Oregon Status Factors

Elcode IMGASG3110

Gname FLUMINICOLA SEMINALIS

Gcomname NUGGET PEBBLESNAIL

Number of Occurrences

B = 6 - 20

Comments A related species is present in parts of the western Klamath drainage, California-Oregon (Fluminicola n. sp. 27 in Frest and Johannes, in press). Some localities in Winema, Lasson, and Trinity National Forests, Oregon, and on public land (Oregon Natural Heritage Program, personal communication).

Number of Occurrences with Good Viability

U = Unknown what number of occurrences with good viability

Comments

Population Size

U = Unknown

Comments

Range Extent

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

Comments Burch (1989), based on Pilsbry (1899) cites it as occurring in a few places in California and Oregon, but Hershler and Frest (1996) seem to restrict it to the Sacramento River basin of California. A related species is present in parts of the western Klamath drainage, California-Oregon (Fluminicola n. sp. 27 in Frest and Johannes, in press). Some localities in Winema, Lasson, and Trinity National Forests, Oregon, and on public land (Oregon Natural Heritage Program, personal communication).

Area of Occupancy

D = 20-100 km2 (about 5,000-25,000 acres)

LD = 200-1,000 km (about 125-620 miles)

Comments May be extirpated in all but one or two sites in Oregon.

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

A = Very Large Decline (decline of >90%, with <10% of population size, range extent, area occupied, and/or number or condition of occurrences remaining)

Comments Historically, it has suffered from habitat degradation, so it is appropriate to protect surviving populations. Recent events like construction of dams, the spill of the herbicide metam sodium (Vapam) in the Cantara spill of 1991, and the Burney fire of 1992 and subsequent salvage logging, have caused significant impacts to the population. The species is now about 95 percent

extirpated from its former range in the Sacramento River (USDA, Forest Service, and USDI, Bureau of Land Management, 1994b).

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

A = Severely Declining. Decline of >70% in population, range, area occupied, and/or number or condition of occurrences

Comments Historically, it has suffered from habitat degradation, so it is appropriate to protect surviving populations. Recent events like construction of dams, the spill of the herbicide metam sodium (Vapam) in the Cantara spill of 1991, and the Burney fire of 1992 and subsequent salvage logging, have caused significant impacts to the population. The species is now about 95 percent extirpated from its former range in the Sacramento River (USDA, Forest Service, and USDI, Bureau of Land Management, 1994b).

Threats

A = Substantial, imminent threat. Threat is moderate to severe and imminent for most (> 60%) of the population, occurrences, or area. Ecological community occurrences are directly impacted over a widespread area, either causing irreversible damage or requiring long term recovery

Scope High Severity High Immediacy High

Comments Chemical spills and other forms of water pollution (e.g., livestock use of stream channels and springs, sewage contamination from recreation use) resulting in effects such as: 1. direct mortality of species as evidenced by the recent Cantara Spill (1991) on the upper Sacramento River, and 2. deleterious habitat alterations resulting from factors such as: eutrophication caused by excessive nitrogen and phosphorus levels, reduced dissolved oxygen levels, or elevated water temperatures. Dam construction that submerges cold springs, slows current velocities, lowers the availability of oxygen, and allows fine sediments to accumulate. Existing dams on the Sacramento River (e.g., Shasta Dam, dams creating Whiskeytown Reservoir and Siskiyou Lake) and the Pit River have already caused extensive destruction of suitable habitat. Reductions in water flow by water diversions resulting in elimination or reduction of aquatic habitat for this snail. Excessive sedimentation from a variety of activities such as logging, mining, road and railroad grade construction, and grazing may smother preferred substrates and may impair egg-laying or survivorship of eggs or young.

Number of Appropriately Protected and Managed Occurrences

A = None. No occurrences appropriately protected and managed

Comments No known protected occurrences in Oregon.

Intrinsic Vulnerability

A = Highly Vulnerable. Species is slow to mature, reproduces infrequently, and/or has low fecundity such that populations are very slow (> 20 years or 5 generations) to recover from decreases in abundance; or species has low dispersal capability such that extirpated populations are unlikely to become reestablished through natural recolonization (unaided by humans). Ecological community occurrences are highly susceptible to changes in composition and structure that rarely if ever are reversed through natural processes even over substantial time periods (> 100 years).

Comments Fluminicola species, like most hydrobiid snails, are highly sensitive to oxygen deficits, elevated water temperatures, and sedimentation. F. seminalis is only found in river reaches and springs that have cold, well oxygenated, clear water, generally with cobble and/or boulder substrates. Any activities that degrade these parameters will adversely impact this species (Furnish and Monthey, 1999).

The life history traits of F. seminalis also put it at risk. Individuals apparently breed only once in a lifetime and then die. Usually 90 percent of the population turns over annually so any condition that impairs egg laying, or survivorship of eggs or young may result in extirpation.

Environmental Specificity

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

Comments Found in large creeks and rivers (Taylor, 1981); prefers well-oxygenated streams and stable gravel-boulder substrates, regardless of stream size, in the cited range. Generally found at low elevations. Often associated with Lanx patelloides and with a high diversity of other mollusks. Also occurs commonly in large limnocrenes; populations in such habitats are often small-sized (5-7 mm height) (Frest and Johannes, 1999). Fluminicola seminalis often co-occurs with Juga (Juga) occata, Juga (Calibasis) acutifilosa, Juga (Oreobasis) nigrina, and Lanx patelloides. It also commonly occurs with widely distributed species like Vorticifex effusa, Gyralus parvus and Physella gyrina (Furnish and Monthey, 1999).

Other Considerations

ORNHIC Not Listed - Not In Oregon

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Greasons

Severely declining in abundance and distribution; extirpated over much of its former range. If it is truly documented in Oregon, it will need to be added to ORNHIC List 1, and its state rank will change to S1.

BCD Sources

New Sources

Burch, J.B. 1989. North American Freshwater Snails. Malacological Publications, Hamburg, Michigan. 365 pp.
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Frest, T.J. and E.J. Johannes. 1999. Field Guide to Survey and Manage Freshwater Mollusk Species. Bureau of Land Management, Oregon State Office, Portland, Oregon. 117 pp.
Hershler, R. 1999. A systematic review of the hydrobiid snails of the Great Basin, western United States. Part II. Genera Colligyrus, Eremopyrgus, Fluminicola, Pristinicola, and Tryonia. The Veliger, 42(4): 306-337.
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Taylor, D.W. 1981. Freshwater mollusks of California: a distributional checklist. California Fish & Game, 67(3): 140-163.
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.