

Oregon Status Factors

Elcode IMGAS93030
Gname CRYPTOMASTIX HENDERSONI
Gcomname COLUMBIA OREGONIAN

Number of Occurrences

B = 6 - 20

Comments This snail is known from 13 locations at seeps and streams along both sides of the Columbia River, from near The Dalles to near Rufus. There are a few specimens that appear to represent this species from six upland locations in the Mount Hood National Forest (Burke et al., 1999). Still survives at a few sites in Wasco and Sherman Counties, Oregon.

Number of Occurrences with Good Viability

C = Few (4-12) occurrences with good viability

Comments This snail is known from 13 locations at seeps and streams along both sides of the Columbia River, from near The Dalles to near Rufus. There are a few specimens that appear to represent this species from six upland locations in the Mount Hood National Forest (Burke et al., 1999). Still survives at a few sites in Wasco and Sherman Counties, Oregon (Frest and Johannes, 1995c). Frest and Johannes (1995c) resurveyed the Columbia River Gorge National Scenic area (where most occurrences are) and it is unlikely that the range or number of sites will be significantly expanded by future work.

Population Size

U = Unknown

Comments

Range Extent

C = 250-1,000 km² (about 100-400 square miles)

D = 1,000-5,000 km² (about 400-2,000 square miles)

Comments The type locality for *Cryptomastix hendersoni* is The Dalles, Wasco County, Oregon. With the exception of Rowland Spring, which is roughly 8 kilometers or 5 miles north of The Dalles, all of the other low elevation locations (sites near the Columbia River) are farther east. The range of this species includes the springs and spring-fed streams along both sides of the Columbia River, from the vicinity of The Dalles east to the vicinity of Rufus, which are in parts of Wasco and Sherman counties in Oregon. (Burke et al., 1999). That restricted range, represented by 13 known sites, was illustrated by a map in Hohler et al. (1997). The recently discovered specimens from the Mount Hood National Forest appear to be *Cryptomastix hendersoni*, so this species is either ecologically plastic and is capable of living in a wide range of climatic conditions, or the montane populations may represent a distinct adaptation that could be a separate subspecies (Burke et al., 1999). In Oregon: Columbia River Gorge, Wasco and Sherman Counties (Kelley et al., 1999).

Area of Occupancy

C = 4-20 km² (about 1,000-5,000 acres)

LC = 40-200 km (about 25-125 miles)

Comments Occupies about 1,000-5,000 acres.

Long-term Trend in Population Size, Extent of Occurrence, Area of Occupancy, and/or Number or Condition of Occurrences

U = Unknown. Long-term trend in population, range, area occupied, or number or condition of occurrences unknown

Comments

Short-term Trend in Population Size, Extent of Occurrence, Area of Occupancy, and/or Number or Condition of Occurrences

D = Declining. Decline of 10-30% in population, range, area occupied, and/or number or condition of occurrences

Comments The distribution of this species in the Columbia Basin was surveyed in detail during 1988-1992 by Frest and Johannes (1995c), who reported that it is unlikely that either the number of sites or the known distribution of this species will be significantly expanded along the river. Where this snail has succeeded in surviving along the margins of spring-runs, there can be few to many individuals. Most of the museum collections are lots of 10 or more specimens. This species can be present in relatively dense populations (over 10 snails per square meter), but no quantitative studies on this species seem to have been conducted. The known populations may have been fragmented and restricted to spring-runs by climatic change, but may have been further reduced by recent habitat loss (Burke et al., 1999). Population trends (number of sites, number of individuals) are downward (Frest and Johannes, 1995c).

Threats

B = Moderate and imminent threat. Threat is moderate to severe and imminent for a significant proportion (20-60%) of the population, occurrences, or area. Ecological community occurrences are directly impacted over a moderate area, either causing irreversible damage or requiring a long-term recovery.

Scope Moderate Severity Moderate Immediacy Moderate

Comments A threat to *Cryptomastix hendersoni* at all locations may be loss of reliable dampness. For the mid-elevation populations in the Mount Hood National Forest that appear to be *Cryptomastix hendersoni*, any loss of woody debris and reduction of tree canopy could reduce the dampness available to the possibly isolated populations of this rare snail. Other threats could include activities that disturb or compact the soil, such as moving logs or driving vehicles within inhabited locations. The application or spilling of chemicals, including pesticides, herbicides, fertilizers, and firefighting chemicals could be harmful to populations of this snail. Nonnative plants and animals may be a threat and should be managed when a need is identified. Fire, both wild and planned, can directly kill these snails and degrade the quality of their habitat, but prescribed fire in adjacent areas could benefit this snail by reducing the threat from wildfire. For the low elevation populations of *Cryptomastix hendersoni* that are in the semi-arid eastern part of the Columbia River Gorge, the two most apparent threats to the survival of this species are loss of perennial flow and habitat degradation. Loss of perennial flow can result from agricultural diversions and impoundments. Also, as more people move to this area, an increase in the number of water wells may decrease the output of springs. Habitat degradation can result from silt and toxic chemicals that enter these streams. Where roads and railroads cross these streams there is the risk of pollution by petrochemicals and herbicides. Another source of habitat degradation is domestic livestock that are allowed to graze within these spring-runs; both the mechanical impact of trampling and the vegetation alteration could contribute to extirpation of snail populations (Burke et al., 1999). An additional threat may come from quarrying operations (USDA Forest Service and USDI Bureau of Land Management, 1994a, page 309). Although wildfire may be harmful to this species, as indicated by Frest and Johannes (1995c), prescribed fire and manual removal of exotic brush and trees could benefit this snail by improving the growth of herbaceous vegetation.

Number of Appropriately Protected and Managed Occurrences

B = Few (1-3) occurrences appropriately protected and managed

Comments For the mid-elevation populations in Mount Hood National Forest that appear to be *Cryptomastix hendersoni*, observations for this species should be anticipated within all land allocations. For the low elevation populations of *Cryptomastix hendersoni* that are in the semi-arid eastern part of the Columbia River Gorge, all known locations seem to be either on private land or road right-of-ways. None is within conifer forests managed by either Federal or State agencies. About half of the known locations are within the boundaries of the Columbia River Gorge National Scenic Area, but much of the land within that Scenic Area seems to be private, and any Federal lands are still outside of the range of the Northern Spotted Owl and not guided by the Forest Plan (Burke et al., 1999).

Intrinsic Vulnerability

B = Moderately Vulnerable. Species exhibits moderate age of maturity, frequency of reproduction, and/or fecundity such that populations generally tend to recover from decreases in abundance over a period of several years (on the order of 5-20 years or 2-5 generations); or species has moderate dispersal capability such that extirpated populations generally become reestablished through natural recolonization (unaided by humans). Ecological community occurrences may be susceptible to changes in composition and structure but tend to recover through natural processes given reasonable time (10-100 years).

Comments For *Cryptomastix hendersoni*, there seem to be no reports on potential longevity, generation time, the number and appearance of the eggs, or the situations used for oviposition (Burke et al., 1999).

Environmental Specificity

B = Narrow. Specialist or community with key requirements common.

Comments Generally found within 100 meters of streams, seeps, and springs. It may be a riparian associate in steppe communities at low to mid-elevations and may be found among moist talus, leaf litter and shrubs, or under logs and other debris (Kelley et al., 1999). Along the Columbia River *Cryptomastix hendersoni* inhabits the margins of spring-fed streams and associated rock talus, including situations where there is perennial moisture under the surface of rock talus. This species survives the semiarid climatic conditions of the western part of the Columbia Basin by inhabiting the margins of spring-runs. These locations are at low elevation in the generally treeless and barren landscape of the eastern part of the Columbia River Gorge. Elevation at the known sites ranges from 52 to 134 meters (170 to 440 feet), with an average of 78 meters (253 feet). Vegetation at known sites is either herbaceous in an open grassland, or there is an open canopy of riparian trees and bushes, but no conifers are reported as being either at the sites or immediately upslope. Herbaceous plants that have been noted include *Clematis*, *Mimulus*, *Rorippa*, and *Urtica*. Woody species include *Ailanthus* (an exotic tree), *Celtis*, *Cornus*, *Populus*, *Rhus*, and *Rosa* (Burke et al., 1999).

Other Considerations

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Reasons

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BCD Sources

New Sources

Burke, T.E., J.S. Applegarth, and T.R. Weasma. 1999. Management recommendations of survey and manage terrestrial mollusks. Ver. 2.0. Report submitted to USDI Bureau of Land Management, Salem, Oregon, October 1999. Unpaginated.

Frest, T.J. and E.J. Johannes. 1995c. Interior Columbia Basin mollusk species of special concern. Report to Interior Columbia Basin Ecosystem Management Project. 274 pp.

Hohler, D.B. (ed.). 1997. Riparian Reserve evaluation techniques and synthesis. Supplement to Section II of Ecosystem analysis at the watershed scale: Federal guide for watershed analysis (version 2.2). Regional Ecosystem Office, Portland, Oregon: 42 pp. and species information addendum to Appendix B: 342 pages.

Kelley, R., S. Dowlan, N. Duncan, and T. Burks. 1999. Field Guide to Survey and Manage Terrestrial Mollusk Species from the Northwest Forest Plan. Bureau of Land Management, Oregon State Office, Portland, Oregon. 114 pp.

USDA Forest Service and USDI Bureau of Land Management. 1994a. Final Supplemental Environmental Impact Statement on management of habitat for Late-Successional and Old-Growth forest related species within the range of the Northern Spotted Owl. Appendix J2. Results of additional species analysis. USDA Forest Service and USDI Bureau of Land Management, Washington, D.C. 476 pp.

USDA Forest Service and USDI Bureau of Land Management. 1994b. Record of Decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the Northern Spotted Owl. USDA Forest Service and USDI Bureau of Land Management. 74 pp. and Attachment A (Standards and Guidelines for management of habitat for Late-Successional and Old-Growth forest related species within the range of the Northern Spotted Owl). 148 pp.