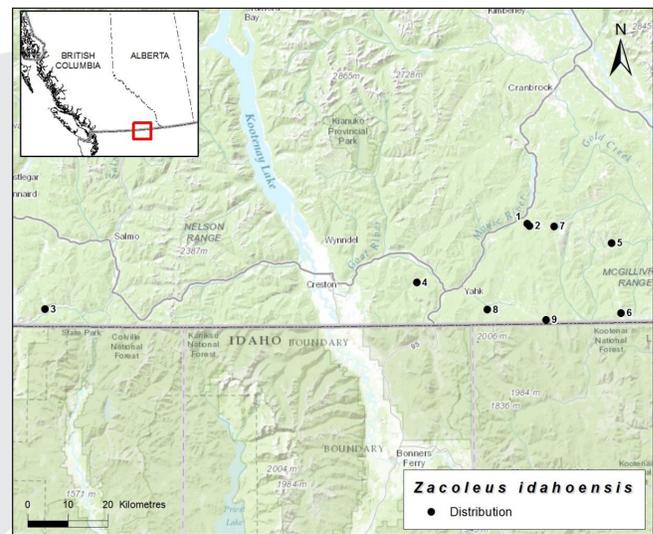
### Wildlife Species Description and Significance

Sheathed Slug is a small (20 – 24 mm long), slender slug with a keeled tail and longitudinal and oblique grooves on the sides and tail. The colour is solid grey or brownish grey. Small light flecks on the mantle

and tail give the slug a bluish tint. Sheathed Slug is a regional endemic to moist forests of the northern Columbia Basin, an area that contains many unique plants and animals.

### Distribution

The global distribution of Sheathed Slug includes northern Idaho, northwestern Montana, and southeastern British Columbia. In British Columbia, Sheathed Slug occurs in scattered localities in the Kootenay region, south of 49°22'N within approximately 25 km of the Canada-United States border. Since the early 1990s, over 700 sites have been surveyed for terrestrial gastropods in the Kootenay region; recent surveys specifically targeted this species and other native slugs. There are records for the species from nine sites. The estimated range (extent of occurrence) of the species in Canada is 1,892 km<sup>2</sup> based on these occurrences.



Distribution of Sheathed Slug (*Zacoleus idahoensis*) in Canada. Map prepared by Jenny Wu, COSEWIC Secretariat.

### Habitat

In British Columbia, Sheathed Slug has been found in mainly coniferous forest stands of varying ages, ranging from 40 – 50 years to old growth (>200 years old); most records are from shady, older forests. The slugs often inhabit riparian areas and gullies

associated with small, fast-flowing tributary streams, seepage areas, or other very moist microsites. Moist microhabitats and refuges provided by decaying logs appear to be important.

## Biology

The natural history of Sheathed Slug is poorly known. It is hermaphroditic (possessing both male and female reproductive organs) and lays eggs. Juveniles presumably overwinter, but the proportion of adults that do so is unknown. The generation time is probably 1 year or slightly more, based on the small body size of the adults and relatively short life spans of arionid slugs in general. The slugs feed on fungi and liverworts, and probably also on other live and decaying vegetation. Movement capabilities of Sheathed Slug are presumed to be low. Slugs in general are poor dispersers if not aided by humans, wind or water; no such passive means of dispersal are known for this species, exacerbating the effects of habitat fragmentation on its distribution within the landscape.

## Population Sizes and Trends

Population sizes and trends of Sheathed Slug are unknown. Survey efforts have focused on elucidating the distribution of the species rather than on obtaining abundance estimates. Records for the species from British Columbia are from 2009 – 2014, precluding information on population trends. Ongoing declines are suspected, as habitats continue to be degraded by forestry and other causes. In the United States, Sheathed Slug is thought to be declining due to habitat loss.

## Threats and Limiting Factors

The greatest threats to Sheathed Slug populations in British Columbia are deemed to be logging, which continues to alter and fragment habitats, and droughts and flood events, the frequency and severity of which are predicted to continue to increase under climate change scenarios. Other threats include introduced invasive species, fire and fire suppression, roads, and livestock farming and ranching. Climate change and severe weather, fire and fire suppression, and forestry are likely to interact in a cumulative manner. Increased frequency and severity of prolonged summer droughts is expected

to exacerbate the effects of logging (both recent and planned) and wildfires on the slug's habitat, resulting in declines in both quantity and quality of habitat.

## Protection, Status and Ranks

Most of the distribution and records of Sheathed Slug are on unprotected provincial forestry lands. Only about the 3% of the Canadian range of the species is protected within parks or conservation lands, but it is unknown whether the species occurs in these areas.

Sheathed Slug has no official protection or status under the federal *Species at Risk Act*, B.C. *Wildlife Act*, or other legislation. It is ranked by NatureServe as follows: Global status – G3G4 (vulnerable-apparently secure); United States – N3N4 (vulnerable to apparently secure); Canada – N1N3 (critically imperilled to vulnerable); Idaho: S2 (imperilled); Montana – S2S3 (critically imperilled to vulnerable); BC – S1S3 (critically imperilled to vulnerable). In British Columbia, the species is on the provincial red list of species at risk.

Source: COSEWIC. 2016. COSEWIC assessment and status report on the Sheathed Slug *Zacoleus idahoensis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 51 pp.

For more information, please visit [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca).

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