SPECIES: Scientific [common]	*Physa megalochlamys* [Cloaked Physa] This species was previously confused with *P. skinneri*, but studies have since maintained the validity of *P. megalochlamys* in the genus *Physa* (NatureServe 2019)
Forest:	Bridger-Teton National Forest
Forest Reviewer:	Randall Griebel, James Wilder
Date of Review:	02/06/2020; reviewed 4/25/2025
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__

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 ___X____

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
2002	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Sublette County	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level

1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Springs Dace	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Springs Dace	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Springs Dace	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Springs Dace	WYNDD (2019) Record only identified to genus level
1995	Unknown	Bridger-Teton National Forest, Pinedale Ranger District, Kendall Warm Spring	WYNDD (2019) Record only identified to genus level
1995	Unknown	Teton County, WY (Exact Location Unavailable)	Wu and Beetle (1995)

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

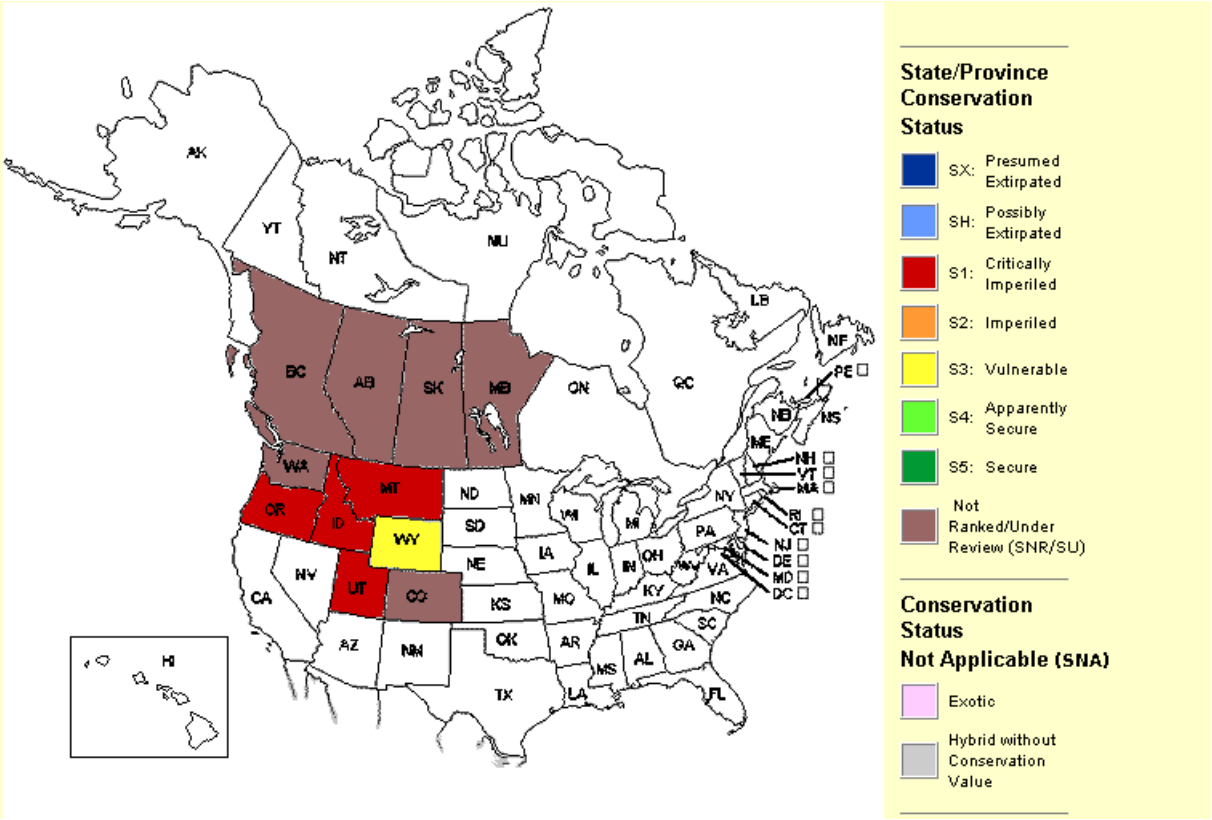
c. For species with known occurrences on the Forest predating 1990, does the weight of evidence suggest the species still occurs in the plan area?

Yes ___ No___

Provide explanation for determination

N/A—potential occurrences have been documented since 1990.
If determination is no, stop assessment

d. **Map 1**. Cloaked Physa (*Physa megalochlamys*) in the United States and Canada.

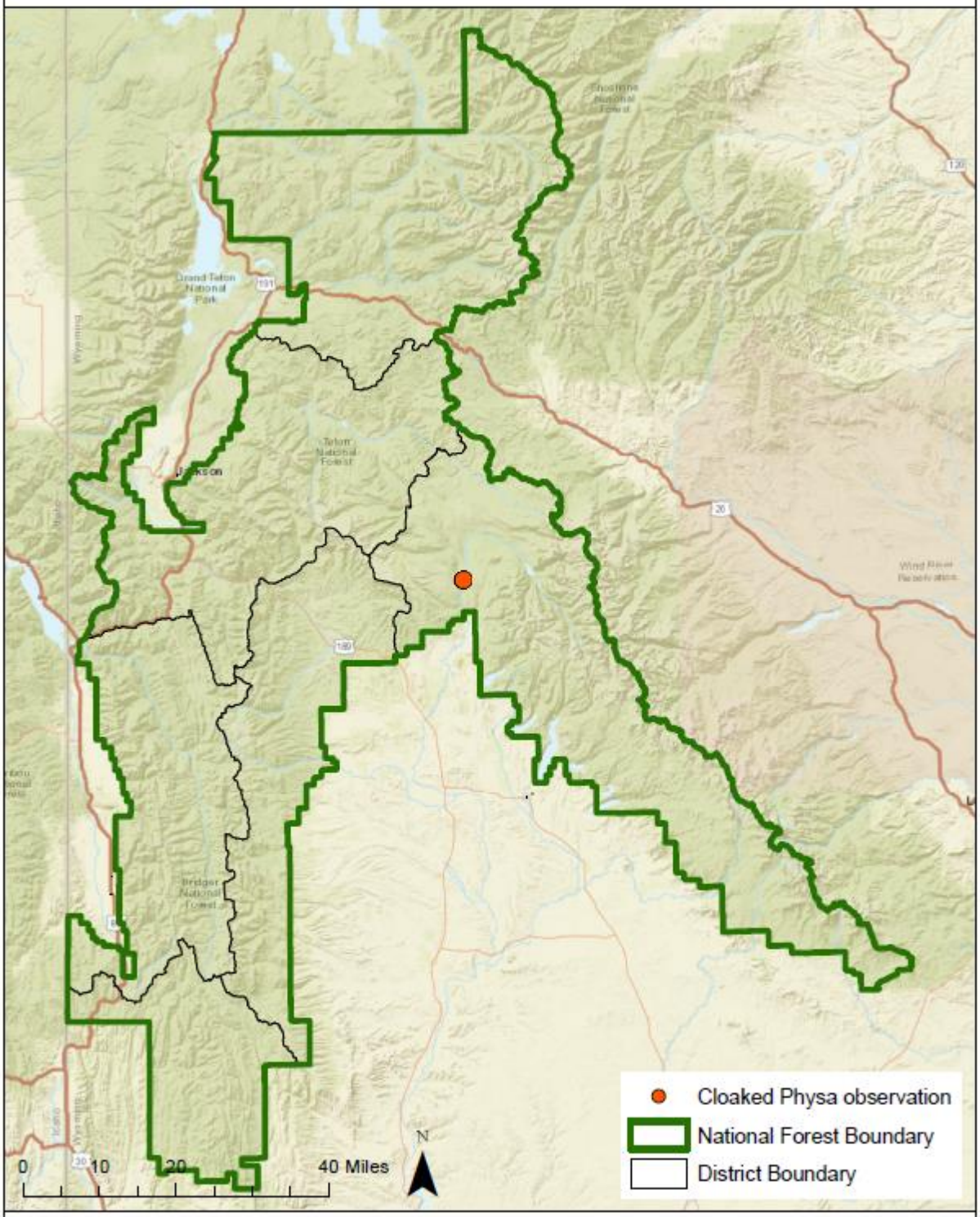


NatureServe (2019)

e. **Map 2**. Range of Cloaked Physa (*Physa megalochlamys*) in Wyoming.

WYNDD (2019)

Cloaked Physa (*Physa megalochlamys*)



WYNDD 2019

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)
NatureServe Global Status	**G3—Vulnerable** *At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.*
NatureServe State Status	**S3— Vulnerable** *At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.*
WGFD	**NSSU (U) Tier II** *Population Status: Unknown* *Limiting Factors: Unknown* *Tier II: Moderate priority* *[The WGFD's Species of Greater Conservation Need (SGCN) designation process is based upon its **Native Species Status (NSS)** classification system that compares population and limiting factor variables using a 16 cell matrix. As a species moves from a placement closest to the upper left corner of the matrix (Aa/NSS1) toward the lower right corner (Dd/NSS7) the species' population status in Wyoming is considered more secure. Numerical scores were assigned to each of these variables and summed to provide a total score (i.e. NSS3). SGCN were placed into one of three tiers based on their total score: Tier I – highest priority, Tier II – moderate priority, and Tier III – lowest priority.]* (WGFD, 2017 - Wyoming Species of Greatest Conservation Need)
WYNDD	**Species of Concern** *Species vulnerable to extirpation at the global or state level due to:* *a. their rarity (e.g., restricted distribution, small population size, low population density)* *b. inherent vulnerability (e.g., specialized habitat requirements, restrictive life history)* *c. threats (e.g., significant loss of habitat, sensitivity to disturbances)*

USDA Forest Service	Not Listed
UDI FWS	Not Listed
WY BLM	Not Listed
IUCN	**DD—Data Deficient**

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

Criteria	**Rationale**
Distribution on the Bridger-Teton National Forest	*Physa megalochlamys* has been assessed as Data Deficient as there is insufficient information regarding trends in population data for this species although it appears to be widespread. Further research is necessary regarding population status, trends and the species' distribution is necessary to make an accurate assessment (Cordeiro 2017). *Physa megalochlamys* is native to Colorado, Idaho, Montana, Oregon, Utah, Washington, Wyoming, British Columbia, Alberta, Saskatchewan, and Manitoba (NatureServe 2019). This species' estimated extent of occurrence is somewhere between 1,200,000 and 1,700,000 km² (Corderiro 2017), but the exact limits of its range are uncertain due to confusion with *P. skinneri* (NatureServe 2019). It appears to occur sporadically throughout its range (NatureServe 2019) The exact number of occurrences is difficult to determine due to taxonomic confusion. It is known from about 16 sites in Wyoming, Utah, Colorado, Montana, Idaho, Oregon, and Saskatchewan, and from several occurrences in Teton County (Wu and Beetle 1995). Though the exact locations of the Teton Country occurrences are unavailable, they are likely on or very near Bridger-Teton. WYNDD (2019) lists 16 *Physa* occurrences on the Forest that were not identified to the species level. Based on its rangewide distribution, populations are likely scattered and isolated on the Forest.
Abundance on the Bridger-Teton National Forest	There are no abundance data available for this species on the Forest; information is insufficient to assess this criterion.
Population Trend on the Bridger-Teton National Forest	The current population trend of this species is unknown, although populations were believed to be stable as recently as 1990 (Cordeiro 2017). As there are no population data available for this species on the Forest, information is insufficient to assess this criterion.

Criteria	Rationale
Habitat Trend on the Bridger-Teton National Forest	This species is typically found in freshwater ponds and marshes with submerged aquatic vegetation and clay or fine mud substrates (Frest and Johannes 1995). It has been found in one perennial lake in Montana (Yellowstone Lake). This species can cope with seasonal fluctuations to the point of desertification (Cordeiro 2017, NatureServe 2019). The Wyoming type locality is a lily pond about 180 m long, 18-23 m wide, and 1-1.5 m deep (Frest and Johannes 1995). Water quality is a vital habitat characteristic to snails. Snails require sufficient calcium levels to secrete shells. Wyoming rivers and streams generally have high concentrations of calcium that do not limit shell formation; however, granite geology probably limits snails in some parts of the state. Snails have not been observed in some areas in the Teton and Wind River Ranges, which have granite geology and very low calcium concentrations during surveys (Tronsdad and Anderson 2018). Low pH can also impede shell growth because the acidity inhibits shell secretion. The pH of water in Wyoming generally is >7, indicating that pH levels are generally not a concern in the state. The exception may be in granite geology especially during snowmelt (Tronsdad and Anderson 2018). Several activities have reduced habitat quality in water drainages within the Forest. Residential development throughout the Snake River, Flat Creek and Salt River valleys are directly influencing groundwater levels, water quality, and important spring streams. Additionally, flow regimes, instream habitat, and riparian function in the basin have been altered from the combined effects of Jackson Lake Dam and the levee system (WDGF 2017). In the Green River basin in Wyoming, aquatic habitat in the basin has largely been degraded by the introduction of invasive species, water development, and altered flow regimes (WGFD 2017). In the Bear River Basin, irrigation diversions and water developments have altered natural flow regimes and decreased habitat connectivity (WGFD 2017).
Threats to the Species and its Habitat on the Bridger-Teton National Forest	Habitat destruction through urban encroachment, agricultural run-off or fertilizers and herbicides, and system modifications for draining, dredging and irrigation systems are the main threats to this species (Corderiro 2017). Climate change is exacerbating many of these impacts, especially reduction in stream flow and thermal pollution in arid areas. Climate change will likely lead to water development projects that alter the timing, magnitude and duration of natural hydrographs as well as intra- and inter-annual variability in Wyoming's streams and associated riparian corridors. Increased temperatures may alter the magnitude and timing of precipitation and runoff, possibly shifting the reproductive phenology and distribution of wildlife (WGFD 2017).

Criteria	Rationale
	Invasive aquatic snails may outcompete or displace native snails, mussels, and aquatic insects. Failure to detect dreissenids and mud snails in large lakes where motorized boating occurs indicates that aquatic habitats on BTNF have a low probability of current infestations. However, there has been detection of aquatic invasive species downstream of BTNF in the Snake River Drainage and detection of New Zealand mud snails in the Salt River at the confluence of the Snake River immediately downstream of the Greys River Ranger District. These recently discovered infestations could be inadvertently spread onto BTNF by recreational watercraft and could degrade habitat conditions for mollusks by competing for food, space, and other resources (USFWS 2019). Additional monitoring is planned for 2019 with the goal of limiting the spread of recently detected New Zealand mud snails (USFS 2019).
Date: L. Chipman Reviewer: October 4, 2019	

Summary and Recommendations

There is insufficient information to determine abundance, distribution, or population trends in the plan area. Preferred habitat is relatively unaffected by forest management activities such as timber harvest or prescribed fire treatments; thus, habitat trends are likely stable on the Forest. Although aquatic habitats are currently stable on the forest, they may decrease in the future due to climate change effects. Until better information becomes available on abundance, distribution, population trend, habitat trend, threats, or other life history characteristics, there is not a substantial concern for the species capability to persistence on the Forest over the long-term at this time, and it is recommended that the Cloaked Physa is not a Species of Conservation Concern for the Bridger-Teton National Forest.

Summary and Recommendation Provided by: R. Griebel (February 6, 2020).

References

Cordeiro, J. 2017. *Physa megalochlamys*. The IUCN Red List of Threatened Species 2017: e.T189472A80972944. http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T189472A80972944.en

Frest, T. J. and E. J. Johannes. 1995. Interior Columbia Basin mollusk species of special concern. Final report to the Interior Columbia Basin Ecosystem Management Project, Walla Walla, WA. Contract #43-0E00-4-9112. 274 pp. plus appendices.

Global Biodiversity Information Facility (GBIF). 2019. GBIF Occurrence Download. Internet website: https://www.gbif.org/occurrence/map?q=Physa%20megalochlamys&state_province=wyoming&advanced=1. Accessed on October 7, 2019.

NatureServe. 2019. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Internet website: http://explorer.natureserve.org. Accessed on October 4, 2019.

Tronstad, L.M. and M. D. Andersen. 2018. Aquatic snails of the Snake and Green River Basins of Wyoming. Report prepared by the Wyoming Natural Diversity Database for the Wyoming Fish and Wildlife Department.
USFS. 2019. Biennial Monitoring Evaluation Report for the Bridger Teton National Forest. Jackson, WY. 89 pp.

USFWS (United States Fish and Wildlife Service). 2019. New Zealand Mudsnail (*Potamopyrgus antipodarum*). Available at: https://www.fws.gov/columbiariver/ANS/factsheets/mudsnail.pdf.

Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Aquatic Snails.

_____. 2017. State Wildlife Action Plan. Bear River Basin. Available at: https://wgfd.wyo.gov/WGFD/media/content/PDF/Habitat/SWAP/Aquatic%20Basins/Bear-River-Basin.pdf.

_____. 2017. State Wildlife Action Plan. Snake/Salt River Basin. Available at: https://wgfd.wyo.gov/WGFD/media/content/PDF/Habitat/SWAP/Aquatic%20Basins/Snake-Salt-River-Basin.pdf.

WYNDD (Wyoming Natural Diversity Database). 2019. Wyoming Natural Diversity Database; Data Explorer. Laramie, WY: University of Wyoming