SPECIES: Scientific [common]	*Oncorhynchus virginalis pleuriticus* [Colorado River Cutthroat Trout]
Forest:	Bridger-Teton National Forest
Forest Reviewer:	Patrick M. Barry, Masako Wright
Date of Review:	1/21/2020, 7/8/2025
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. 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
		See Maps	Trout Unlimited, WYNDD, WyGISC 2019

   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?

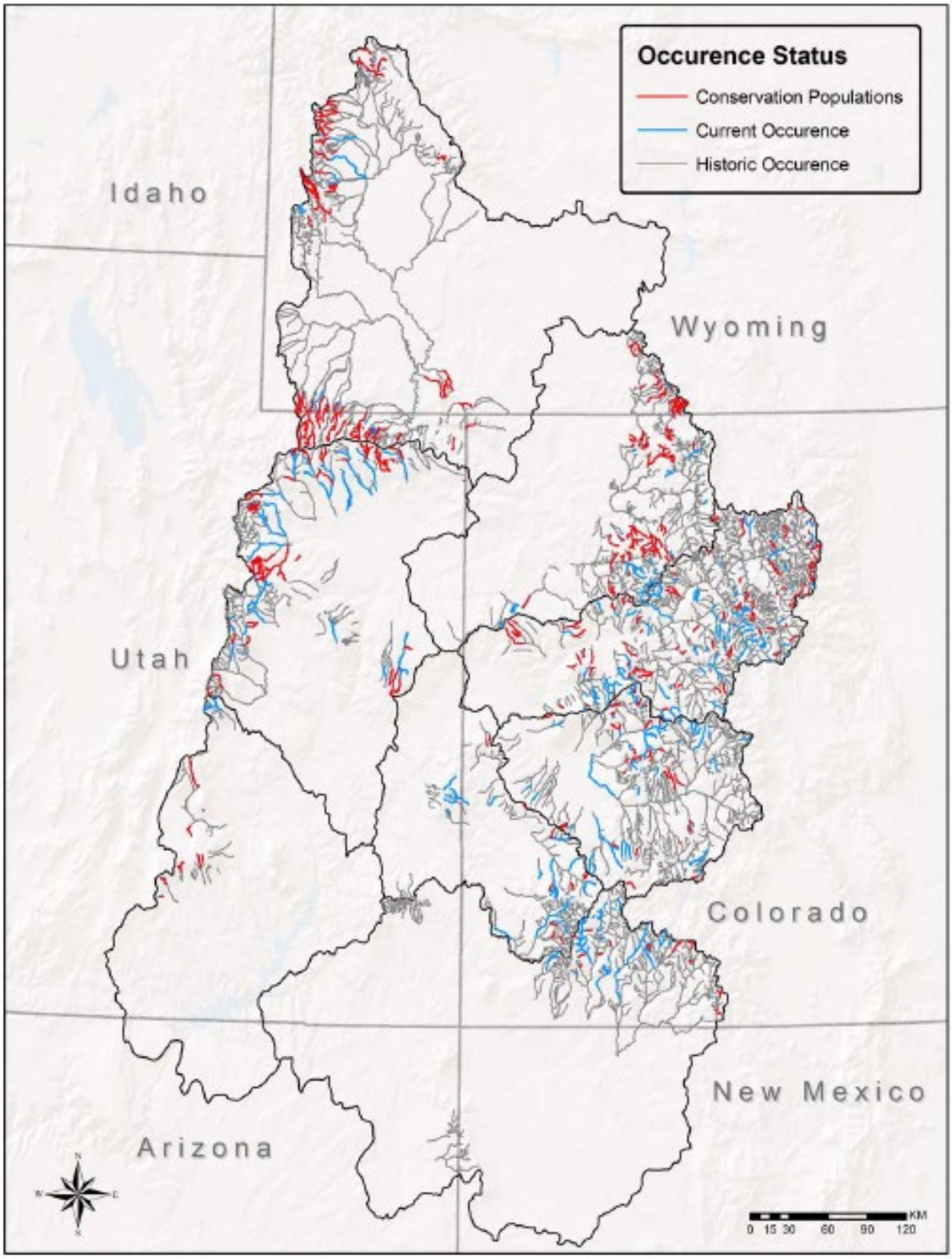
Yes __ No___

Provide explanation for determination

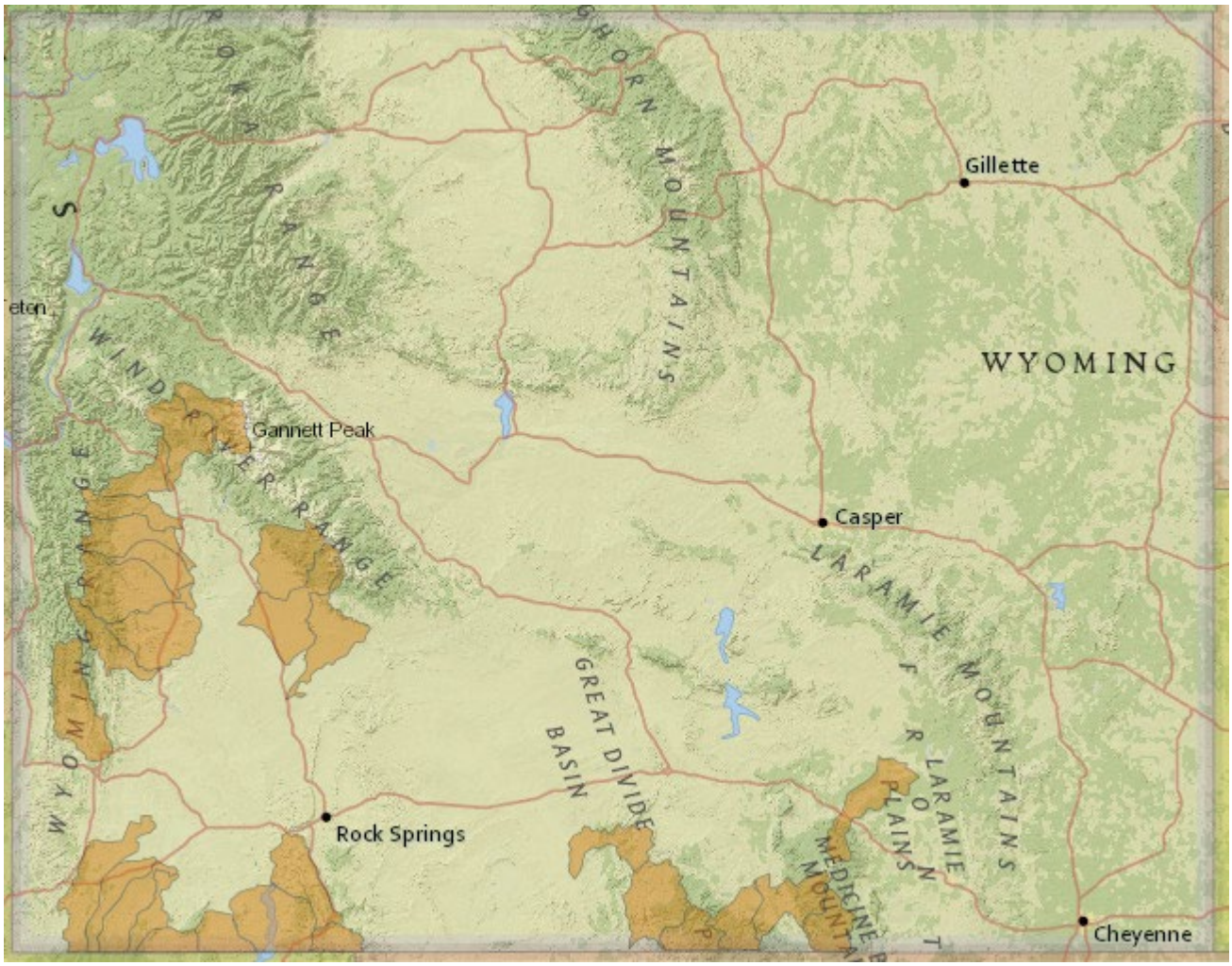
N/A – There are known occurrences on the Forest since 1990.

If determination is no, stop assessment

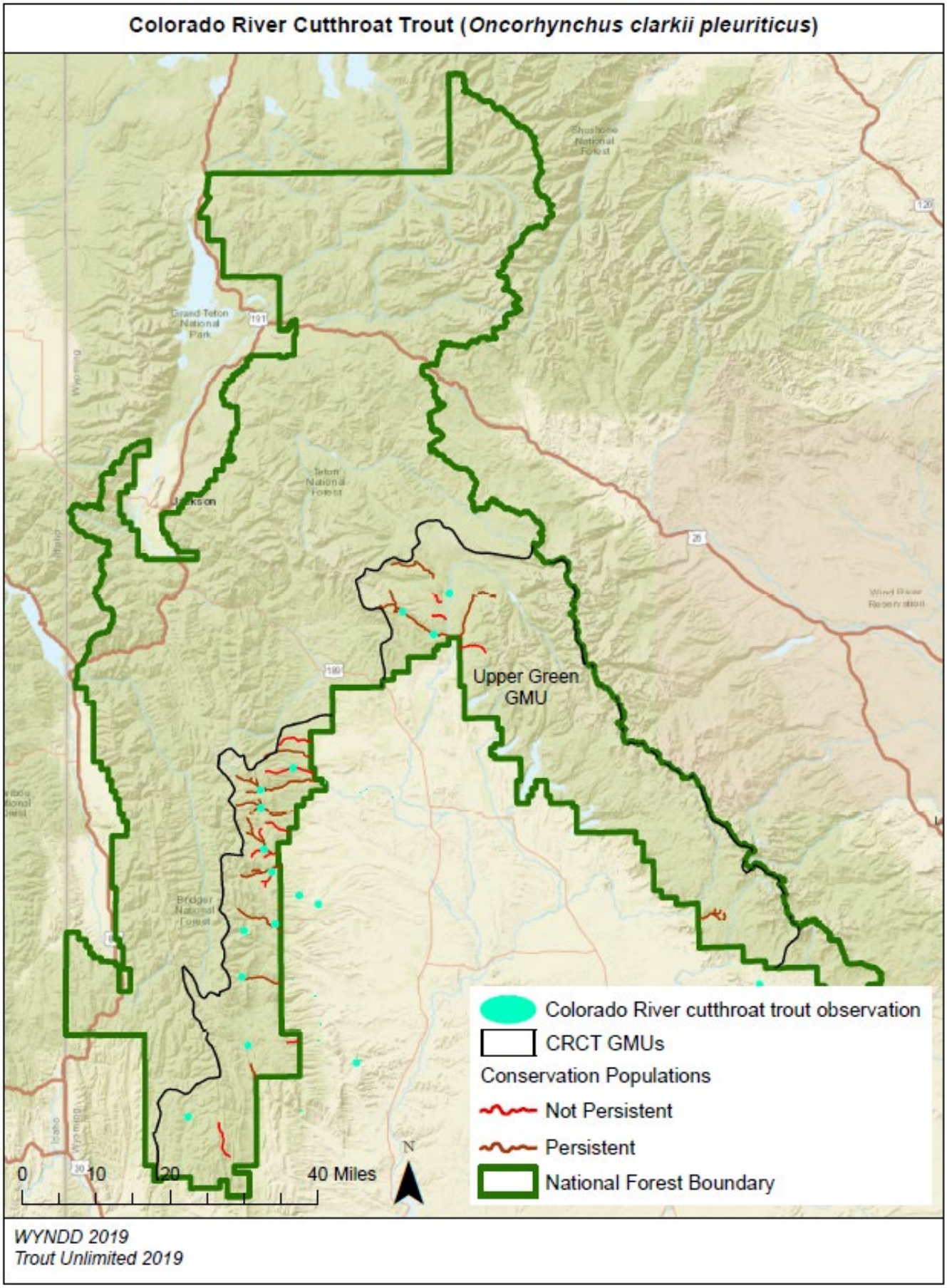
d. **Map 1**. Historic and current range of the Colorado River cutthroat trout in the United States (Hirsch et al. 2013).



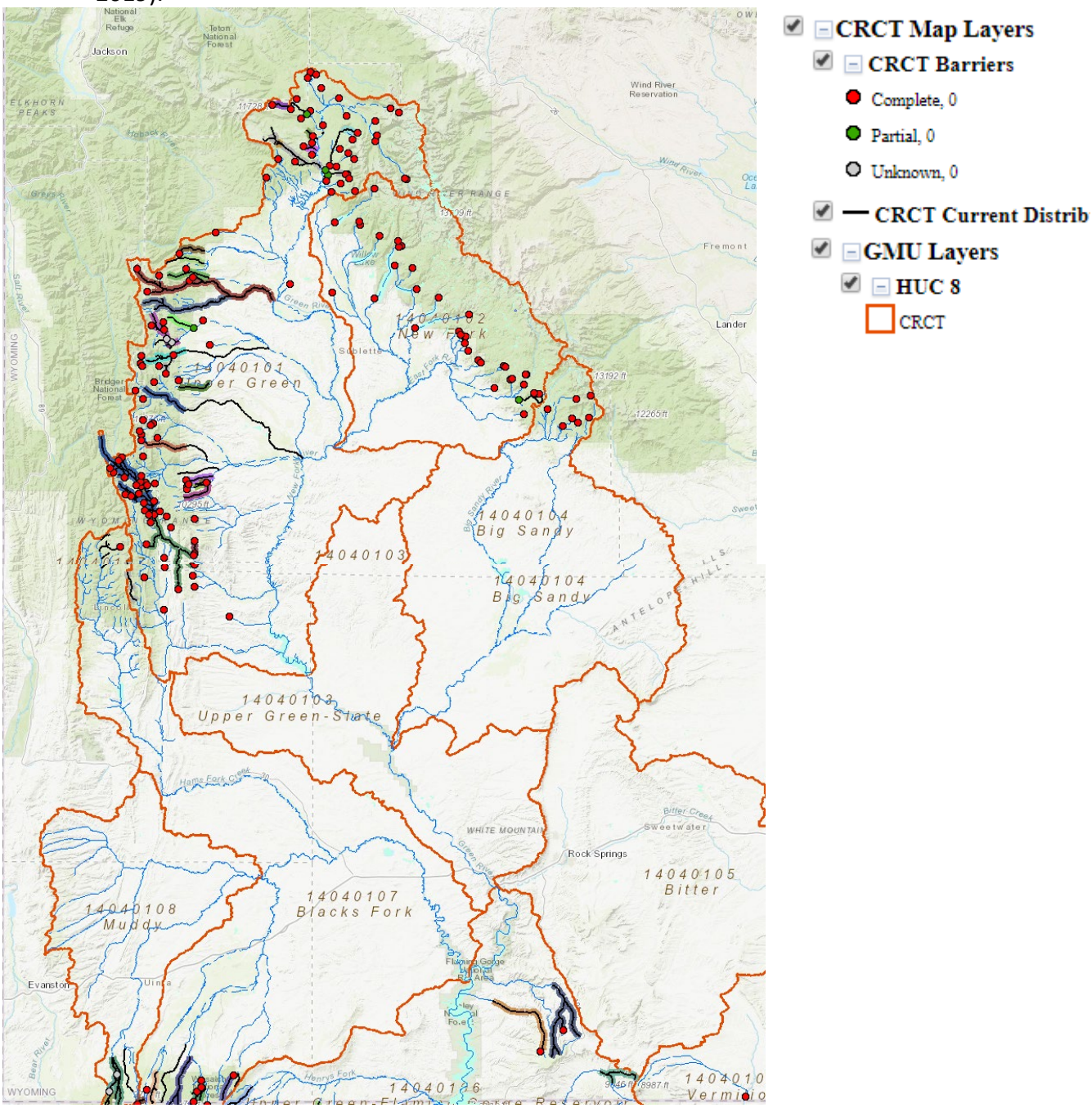
Map 2. Range of Colorado River Cutthroat Trout (*Oncorhynchus virginalis pleuriticus*) in Wyoming (WYNDD 2025).



Map 3. Occurrences of Colorado River Cutthroat Trout (*Oncorhynchus clarkia*) on the Bridger-Teton National Forest (WYNDD 2019).



Map 4. Occurrences of Colorado River Cutthroat Trout (*Oncorhynchus clarkia*) detail (WyGISC 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	**GNRT3** *Global: Unranked—Global rank not yet assessed. Intraspecific taxon: 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.*
NatureServe State Status	**S1**—Critically Imperiled *At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors*
WGFD	**SGCN, NSS2 (Ba), Tier #II** *Population Status: Vulnerable - Population size or distribution is restricted or declining but extirpation is not imminent.* *Limiting Factors: Extreme - Limiting factors are severe and continue to increase in severity* *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)* (Wyoming Natural Diversity Database - Species of Concern)
USDA Forest Service	**Region 2 and 4: Sensitive Species** *Those plant and animal species identified by a Regional Forester for which* *population viability is a concern, as evidenced by* *a. Significant current or predicted downward trends in population numbers or density.* *b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.* (FSM 2670.5 – Threatened, Endangered & Sensitive Species)
USDOI FWS	**Not listed**
USDOI BLM	**Sensitive (WY)** *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:* *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* *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.* *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* (BLM Wyoming Sensitive Species Policy and List; March 31, 2010)
IUCN	N/A

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

Criteria	Rationale
Distribution on the Bridger-Teton National Forest	The Colorado River cutthroat trout historically occupied portions of the Colorado River drainage in Wyoming, Colorado, Utah, Arizona, and New Mexico (USFS 2019). The historic distribution covered an estimated 20,088 miles of stream habitat range-wide, with about 4,059 miles in Wyoming (Hirsch et al. 2013; WGFD 2017). These fish probably historically occupied portions of larger streams, such as the Green, Yampa, White, Colorado, and San Juan rivers, but widespread introductions of non-native salmonids over the last century have limited the subspecies to primarily isolated headwater streams and lakes (USFS 2019). Currently Colorado River cutthroat trout conservation populations occupy 13% of the historic range (Hirsch et al. 2013; WGFD 2017). In Wyoming, Colorado River cutthroat trout can be found in the Green River, Black's Fork, and Little Snake River drainages. Some of the healthiest and purest populations occur in small stream tributaries of the Little Snake River in Carbon County and in the Wyoming Range of Sublette County (WGFD 2017). The Bridger-Teton is part of the Upper Green basin GMU. There are 76 populations of Colorado River cutthroat trout over 650 stream miles and 8 populations over 699 lake acres in the upper Green River (USFS 2019). On the BTNF, there are 217 miles of occupied CRCT habitat out of 807 historic miles of habitat. Populations in the northern part of the Upper Green River GMU only persist in the Wyoming Range (Eastern drainages) and the Green River– Big Twin Creek watershed. The existing conservation populations associated with the BTNF are isolated, resident populations and primarily restricted to high elevation streams within their range (USFS 2019). North Piney Lake also supports a lentic population of Colorado River Cutthroat, and several other stocked lakes on the Bridger-Teton support angling opportunities for the various subspecies of cutthroat.
Abundance on the Bridger-Teton National Forest	The distribution and abundance of Colorado River cutthroat trout have declined from historical levels over their entire range (Hirsch et al. 2006). The WGFD reports that abundance in the state of Wyoming is rare, with numbers and distribution greatly restricted (WGFD 2017).
Population Trend on the Bridger-Teton National Forest	In Wyoming, the subspecies is greatly restricted in numbers and distribution, but the WGFD reports that extirpation is not imminent (WGFD 2017). The following summary of population trends on the BTNF was adapted from the Bridger-Teton National Forest Sensitive Species Conservation Assessment (USFS 2019). In the Upper Green River – Big Twin Creek Watershed, conservation populations are present in Teepee Creek, Gypsum Creek, Rock Creek, Klondike Creek, Jim Creek, and an unnamed tributary to the Green River. Each of

Criteria	Rationale
	these populations, except Klondike Creek have non-natives present. Colorado River cutthroat trout populations are declining in Tepee, Gypsum, Jim, and Rock Creek (USFS 2019). In the Middle Beaver Creek watershed, there are two conservation populations in Chall Creek and South Beaver Creek. Neither of these populations have non-native species present (USFS 2019). In the Horse Creek watershed, there are three conservation populations with relatively low population density in Lead Creek and South Horse Creek but high population density in North Horse Creek. Interbreeding with other subspecies of cutthroat trout is known to occur within these populations (USFS 2019). The Cottonwood Creek watershed harbors six conservation populations in North Cottonwood, South Cottonwood, Bare, Nylander, Irene, and Maki Creek. Non-natives are present throughout the watershed, except in Maki Creek. Genetic investigations have found widespread genetic introgression, except in the upper reaches of North Cottonwood Creek, where only minor introgression was inferred, and in Maki Creek, which is believed to be a completely pure population (USFS 2019). An isolated population of Colorado River cutthroat trout exists in the Muddy Creek watershed and is uninvaded by non-natives. A small portion of the headwaters of this watershed occur on NFS land (USFS 2019). The Green River – Beaver Creek Watershed contains conservation populations in North Piney Creek, Fish Creek, Beaver Creek, South Beaver Creek, unnamed tributary to Beaver Creek, and Trail Ridge Creek. North Piney and Fish Creek populations have both competing and hybridizing non-native populations present. The Beaver Creek and Trail Ridge Creek populations are uninvaded (USFS 2019). Large-scale efforts to restore Colorado River cutthroat trout in the LaBarge Creek watershed have been underway. A large fish barrier was constructed just upstream of the Forest boundary in 2010, and all fish above the barrier were chemically removed. Efforts to reintroduce a population of Colorado River cutthroat trout to the 58 miles of suitable habitat above the barrier have been underway in the watershed since the barrier was installed. Eradication of non-native fish appears to have been completely successful, however, additional efforts to increase population densities are still needed (USFS 2019). Fontenelle Creek watershed has one conservation population in South Fork Fontenelle Creek. Both brook trout and rainbow trout are present. Population surveys should be conducted in the near future (USFS 2019). The Upper Ham's Fork watershed has some streams with extant populations, but none have been classified as conservation populations due to low genetic integrity (USFS 2019).

Criteria	Rationale
Habitat Trend on the Bridger-Teton National Forest	Colorado River cutthroat trout prefers clear and cold water, naturally fluctuating flows, low levels of fine sediment, and complex habitats. These fish historically occupied large rivers and lakes, but they are now typically found in headwater streams (WGFD 2017). Habitat quality classification efforts for Colorado River cutthroat trout populations have been limited (USFS 2019). The WGFD reports that the native fish community of the Green River basin in Wyoming is perhaps the most imperiled in the state. Three of the twelve species and subspecies historically found in the basin have been extirpated. Aquatic habitat in the basin has largely been degraded by the introduction of invasive species, water development, and altered flow regimes (WGFD 2017). Livestock grazing is the main factor currently and historically influencing habitats in Upper Green River Tributaries Habitat Priority Area. Overgrazing has degraded plant communities, leading to stream bank erosion and high sedimentation. As a result, stream habitat conditions are below potential (WGFD 2014). Conservation areas have been identified based on distribution and conservation need for three species, including the Colorado River cutthroat trout; habitat management in these areas may help improve habitat conditions to support native fish. However, much of the Colorado River cutthroat trout's historic range is still occupied by non-native species (WGFD 2017).
Threats to the Species and its Habitat on the Bridger-Teton National Forest	The main threat to the Colorado River cutthroat trout is competition and hybridization with non-native salmonids. Over half of the remaining Colorado River cutthroat trout populations on the Forest are invaded by non-native trout (USFS 2019). Non-native species compete with cutthroat trout for habitat, food or spawning sites; increase predation; and cause introgression (WGFD 2017). Stream and riparian habitat alteration is also a concern. Livestock grazing, recreation, and major alterations to the watershed hydrology or sediment transport are the most common risks to riparian and stream habitat on the Forest. Such activities can lead to loss of instream cover and channel complexity, elevated water temperature, bank erosion, and loss of preferred substrate (USFS 2019; WGFD 2017). Rangelands form a major component of ecosystems in the Bridger-Teton National Forest, and there are open rangelands throughout the Forest, which likely overlap cutthroat habitat (USFS 2017). Livestock grazing of an intensity and duration that exceeds the ability of streambanks and streambank stabilizing vegetation to recover can negatively affect aquatic habitat and fish populations (e.g., Young 2008, Dauwalter et al. 2014, WDGF 2017, Dauwalter et al. 2018). Climate change may cause further habitat alterations. Although cutthroat trout occupy a broader thermal and stream size niche than other trout species and can persist in smaller habitat patches, they still require coldwater

Criteria	Rationale
	natal habitat patches exceeding ~2–6 miles. This value depends strongly on the prevalence of brook trout, water temperatures, and geomorphic conditions. Temperatures at the upstream extent of cutthroat trout populations in extremely cold streams will become more suitable from climate warming, but flows may become intermittent if precipitation patterns change (Halofsky 2018). Negative impacts to watersheds from land management, lack of aspen regeneration and subsequent impacts to beaver populations and stream hydrology, and limited gene flow from habitat fragmentation (e.g., dams, diversions, etc.) are also threats to this subspecies (WGFD 2017).
Date: August 30, 2019 Reviewer: L. Chipman	

Summary and Recommendations

The Colorado River Cutthroat Trout, *Oncorhynchus virginalis pleuriticus,* was historically well distributed throughout Wyoming, Utah, and Colorado with some populations historically occurring in Arizona and New Mexico. The Arizona and New Mexico population have since been extirpated, and their current range has diminished substantially in the last 50 years. Presently, they occupy 13% of their historic range. There remain 217 miles of occupied habitat (807 miles historically) within the Bridger Teton National Forest, but only a small percentage of this occupied habitat is considered to be optimal Colorado River Cutthroat habitat and many of these miles are also occupied by competing non-native salmonids. Current threats to the species are hybridization by non-native trout, competition for resources by brook trout, entrainment in water diversions, sedimentation from Forest system roads deferred maintenance, increasing irrigation needs and intermittent connectivity with other populations, and grazing practices. Active management and maintenance of intentional fish barriers to exclude non-natives, and elimination on unintentional fish barriers continue to be important for the persistence of these species on the Forest. Based on low abundance, fragmented distribution, and continued threats to persistence over the long term on the Bridger Teton national Forest, it is recommended as a Species of Conservation Concern.

Summary and Recommendation Provided by: P.M. Barry (January 21, 2020).

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