

SPECIES: Scientific [common]	<i>Fluminicola coloradensis</i> [Green river pebblesnail]
Forest:	Salmon-Challis National Forest
Forest Reviewer:	Bart L. Gamett
Date of Review:	March 16, 2018
Forest concurrence (or recommendation if new) for inclusion of species on list of potential SCC: (Enter Yes or No)	No

FOREST REVIEW RESULTS:

1. The Forest concurs or recommends the species for inclusion on the list of potential SCC:
 Yes___ No__X_ Other: __ (see explanation below)

The contractor recommended that this species not be designated as a SCC. The Forest and Region concurred with this recommendation.

2. Rationale for not concurring is based on (check all that apply):
 Species is not native to the plan area _____
 Species is not known to occur in the plan area _____
 Species persistence in the plan area is not of substantial concern _____

FOREST REVIEW INFORMATION:

1. Is the Species Native to the Plan Area? Yes_X_ No___

If no, provide explanation and stop assessment.

2. Is the Species Known to Occur within the Planning Area? Yes_X_ No___

If no, stop assessment.

Table 1. All Known Occurrences, Years, and Frequency within the Planning Area

Year Observed	Number of Individuals	Location of Observations (USFS District, Town, River, Road Intersection, HUC etc.)	Source of Information
2001	1200	Salmon River, at Spring Creek	Smithsonian National Museum of Natural History Department of Invertebrate Zoology. Internet website: http://invertebrates.si.edu/collections.htm . Accessed on January 12, 2018.
2001	1100	Salmon River, at Long Term Rapids	Smithsonian National Museum of Natural History Department of Invertebrate Zoology. Internet website: http://invertebrates.si.edu/collections.htm . Accessed on January 12, 2018.

2001	1100	Salmon River, at Corn Creek Camp	Smithsonian National Museum of Natural History Department of Invertebrate Zoology. Internet website: http://invertebrates.si.edu/collections.htm . Accessed on January 12, 2018.
2001	2200	North Fork Ranger District, north fork of Salmon River	Idaho Fish and Wildlife Information System (December 2017); Smithsonian National Museum of Natural History Department of Invertebrate Zoology. Internet website: http://invertebrates.si.edu/collections.htm . Accessed on January 12, 2018.
2005	1500	North Fork Ranger District, Salmon River	Idaho Fish and Wildlife Information System (December 2017); Smithsonian National Museum of Natural History Department of Invertebrate Zoology. Internet website: http://invertebrates.si.edu/collections.htm . Accessed on January 12, 2018.

a. Are all Species Occurrences Only Accidental or Transient?

Yes___ No_X__

If yes, document source for determination and stop assessment.

b. For species with known occurrences on the Forest since 1990, based on the number of observations and/or year of last observation, can the species be presumed to be established or becoming established in the plan area?

Yes_X__ No___

If no, provide explanation and stop assessment

c. For species with known occurrences on the Forest predating 1990, does the weight of evidence suggest the species still occurs in the plan area?

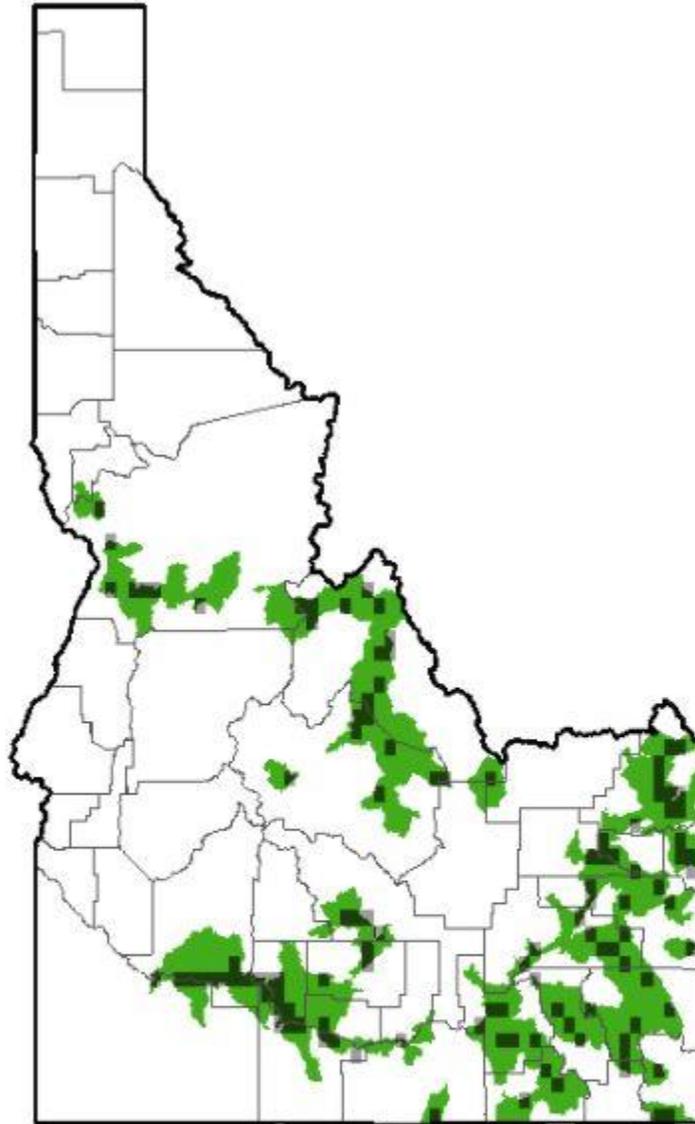
Yes___ No___

Provide explanation for determination

N/A—occurrences have been documented since 1990.

If determination is no, stop assessment

d. **Map 1**, Green river pebblesnail (*Fluminicola coloradensis*) range in Idaho (IDFG 2018)



Species Observations

■ Observations

Modeled Range

■ Summer Only

■ Winter Only

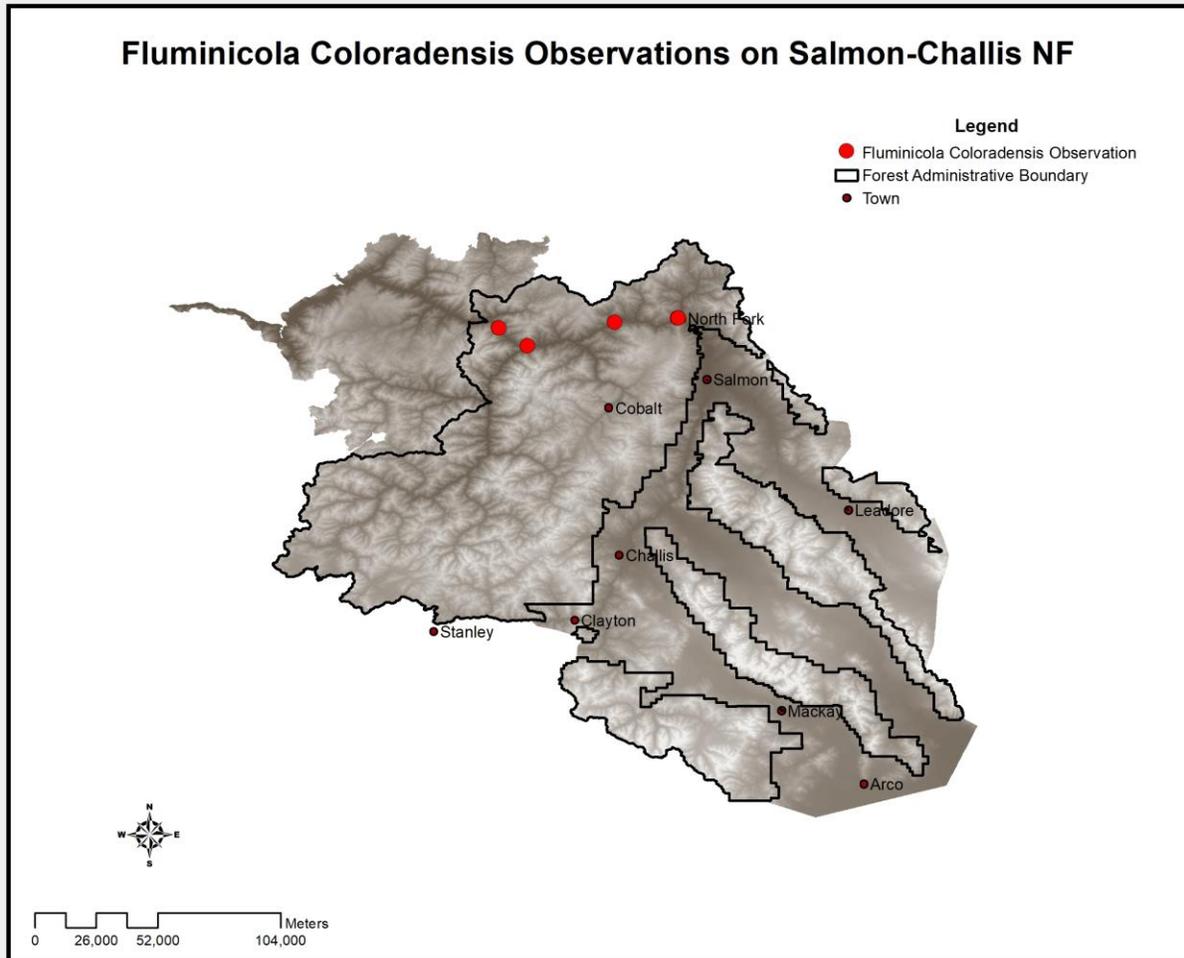
■ Spring/Fall Only

■ Year-round

■ Breeding and Nonbreeding

IDFG (Idaho Department of Fish and Game). 2018. Green river pebblesnail (*Fluminicola coloradensis*). Internet website: <https://idfg.idaho.gov/species/taxa/28056>. Accessed on January 10, 2018.

- e. **Map 2**, Green river pebblesnail (*Fluminicola coloradensis*) occurrences on the Salmon-Challis National Forest (Idaho Fish and Wildlife Information System [December 2017]; Smithsonian National Museum of Natural History Department of Invertebrate Zoology [January 2018])



January 18, 2018

3. Is There Substantial Concern for the Species' Capability to persist Over the Long-term in the Plan Area Based on Best Available Scientific Information?

Table 2. Status summary based on existing conservation assessments

Entity	Status/Rank (include definition if Other)
NatureServe Global Rank	G3G4—Vulnerable/Apparently secure (At moderate risk of extinction due to a restricted range, relatively few populations [often 80 or fewer], recent and widespread declines, or other factors / Uncommon but not rare; some cause for long-term concern due to declines or other factors)
NatureServe State Rank	S3—Vulnerable (At moderate risk of extinction due to a restricted range, relatively few populations [often 80 or fewer], recent and widespread declines, or other factors)
State List Status	IDAPA—Unprotected Wildlife No SGCN status
USDA Forest Service	No Region 1 status No Region 4 status
USDI FWS	No records found
Other	Not BLM Type 2 No Xerces Society Red List Status

Table 3. Status summary based on best available scientific information.

Species (Scientific and Common Name): <i>Fluminicola coloradensis</i> [Green river pebblesnail]			
Criteria	Rank	Rationale	Literature Citations
1 Distribution on Salmon-Challis	A3	<i>Fluminicola coloradensis</i> (green river pebblesnail) is an aquatic, freshwater snail known on the Forest from five occurrence records along the Salmon River (see Table 1). Based on habitat specificity and distribution (see Criterion 6), sensitivity to disturbance (see Criteria 6 and 7), and low dispersal ability (see Criterion 3), <i>F. coloradensis</i> probably naturally occurs in isolated patches with limited movement between	

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Criteria	Rank	Rationale	Literature Citations
		<p>patches (Rank A3). Confidence is low, as this rank is based on assumptions about habitat sensitivity and distribution on the Forest (see Criterion 6). It is possible that habitat is more broadly distributed or connected on the Forest, but dispersal is still likely to be low (see Criterion 3).</p> <p>Confidence in Rank: High, Medium, or Low</p>	
<p>2 Distribution in surrounding geographic area</p>	C	<p>Historically, <i>F. coloradensis</i> was known only from the Upper Green River and Bonneville basin in northeastern Utah, Idaho, and western Wyoming, where populations are threatened by local habitat degradation (Liu et al. 2013; NatureServe 2018). Recent genetic analyses determined that <i>F. coloradensis</i> is more widely distributed than previously thought; populations of <i>Fluminicola</i> spp. in the Snake River Basin should be re-designated as <i>F. coloradensis</i>, and populations in the lower Salmon River previously classified as <i>Fluminicola fuscus</i> should also be re-designated as <i>F. coloradensis</i> (Liu et al. 2013).</p> <p><i>F. coloradensis</i> has a wide distribution off the Forest (Rank C), although populations on the Forest may be more stable than populations in other parts of its range.</p> <p>Confidence in Rank: High, Medium, or Low</p>	<p>Liu, H-P., J. Walsh, and R. Hershler. 2013. Taxonomic clarification and phylogeography of <i>Fluminicola coloradensis</i> Morrison, a widely ranging western North American pebblesnail. Monographs of the Western North American Naturalist: Vol. 51: No. 1: pp. 87-110.</p> <p>NatureServe. 2018. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Internet website: http://explorer.natureserve.org. Accessed on January 13, 2018.</p>

Species (Scientific and Common Name): *Fluminicola coloradensis* [Green river pebblesnail]

Criteria	Rank	Rationale	Literature Citations
<p>3 Dispersal Capability</p>	<p>B</p>	<p><i>Fluminicola</i> spp. are aquatic in all life stages and receive oxygen via gills (Liu et al. 2013; Monthey 1998) or through the mantle (WDFW 2015). Dispersal is therefore only possible via water channels. <i>Fluminicola</i> spp. overwinter as adults and do not disperse widely, so they remain very localized in their distribution (Monthey 1998). Long-range dispersal of <i>F. coloradensis</i> is thought to be the result of historic headwater transfer events rather than active dispersal (Liu et al. 2013).</p> <p>Based on the dispersal capability of <i>Fluminicola</i> spp., <i>F. coloradensis</i> has limited dispersal capability through suitable habitat (Rank B), with rare passive dispersal events resulting from headwater transfer. Confidence is medium because dispersal even through suitable habitat could require very long periods of time.</p> <p>Confidence in Rank: High, Medium, or Low</p>	<p>Liu, H-P., J. Walsh, and R. Hershler. 2013. Taxonomic clarification and phylogeography of <i>Fluminicola coloradensis</i> Morrison, a widely ranging western North American pebblesnail. Monographs of the Western North American Naturalist: Vol. 51: No. 1: pp. 87-110.</p> <p>Monthey, R. 1998. Conservation assessment for <i>Fluminicola</i> n. sp. 1 Klamath pebblesnail. Report for the USDA Forest Service Region 6 and USDI Bureau of Land Management, Oregon and Washington. Revised by N. Duncan 2005. 12 pp.</p> <p>WDFW (Washington Department of Fish and Wildlife). 2015. State Wildlife Action Plan Update: Appendix A-5: Species of Greatest Conservation Need. 123 pp.</p>
<p>4 Abundance on the Salmon-Challis</p>	<p>C</p>	<p>Large numbers of <i>F. coloradensis</i> individuals have been recorded in populations along the Salmon River in Idaho both on and off the Forest (see Table 1) (IDFG 2018). <i>Fluminicola</i> spp. often dominate the macroinvertebrate community where they occur (Hershler and Frest 1996). High population densities of <i>F. coloradensis</i> have been recorded in Hagerman Valley and Crystal Creek-Spring Creek in Idaho (NatureServe</p>	<p>Hershler, R., and T. J. Frest. 1996. A review of the North American freshwater snail genus <i>Fluminicola</i> (Hydrobiidae). Smithsonian Contributions to Zoology: No. 583: 14 pp.</p>

Species (Scientific and Common Name): <i>Fluminicola coloradensis</i> [Green river pebblesnail]			
Criteria	Rank	Rationale	Literature Citations
		<p>2018).</p> <p>Therefore, <i>F. coloradensis</i> appears to be fairly common on the Forest (Rank C).</p> <p>Confidence in Rank: High, Medium, or Low</p>	<p>IDFG (Idaho Department of Fish and Game). 2018. Green river pebblesnail (<i>Fluminicola coloradensis</i>). Internet website: https://idfg.idaho.gov/species/taxa/28056. Accessed on January 10, 2018.</p>
<p>5 Population Trend on the Salmon-Challis</p>	D	<p>Roughly 75% of North American native freshwater snail species are estimated to be vulnerable, threatened, endangered, or extinct (WDFW 2015). However, there is no documentation of population trends of <i>F. coloradensis</i> on or off the Forest (Rank D).</p> <p>Confidence in Rank: High, Medium, or Low</p>	<p>WDFW (Washington Department of Fish and Wildlife). 2015. State Wildlife Action Plan Update: Appendix A-5: Species of Greatest Conservation Need. 123 pp.</p>
<p>6 Habitat Trend on the Salmon-Challis</p>		<p><i>F. coloradensis</i> has been found in large springs and streams in the Green River and Bonneville Basins (Hershler 1999). Larger species of <i>Fluminicola</i>, such as <i>F. coloradensis</i>, typically live in streams (Hershler and Frest 1996). <i>Fluminicola</i> snails are often found on rocks grazing on organisms attached to plants or rocks projecting above the streambed (Hershler and Frest 1996; WDFW 2015). Pebblesnails are usually found in shallow water, as food availability is associated with water depth (WDFW 2015), so drastic water fluctuations could cause local population declines (WDFW 2015). On the Forest, 16% of the land area has been assessed for changes in ground and surface water fluctuations (USFS 2017a). Of the area assessed, 11% is outside the natural range of variability (NRV), and an additional 79% is trending towards the NRV (USFS 2017a). 88% of the Forest area has been assessed for changes in channel and floodplain dynamics; it is estimated that 17% of the Forest is outside the NRV, and 49% is trending towards the NRV (USFS 2017a).</p>	<p>Hershler, R., and T. J. Frest. 1996. A review of the North American freshwater snail genus <i>Fluminicola</i> (Hydrobiidae). Smithsonian Contributions to Zoology: No. 583: 14 pp.</p> <p>Hershler, R. 1999. A systematic review of the Hydrobiid snails (Gastropoda: Rissooidea) of the Great Basin, Western United States. Part II. Genera <i>Colligyus</i>, <i>Eremopyrgus</i>, <i>Fluminicola</i>, <i>Pristinicola</i>, an <i>Tryonia</i>. The Veliger: Vol. 42: No. 4: pp. 306-337.</p>

Species (Scientific and Common Name): *Fluminicola coloradensis* [Green river pebblesnail]

Criteria	Rank	Rationale	Literature Citations
		<p><i>Fluminicola</i> snails are usually found in cold, clear waters with high dissolved oxygen (Hershler and Frest 1996; WDFW 2015). Their distribution is thought to be limited by water quality, including salinity, acidity, dissolved oxygen, and temperature (WDFW 2015). <i>Fluminicola</i> snails are highly sensitive to decreased oxygen content, increased temperatures, and sedimentation (Monthey 1998). For Land Type Associations (LTAs) on the Forest with sufficient data, the Community Tolerance Quotient (CTQ) for macroinvertebrates was significantly altered in more than 76% of watersheds, and water temperature was significantly altered in more than 15% of watersheds (USFS 2017a). However, overall water quality is within the NRV on 41% of the Forest, and trending towards the NRV on 34% of the Forest, in LTAs with sufficient information (USFS 2017a). In most LTAs with sufficient information, fine sediment values (as measured by median substrate size) are within historic parameters (USFS 2017a).</p> <p>Riparian vegetation can affect water temperatures and food availability for <i>Fluminicola</i> spp. Riparian vegetation can also stabilize streambanks, preventing sedimentation and siltation (NatureServe 2018). On the Forest, 72% of perennial stream miles have experienced significant departures of riparian vegetation from historical conditions (USFS 2017a). However, the majority of riparian LTAs assessed are trending towards the NRV, and over 90% of LTAs are within or trending towards the NRV (USFS 2017a).</p> <p>In summary, aquatic ecosystems considered suitable habitat for <i>F. coloradensis</i> are degraded compared to historic conditions on the Salmon-Challis National Forest (Rank A). However, several indicators suggest that suitable habitat is currently improving. Confidence is medium due to uncertainty of the distribution of habitat meeting all</p>	<p>Monthey, R. 1998. Conservation assessment for <i>Fluminicola</i> n. sp. 1 Klamath pebblesnail. Report for the USDA Forest Service Region 6 and USDI Bureau of Land Management, Oregon and Washington. Revised by N. Duncan 2005. 12 pp.</p> <p>NatureServe. 2018. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Internet website: http://explorer.natureserve.org. Accessed on January 13, 2018.</p> <p>WDFW (Washington Department of Fish and Wildlife). 2015. State Wildlife Action Plan Update: Appendix A-5: Species of Greatest Conservation Need. 123 pp.</p> <p>USFS (United States Department of Agriculture, Forest Service). 2017a. Salmon Challis National Forest Data Assessment, Riparian Ecosystems Section (Draft a).</p>

Species (Scientific and Common Name): <i>Fluminicola coloradensis</i> [Green river pebblesnail]			
Criteria	Rank	Rationale	Literature Citations
		<p>requirements for suitability on the Forest.</p> <p>Confidence in Rank: High, Medium, or Low</p>	
<p>7 Vulnerability of Habitats on the Salmon-Challis</p>	A	<p><i>F. coloradensis</i> is vulnerable to disturbances that affect habitat availability and water quality, particularly activities that cause decreased oxygen content, increased water temperatures, or sedimentation (see Criterion 6). On the Forest, unrestricted livestock grazing, unrestricted timber harvest, roads and recreation, dams and diversions, and changes in climate are all plausible threats to <i>F. coloradensis</i> habitat.</p> <p>Unrestricted livestock grazing in riparian areas can lead to eutrophication, which in turn can decrease dissolved oxygen content in <i>F. coloradensis</i> habitat (Jepsen et al. 2010). Headcutting can also lead to sedimentation (Jepsen et al. 2010), which can create adverse conditions for <i>Fluminicola</i> spp. Livestock grazing has altered vegetation, water quality, and surface and groundwater fluctuations on the Forest (USFS 2017a). Since 1997, however, the proportion of range monitoring has shifted dramatically towards aquatic areas on the Forest (USFS 2016). Current levels of grazing on the Forest are presumed to be much lower than historic levels (USFS 2017b). In 2012, 78% of monitored pastures in riparian areas met percent forage utilization standards, and noncompliance with standards was handled through administration of grazing permits (USFS 2016).</p> <p>Increased sedimentation and degradation of streambank integrity caused by roads, recreation, and the practice of clear-cutting can alter water quality of potential <i>F. coloradensis</i> habitat on the Forest (USFS 2017a). Polluted runoff from roads and logging waste can further impact water quality and temperature (Mazzacano 2008). Of the roughly 4,200 miles of roads on the Forest, about 66% are classified as unimproved (USFS</p>	<p>Behrens, P.N., R.E. Keane, D.L. Peterson, and J.J. Ho. 2018. Chapter 6: effects of climatic variability and change on forest vegetation. In Halofsky, J.E., D.L. Peterson, J.J. Ho, N.L. Little, L.A. Joyce, editors. 2018. Climate change vulnerability and adaptation in the Intermountain Region. Gen. Tech. Rep. RMRS-GTR-374. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Research Station.</p> <p>Halofsky, J.E., D.L. Peterson, J.J. Ho, N.L. Little, L.A. Joyce, editors. 2018. Climate change vulnerability and adaptation in the Intermountain Region. Gen. Tech. Rep. RMRS-GTR-374. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Research Station.</p> <p>IAP (Intermountain Adaption Partnership). 2016. Intermountain</p>

Species (Scientific and Common Name): *Fluminicola coloradensis* [Green river pebblesnail]

Criteria	Rank	Rationale	Literature Citations
		<p>2017a).</p> <p>Dams, diversions, culverts, livestock trampling, and other human alterations to streamflow all have the potential to affect dispersal of <i>F. coloradensis</i> (see Criterion 3) as well as water availability to <i>F. coloradensis</i> populations. Dams are rare on the Forest, and there are 205 recorded diversions on the Forest (USFS 2017a). Distribution of diversions is uneven, with the majority of diversions occurring at lower elevations (USFS 2017a).</p> <p>Changes in climate could also impact this species. Changes in climate are expected to increase air temperatures and decrease snow to rain ratios which will likely result in a smaller snowpacks, changes in stream flow patterns, and higher stream temperatures (IAP 2016). These changes could negatively impact this species. Over the past century, total annual streamflow in many central Rocky Mountain region streams has decreased by an average of 0.2% per year (Mazzacano 2008). <i>Fluminicola</i> populations are typically found in shallow waters, and females lay egg in gelatinous capsules from spring through fall. Subsequently, changes in streamflow timing and water levels could negatively affect reproduction and stability of <i>F. coloradensis</i> populations. The related species <i>Fluminicola fuscus</i> is predicted to have moderate vulnerability to changes in climate (WDFW 2015).</p> <p>To project the future climate and impacts to resources in the Intermountain Region including the Salmon-Challis, the Intermountain Adaptation Partnership (IAP) used Representative Concentration Pathway [RCP] 4.5 and 8.5, which capture a moderate and high future warming, respectively (Halofsky et al. 2018). Although pathways predicting lower warming exist, the 4.5 and 8.5 pathways were chosen by</p>	<p>Adaption Partnership: Climate Vulnerability Assessment Summaries (Draft).</p> <p>Jepsen, S., C. LaBar, and J. Zarnoch. 2010. <i>Gonidea angulata</i> (Lea, 1838) Western ridged mussel Bivalvia: Unionidae. The Xerces Society for Invertebrate Conservation. Internet website: https://xerces.org/western-ridged-mussel/. Accessed on January 13, 2018.</p> <p>Joyce, L.A. and M. Talbert. 2018. Chapter 3: Historical and projected climate. In Halofsky, J.E., D.L. Peterson, J.J. Ho, N.L. Little, L.A. Joyce, editors. 2018. Climate change vulnerability and adaptation in the Intermountain Region. Gen. Tech. Rep. RMRS-GTR-374. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Research Station.</p> <p>Mazzacano, C. 2008. Caddisflies: a northern Rocky Mountain refugium caddisfly (<i>Sericostriata surdickae</i>) (Trichoptera: Uenoidae). The</p>

Species (Scientific and Common Name): *Fluminicola coloradensis* [Green river pebblesnail]

Criteria	Rank	Rationale	Literature Citations
		<p>the IAP because they are, in comparison, well studied providing a large set of projections that enhance our understanding of the possible range in future climate. Thus, this represents best available science for our Forest with regard to a warming climate.</p> <p>Although uncertainty exists about the magnitude and rate of climate change (For a discussion of this see Behrens et al. 2018), warming temperatures are the most certain consequence of increased CO2 in the atmosphere. By 2100, median minimum and maximum temperature in the Middle Rockies subregion, which includes the Salmon-Challis, is projected to rise about 5-6°F under the moderate warming scenario and about 10°F under the high warming scenario. Regardless of scenario, the greatest departure from historical seasonal minimum temperatures occurs in the summer. Annual precipitation projections are highly variable with no discernible trend under moderate warming and a slight increasing trend with high warming (Joyce and Talbert 2018).</p> <p><i>F. coloradensis</i> habitat on the Forest is probably vulnerable to human activities, and in the future, changes in climate will likely significantly threaten <i>F. fuscus</i> habitat (Rank A). Confidence is medium because sensitivity to disturbance has been inferred from other <i>Fluminicola</i> spp.</p> <p>Confidence in Rank: High, Medium, or Low</p>	<p>Xerces Society for Invertebrate Conservation. Internet website: https://xerces.org/caddisfly-sericostriata_surdickaea. Accessed on November 30, 2017.</p> <p>USFS (United States Forest Service) Salmon-Challis National Forest. 2016. Forest plan monitoring and evaluation report: Salmon-Challis National Forest: Salmon and Challis Forest plans FY 2012, 2013, 2014, and 2015.</p> <p>USFS (United States Department of Agriculture, Forest Service). 2017a. Salmon Challis National Forest Data Assessment, Riparian Ecosystems Section (Draft a).</p> <p>USFS (United States Department of Agriculture, Forest Service). 2017b. Salmon Challis National Forest Data Assessment, Rangeland Management and Grazing Section (Draft).</p> <p>WDFW (Washington Department of Fish and Wildlife). 2015. State Wildlife Action Plan Update: Appendix A-5: Species of Greatest</p>

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Criteria	Rank	Rationale	Literature Citations
			Conservation Need. 123 pp.
8 Life History and Demographics	B	<p>Some generalizations about the life history and demographics of <i>F. coloradensis</i> can be inferred from other <i>Fluminicola</i> spp. Snails in the genus <i>Fluminicola</i> have separate sexes and reproduce through copulation (WDFW 2015). It is believed that individuals reproduce only once in their lifetime (WDFW 2015). <i>Fluminicola</i> snails are thought to live one to two years (WDFW 2015), with only individuals that have not yet reproduced surviving a second year (Monthey 1998). Turnover of <i>Fluminicola</i> populations could be greater than 90% (WDFW 2015), suggesting high rates of both reproduction and mortality.</p> <p><i>Fluminicola</i> females lay eggs in spring to fall in gelatinous capsules (WDFW 2015). Eggs hatch in one to two weeks, and snails reach maturity over the course of a few months (WDFW 2015).</p> <p><i>F. coloradensis</i> populations probably experience both high reproduction and high mortality rates (Rank B), but confidence is low due to the lack of species-specific data.</p> <p>Confidence in Rank: High, Medium, or Low</p>	<p>Monthey, R. 1998. Conservation assessment for <i>Fluminicola</i> n. sp. 1 Klamath pebblesnail. Report for the USDA Forest Service Region 6 and USDI Bureau of Land Management, Oregon and Washington. Revised by N. Duncan 2005. 12 pp.</p> <p>WDFW (Washington Department of Fish and Wildlife). 2015. State Wildlife Action Plan Update: Appendix A-5: Species of Greatest Conservation Need. 123 pp.</p>
<p>Summary and recommendations: <i>Fluminicola coloradensis</i> is an obligate freshwater snail found in high abundance along the Salmon River watershed in Idaho, including at five locations recently documented on the Forest. Global and state conservation assessments indicate some concern for <i>F. coloradensis</i>, but recent genetic analyses have determined that this species is more widely distributed than previously thought. <i>F. coloradensis</i> is fairly common in suitable habitat on the Forest. However, <i>Fluminicola</i> snails are unable to disperse long distances and are highly sensitive to disturbances that affects water flow dynamics, water temperature, dissolved oxygen content, and sedimentation. Due to habitat specificity and sensitivity to disturbance, <i>F. coloradensis</i> is vulnerable to a number of human activities on the Forest, and is expected to be moderately vulnerable to changes in climate. Population dynamics of other <i>Fluminicola</i> spp. suggest high mortality and reproduction rates for <i>F. coloradensis</i>.</p>			Date: 1/30/2018

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Criteria	Rank	Rationale	Literature Citations
		<p>Based on its wide distribution off the Forest and relative abundance on the Forest, <i>F. coloradensis</i> is not recommended as an SCC.</p> <p>Evaluator(s): Rei Scampavia and Bart Gamett</p> <p>Forest Recommendation: This analysis indicates there is not substantial concern for the capability of <i>Fluminicola coloradensis</i> to persist over the long-term on the Salmon-Challis National Forest. Therefore, it is recommended that <i>Fluminicola coloradensis</i> not be designated as a Species of Conservation Concern.</p>	