

SPECIES: Scientific [common]	<i>Oncorhynchus virginalis behnkei</i> [Snake River Fine-spotted Cutthroat Trout (SRC)] The Snake River fine-spotted cutthroat trout is a form of cutthroat trout which is considered either as a separate subspecies, or as a variety of the Yellowstone cutthroat trout (Trotter 2008).
Forest:	Bridger-Teton National Forest
Forest Reviewer:	Patrick M. Barry, Masako Wright
Date of Review:	1/16/2020, 7/10/2025
Forest concurrence (or recommendation if new) for inclusion of species on list of potential SCC: (Enter Yes or No)	Yes

FOREST REVIEW RESULTS:

1. The Forest concurs or recommends the species for inclusion on the list of potential SCC:
Yes X No ___
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. Some of the 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
2018	298	Spring creek tributary to the Snake River	WGFD
2018	150	Buffalo Fork River near Moran	WGFD
2018	390 fish/mile (estimate)	Deadman to Moose section between Cowboy Cabin Creek and Cottonwood Creek on Snake River	WGFD
2017	625	Spring creek tributary to the Snake River	WGFD

2011	300 populations	Upper Snake GMU in 2,495 miles of riverine habitat.	Yellowstone Cutthroat Trout Interagency Coordination Group
2006	304 populations	Upper Snake GMU in 2,550 miles of riverine habitat.	Yellowstone Cutthroat Trout Interagency Coordination Group

(Wyoming Game and Fish Department 2015, 2019, 2018, Endicott et al. 2016)

- 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?

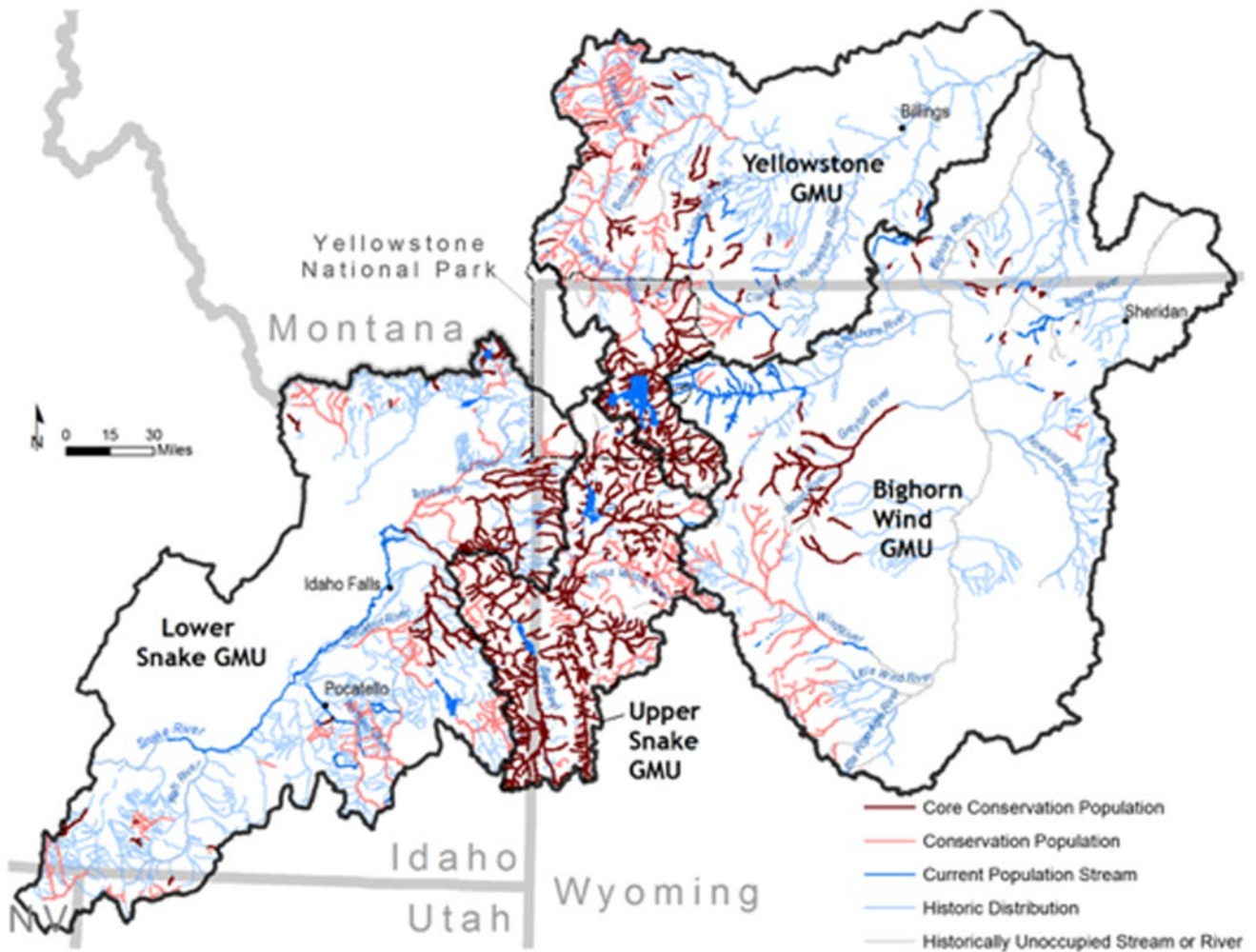
Yes ___ No ___

Provide explanation for determination

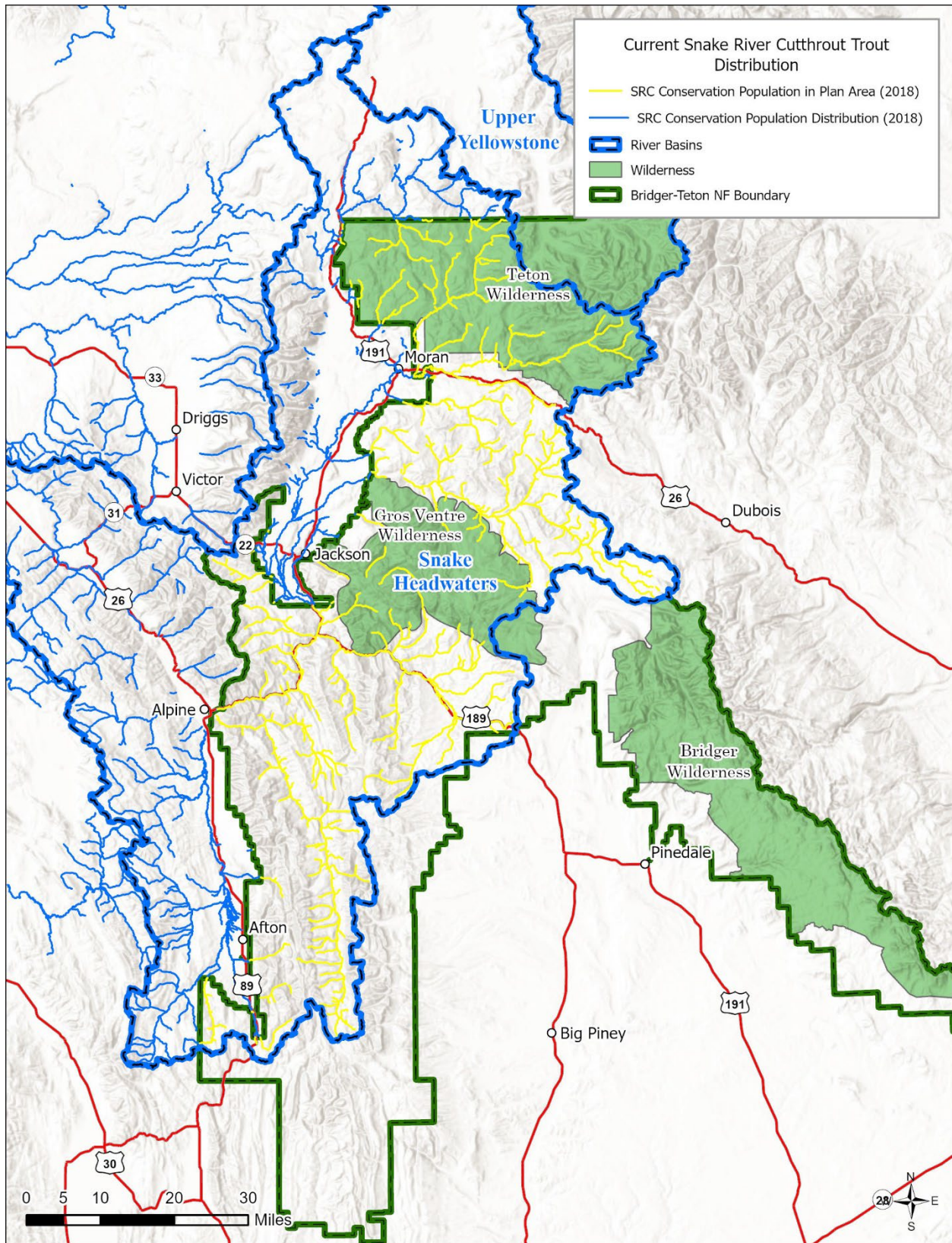
N/A-There are known occurrences on the Forest since 1990.

If determination is no, stop assessment

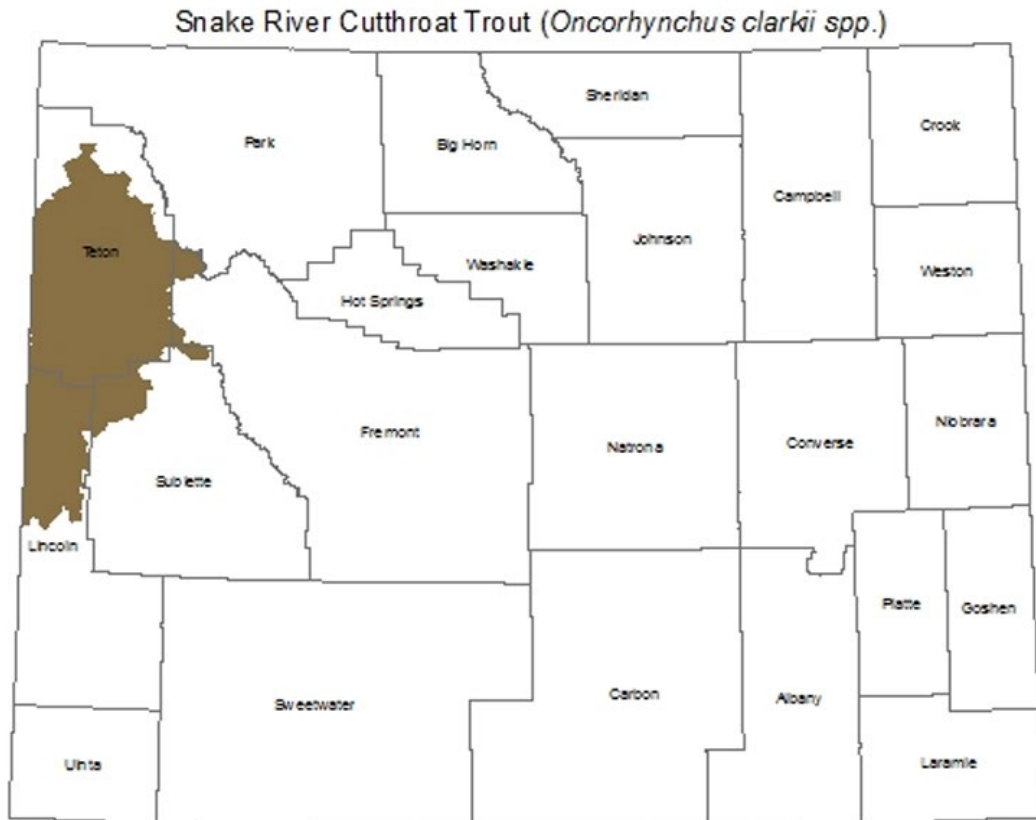
d. **Map 1.** The distribution of Snake River Cutthroat Trout (Upper Snake GMU) (Western Native Trout Initiative 2019).



Map 2. The current distribution of Conservation Populations of Snake River Cutthroat Trout within the Plan Area.



Map 4. Range of Snake River Fine-spotted Cutthroat Trout (*Oncorhynchus virginalis behnkei*) in Wyoming (WGFD 2017).



SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: February 2016. Wyoming Game and Fish Department. Note that brown indicates the current known range of the species.

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

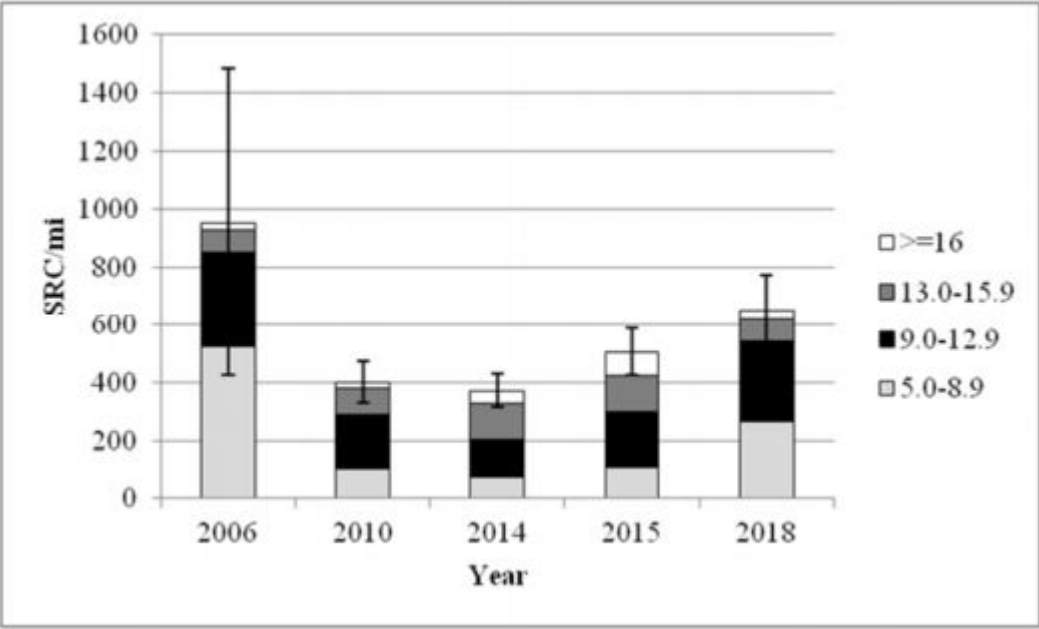
Entity	Status/Rank (include definition)
NatureServe Global Status	<p>GNR T1 (Intraspecific Taxon)-Critically Imperiled Subspecies (Snake River Fine-spotted Cutthroat Trout)</p> <p><i>At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.</i></p>
NatureServe State Status	<p>S1- Critically Imperiled (Snake River Fine-spotted Cutthroat Trout)</p> <p><i>At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.</i></p>
WGFD	<p>NSS3 (Bb), Tier II</p> <p><u>Population Status:</u> <i>Vulnerable - Population size or distribution is restricted or declining but extirpation is not imminent.</i></p> <p><u>Limiting Factors:</u> <i>Severe - Limiting factors are severe and not increasing significantly.</i></p> <p><u>Tier II:</u> <i>Moderate priority</i></p> <p><i>[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.] (Wyoming Game and Fish Department 2017)</i></p>
WYNDD	<p>Species of Concern</p> <p><i>Species vulnerable to extirpation at the global or state level due to:</i></p> <ul style="list-style-type: none"> <i>a. their rarity (e.g., restricted distribution, small population size, low population density)</i> <i>b. inherent vulnerability (e.g., specialized habitat requirements, restrictive life history)</i> <i>c. threats (e.g., significant loss of habitat, sensitivity to disturbances)</i>

	(Wyoming Natural Diversity Database - Species of Concern)
USDA Forest Service	<p>Region 4: Sensitive Species</p> <p><i>Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by</i></p> <ul style="list-style-type: none"> <i>a. Significant current or predicted downward trends in population numbers or density.</i> <i>b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.</i> <p>(FSM 2670.5 – Threatened, Endangered & Sensitive Species)</p>
USDOF FWS	<p>No Special Status; Listing Not Warranted</p> <p><i>A formal proposal for listing as Endangered or Threatened was recently denied.</i></p>
USDOF BLM	<p>Sensitive</p> <p><i>1. Sensitive species must be native species found on BLM-administrated lands for which BLM has the capability to significantly affect the conservation status of the species through management, and either:</i></p> <ul style="list-style-type: none"> <i>a. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or</i> <i>b. The species depends on ecological refugia or specialized or unique habitats on BLM-administrated lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.</i> <p><i>2. All federally designated candidate species, proposed species, and delisted species in the 5 years following their delisting shall be conserved as Bureau sensitive species</i></p> <p>(BLM Wyoming Sensitive Species Policy and List; March 31, 2010)</p>

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

Criteria	Rationale
Distribution on the Bridger-Teton National Forest	Snake River Cutthroat Trout (SRC) are native to the upper Snake River above Palisades Reservoir (Baxter and Stone 1995). They have been introduced into other drainages as a sport fish (Wyoming Game and Fish Department 2017). The Bridger-Teton overlaps portions of the Upper Snake GMU, and Snake River Cutthroat Trout are widely distributed with conservation populations present in 1,338 of 1,461 (92 percent) historically occupied stream miles (Map 1 and 2). These conservation populations in the plan area substantially contribute to the number of stream miles in Wyoming (63 percent) and across the species five-state historic range (31 percent).
Abundance on the Bridger-Teton National Forest	Sampling is limited within the BTNF; however, sampling and population estimates have been conducted by WGFD for SRC in several locations west of BTNF. The 2018 population counts for two sections on the Salt River, about 3 miles outside of the BTNF to the west, estimate trout 5 inches or larger were 499 trout per mile at one section and the other section 1,253 trout per mile. Flat Creek, on the National Elk Refuge north of Jackson and bordering the western boundary of BTNF, estimated 232 SRC per mile, with 159 of those fishing being 13 inches or larger in 2018. WGFD estimated the 2018 Snake River population of SRC above 9 inches to be 390 (+/- 75) per mile. Despite higher number of fish overall, numbers of large fish (>13 inches) was lower than previous years in the sampling location (Wyoming Game and Fish Department 2019).
Population Trend on the Bridger-Teton National Forest	<p>The distribution and abundance of Snake River Cutthroat subspecies significantly declined from historic levels. Snake River Cutthroat Trout currently occupy only about 48 percent of their historic native range in the Greater Yellowstone Ecosystem (Al-Chokhachy et al. 2017).</p> <p>In recent years, comparison of Snake River Cutthroat counts and occupied stream miles from 2006 assessment to 2011 showed a slight decrease and loss of 60 miles of occupied streams in the Upper Snake GMU (Endicott et al. 2016).</p> <p>Population estimates based on WGFD cutthroat trout sampling show stable populations in the recent years in the Flat Creek, Salt River, and Snake River sampling sites west of BTNF. Flat Creek population estimates on the National Elk Refuge have remained stable since 2013, and the 2018 pounds of fish per mile was the highest estimated in the last decade. Figure 1 shows SRC population estimates for two locations on the Salt River from 1998 to 2018. Figure 2 shows populations estimates on a 5-mile Deadman to Moose section of the Snake River between Cowboy Cabin Creek and Cottonwood Creek, west of BNTF (Wyoming Game and Fish Department 2019).</p>

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	<div style="display: flex; justify-content: space-around;"> <div data-bbox="541 212 1234 737"> <p>Auburn-Grover Lane bridge (left)</p> <table border="1"> <caption>Estimated Fish/mile for Auburn-Grover Lane bridge</caption> <thead> <tr> <th>Year</th> <th>5.0-8.9</th> <th>9.0-12.9</th> <th>13.0-15.9</th> <th>>=16.0</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>1998</td> <td>0</td> <td>150</td> <td>50</td> <td>0</td> <td>200</td> </tr> <tr> <td>2002</td> <td>0</td> <td>250</td> <td>50</td> <td>0</td> <td>300</td> </tr> <tr> <td>2005</td> <td>50</td> <td>20</td> <td>0</td> <td>0</td> <td>70</td> </tr> <tr> <td>2010</td> <td>120</td> <td>150</td> <td>50</td> <td>0</td> <td>320</td> </tr> <tr> <td>2014</td> <td>0</td> <td>500</td> <td>100</td> <td>0</td> <td>600</td> </tr> <tr> <td>2016</td> <td>350</td> <td>150</td> <td>50</td> <td>0</td> <td>550</td> </tr> <tr> <td>2018</td> <td>180</td> <td>200</td> <td>50</td> <td>0</td> <td>430</td> </tr> </tbody> </table> </div> <div data-bbox="1241 212 1934 737"> <p>Narrows (right)</p> <table border="1"> <caption>Estimated Fish/mile for the Narrows</caption> <thead> <tr> <th>Year</th> <th>5-8.9</th> <th>9-12.9</th> <th>13-15.9</th> <th>>=16</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>1998</td> <td>450</td> <td>200</td> <td>50</td> <td>0</td> <td>700</td> </tr> <tr> <td>2002</td> <td>250</td> <td>300</td> <td>50</td> <td>0</td> <td>600</td> </tr> <tr> <td>2005</td> <td>300</td> <td>150</td> <td>50</td> <td>0</td> <td>500</td> </tr> <tr> <td>2009</td> <td>700</td> <td>50</td> <td>50</td> <td>0</td> <td>800</td> </tr> <tr> <td>2013</td> <td>650</td> <td>0</td> <td>0</td> <td>0</td> <td>650</td> </tr> <tr> <td>2014</td> <td>1100</td> <td>200</td> <td>50</td> <td>0</td> <td>1350</td> </tr> <tr> <td>2018</td> <td>850</td> <td>350</td> <td>50</td> <td>0</td> <td>1250</td> </tr> </tbody> </table> </div> </div> <p data-bbox="533 764 1535 792">*Asterisks indicates that size classes were combined to generate an estimate.</p> <p data-bbox="533 818 1944 886">Figure1. Population estimates and size classes for Auburn-Grover Lane bridge (left) and the Narrows (right) sections, Salt River.</p>	Year	5.0-8.9	9.0-12.9	13.0-15.9	>=16.0	Total	1998	0	150	50	0	200	2002	0	250	50	0	300	2005	50	20	0	0	70	2010	120	150	50	0	320	2014	0	500	100	0	600	2016	350	150	50	0	550	2018	180	200	50	0	430	Year	5-8.9	9-12.9	13-15.9	>=16	Total	1998	450	200	50	0	700	2002	250	300	50	0	600	2005	300	150	50	0	500	2009	700	50	50	0	800	2013	650	0	0	0	650	2014	1100	200	50	0	1350	2018	850	350	50	0	1250
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Criteria	Rationale
	 <p data-bbox="537 854 1955 922">Figure 2. Population estimates and size classes for SRC from 2006 to 2018 on Snake River between Cowboy Creek and Cottonwood Creek.</p>
Habitat Trend on the Bridger-Teton National Forest	<p data-bbox="537 951 1990 1369">Degradation and fragmentation of habitat continue to be factors limiting Snake River cutthroat trout populations in some areas. Degradation has occurred to varying extents from land use, habitat alteration, and water diversions. Over the past 20 years, a substantial amount of habitat has been restored by state and federal agencies and non-governmental organizations. Despite such efforts, there continue to be abundant opportunities for additional restoration projects in areas currently occupied by Snake River cutthroat trout and in historically occupied areas where reintroductions may be feasible. The Bridger-Teton National Forest has seen less development and land uses compared with surrounding areas. Much of the area did not have early development brought by railroad systems, and hunting and scenery values lead to protection of natural areas. As a result, most streams within the Bridger-Teton National Forest have current Snake River cutthroat trout distribution remaining, while outside the Greater Yellowstone Area the historic distribution has greatly decreased (Map 1) (Al-Chokhachy et al. 2017).</p>

Criteria	Rationale
Threats to the Species and its Habitat on the Bridger-Teton National Forest	Overharvest has been greatly reduced through angling regulations and changes in angler behavior. As a result, current threats include hybridization with non-native rainbow trout, competition with non-native brook trout, entrainment in water diversions, and sedimentation/habitat fragmentation from grazing practices and deferred road maintenance (Gresswell 2011). Only 23 percent of the current distribution of Snake River cutthroat trout is genetically unaltered (i.e., pure), with losses of genetic integrity largely due to hybridization with non-native rainbow trout. According to the 2011 Range-Wide Status Assessment for the Snake River Cutthroat Trout, the Upper Snake GMU—which comprises most of the Bridger-Teton National Forest—hosts 226 unaltered populations across more than 1,800 miles of habitat (Endicott et al. 2016). In addition, conservation projects to suppress rainbow trout have been effective to reduce hybridization in the upper Snake River (Kovach et al. 2018).
Date: August 07, 2019 Reviewer: Julie Remp	

Summary and Recommendations

The Snake River Fines-potted Cutthroat Trout, *Oncorhynchus virginalis behnkei*, were historically well distributed across the Greater Yellowstone Ecosystem but now occupies less than 48% of the historic range. Of the remaining distributions, less than 23% of Snake River cutthroat trout remain genetically unaltered and considered pure from hybridization with non-native rainbow trout based on genetic analyses prior to 2010. As genetic identification technology continues to advance, presumed “genetic purity” is expected to diminish substantially with current and future genetic sampling analyses. Distribution outside of the Bridger Teton has declined to the point of extirpation in many historic drainages, but they remain well distributed within the Bridger Teton boundaries likely due to less development compared to surrounding areas. Currently, NatureServe ranks this sub-species as T1, critically imperiled sub-species. Threats to the species include hybridization with non-native rainbow trout, competition with non-native brook trout, entrainment in water diversions, and sedimentation/habitat fragmentation from grazing practices and deferred road maintenance, and those threats still present within the Bridger Teton National Forest. Therefore, it is recommended as a Species of Conservation Concern.

Summary and Recommendation Provided by: P. Barry (January 16, 2020), revised by M. Wright (July 10, 2025).

References

- Al-Chokhachy, R., Shepard, B., Burckhardt, J., Opitz, S., Garren, D., Koel, T., and Lee Nelson, M. 2017. Status and Conservation of Yellowstone Cutthroat Trout in the Greater Yellowstone Area. *Yellowstone Science* 25
- Endicott, C., Nelson, L., Opitz, S., Peterson, A., Burckhardt, J., Yekel, S., Garren, D., Koel, T.M., and Shepard, B.B. 2016. Rangewide status assessment for Yellowstone cutthroat trout (*Oncorhynchus clarkii bouvieri*): 2012. Edited by Group, Y.C.T.I.C. Helena, Montana.
- Gresswell, R.E. 2011. Biology, status, and management of the Yellowstone cutthroat trout. *North American Journal of Fisheries Management* 31: 792-812.
- Kovach, R., Al-Chokhachy, R., and Stephens, T. 2018. Proactive Rainbow Trout Suppression Reduces Threat of Hybridization in the Upper Snake River Basin. *North American Journal of Fisheries Management* 38 10.1002/nafm.10177
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