California Status Factors

Elcode IMGASG3430

Gname FLUMINICOLA SP 20

Gcomname LOST CREEK PEBBLESNAIL

Number of Occurrences

A = 1 - 5

Comments It is currently known only from Lost Creek, a single spring-fed creek in Lassen National Forest, Shasta County, California. Lost Creek is presumably a tributary to Hat Creek (Pit River tributary); it disappears underground into a lava tube. Two occupied sites have been located, both of which are on Forest Service lands. Private lands also occur in the Lost Creek drainage (Frest and Johannes. 1999).

Number of Occurrences with Good Viability

B = Very few (1-3) occurrences with good viability

Comments Very few occurrences with good viability.

Population Size

U = Unknown

Comments No information on species abundance could be found (Frest and Johannes, 1999; Furnish and Monthey, 1999).

Range Extent

A = <100 km2 (less than about 40 square miles)

Comments It is currently known only from Lost Creek, a single spring-fed creek in Lassen National Forest, Shasta County, California. Lost Creek is presumably a tributary to Hat Creek (Pit River tributary); it disappears underground into a lava tube (Furnish et al., 1997; Furnish and Monthey, 1999).

Area of Occupancy

A = <0.4 km2 (less than about 100 acres)

LA = <4 km (less than about 2.5 miles)

Comments It is currently known only from Lost Creek, a single spring-fed creek in Lassen National Forest, Shasta County, California. Lost Creek is presumably a tributary to Hat Creek (Pit River tributary); it disappears underground into a lava tube (Furnish et al., 1997; Furnish and Monthey, 1999).

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 Unknown

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

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

Comments Unknown

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 Threats include: Chemical spills and other forms of water pollution (e.g., sewage contamination from recreational use, livestock use of stream channel bottoms), 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 slows current velocities, lowers the availability of oxygen, and allows fine sediments to accumulate (Frest and Johannes, 1999; Furnish and Monthey, 1999) is also a threat. Frest and Johannes (1995c) stated that there already has been small-scale hydropower development on Hat Creek. Existing dams on the Sacramento River (e.g., Shasta Dam, and dams creating Whiskeytown Reservoir and Siskiyou Lake) and the Pit River by Pacific Gas and Electric have caused extensive destruction of aquatic snail habitat in the past. Reductions in water flow by water diversions results in elimination or reduction of aquatic habitat for snails. Excessive sedimentation from a variety of activities such as logging, mining, road and railroad grade construction, and grazing may smother substrates preferred by these species and may impair egg-laying or survivorship of eggs or young. This creek has been modified for small-scale hydropower development (PG & E); there are private inholdings on the drainage also (Frest and Johannes, 1999).

Number of Appropriately Protected and Managed Occurrences

A = None. No occurrences appropriately protected and managed

Comments There are no known protected occurrences. Two occupied sites have been located, both of which are on Forest Service lands. Private lands also occur in the Lost Creek drainage (Frest and Johannes, 1999; Furnish et al., 1997; Furnish and Monthey, 1999).

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 Individuals have a life span of one year, with 90 percent or more of the population turning over annually. Surviving individuals are generally those that did not breed during their first year. Eggs are laid in the spring and hatch in approximately 2-4 weeks. Sexual maturity is reached by late summer, after a few months of growth. Individuals overwinter as adults and do not disperse widely so populations remain very localized in their distribution (Frest and Johannes, 1999)..

Environmental Specificity

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

Comments Occurs in cold, swift-flowing water in a large spring-fed creek, generally near shore, both on sand-

cobble substrate and on aquatic macrophytes and submerged portions of some emergents (Rorippa, Cicuta); periphyton and perilithon grazer; likely an amniphile (Frest and Johannes, 1999). This species lives in swift-flowing water, near shore, on sand-cobble substrate and aquatic macrophytes (generally Rorippa and Cicuta) (Furnish and Monthey, 1999).

Other Considerations

All sites occupied by this snail should be protected. Cited as Fluminicola n. sp. 8 in Frest and Johannes (1993b; 1995a).

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Greasons

Limited number of occurrences, with restricted range. It is currently known only from Lost Creek, a single spring-fed creek in Lassen National Forest, Shasta County, California. There are no known protected occurrences.

BCD Sources

New Sources

Frest, T.J. and E.J. Johannes. 1993b. Freshwater mollusks of the Upper Sacramento System, California, with particular reference to the Cantara Spill. 1992 yearly report to California Department of Fish and Game, Deixis Consultants, Seattle, Washington. 1-1 pp.
Frest, T.J. and E.J. Johannes. 1995a. Freshwater mollusks of the Upper Sacramento System, California, with particular reference to the Cantara Spill. 1995 final report to the California Department of Fish and Game, Deixis Consultants, Seattle, Washington. 88 pp.
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.
Furnish, J., R. Monthey, and J. Applegarth. 1997. Survey protocol for terrestrial mollusk species from the Northwest Forest Plan. Version 2.0. Report to the USDI Bureau of Land Management, Salem, Oregon, October 29, 1997. Unpaginated.
Furnish, J.L. and R. Monthey. 1999. Management recommendations for aquatic mollusks. Ver. 2.0. Report submitted to USDI Bureau of Land Management, Salem, Oregon, December 1998. Unpaginated.