

SPECIES: Scientific [common]	<i>Histrionicus histrionicus</i> [Harlequin Duck]
Forest:	Bridger-Teton National Forest
Forest Reviewer:	Randall Griebel, James Wilder
Date of Review:	9/24/2018; reviewed 5/7/2025
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. Does not include detailed monitoring results by WGFD – see tables 2 and 3 for those survey results.

Year Observed	Number of Individuals^x	Location of Observations	Source of Information
1980-1995	5	Greys River Ranger District <i>Two of these are suspect; recorded 10/18/88 – which is after the species typically migrates to wintering grounds (Wallen 1987).</i>	Wyoming Natural Diversity Database; eBird Database
1994-2003	19	Pinedale Ranger District <i>Of the total number – 22 of the 30 were located in the Bridger Wilderness</i>	
2006-2015	11		
1984-1996	5	Blackrock Ranger District <i>All located in the Teton Wilderness</i>	
2005-2012	17		

Table 2. Number of Harlequin Ducks observed during helicopter surveys in Wyoming, May and June 2012. Streams selected for monitoring are denoted by an asterisk (Oakleaf and Patla 2013).

Survey stream	Km	No. of pairs	Single male	Single female	Totals
Berry Creek *	13.2	2	0	0	4
Owl Creek *	3.8	4	0	0	8
Moose Creek *	11.2	0	1	0	1
North Fork Buffalo *	26.8	1	0	0	2
Soda Fork *	6.6	0	0	0	0
South Fork Buffalo *	36.8	2	1	0	5
Thorofare/Open Creeks *	32.4	7	0	0	14
Yellowstone River *	27.8	6	0	0	12
Atlantic Creek	6.3	0	0	0	0
Pine Creek	12.2	0	0	0	0
Fremont Creek	31.3	2	0	0	4
Pole Creek	32.1	2	0	0	4
Monitor Streams Total		22	2	0	46
Total All Streams		26	2	0	53

Table 3. Number of Harlequin Ducks detected during helicopter surveys in Wyoming, May 2002-May 2012. GTNP=Grand Teton National Park, BTNF= Bridger-Teton National Forest, ns=not surveyed (Oakleaf and Patla 2013).

Survey stream	Agency	2002 total	2007 total	2008 total	2012 total
Berry Creek	GTNP	2	2	ns	4
Owl Creek	GTNP	1	0	ns	8
Moose Creek	GTNP	10	8	ns	1
North Fork Buffalo	BTNF	12	2	8	2
Soda Fork	BTNF	0	0	0	0
South Fork Buffalo	BTNF	5	0	8	5
Thorofare/Open Creeks	BTNF	12	2	15	14
Yellowstone River	BTNF	14	4	10	12
GTNP subtotal		13	10	ns	13
BTNF subtotal		43	6	41	33
Totals		56	18	41	46

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

If no, provide explanation and stop assessment.

- d. **Map 1**, Harlequin Duck range map of North America (WGFD 2017).



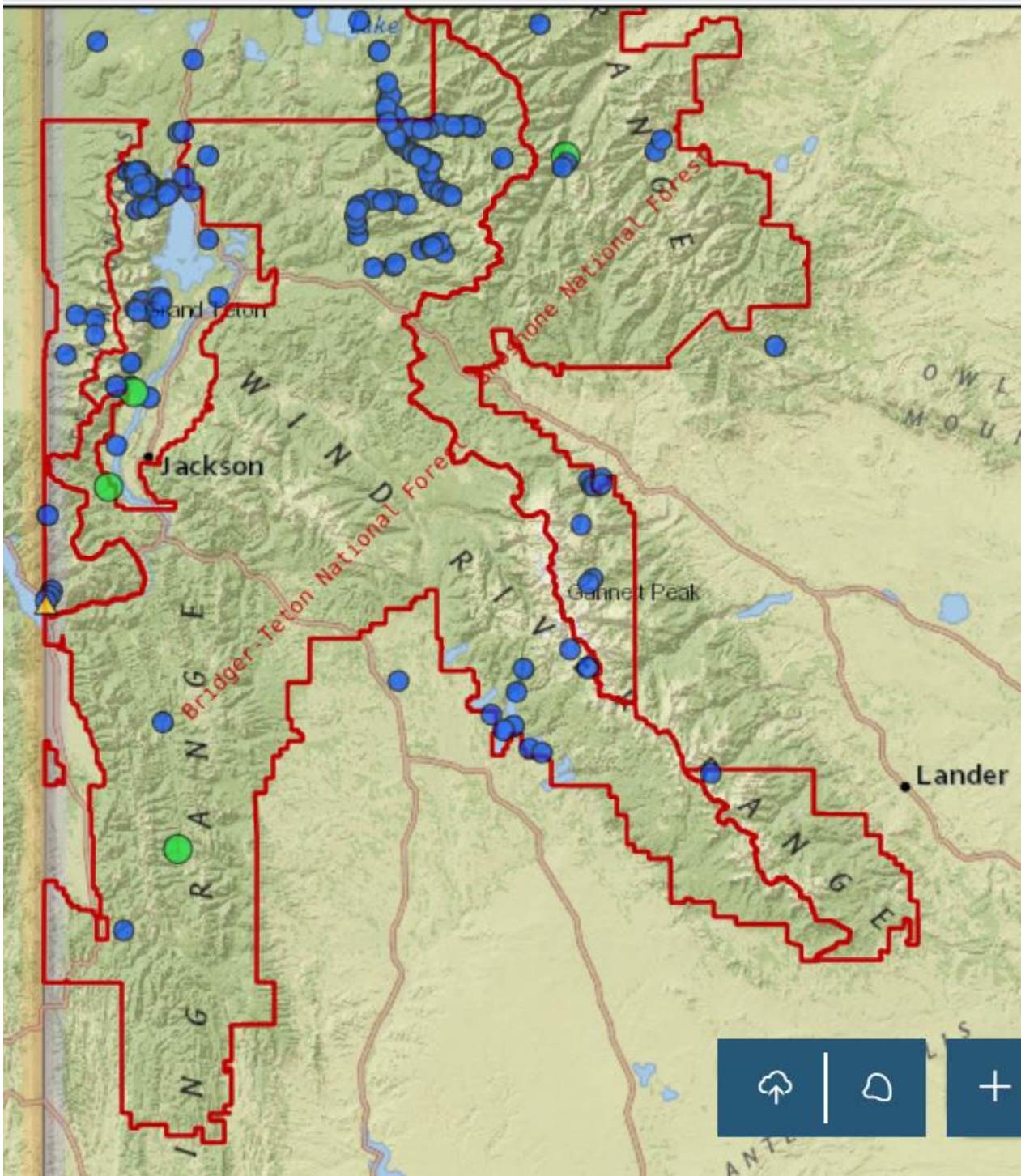
- e. **Map 2**, Range and predicted distribution of *Histrionicus histrionicus* in Wyoming (WGFD 2017).



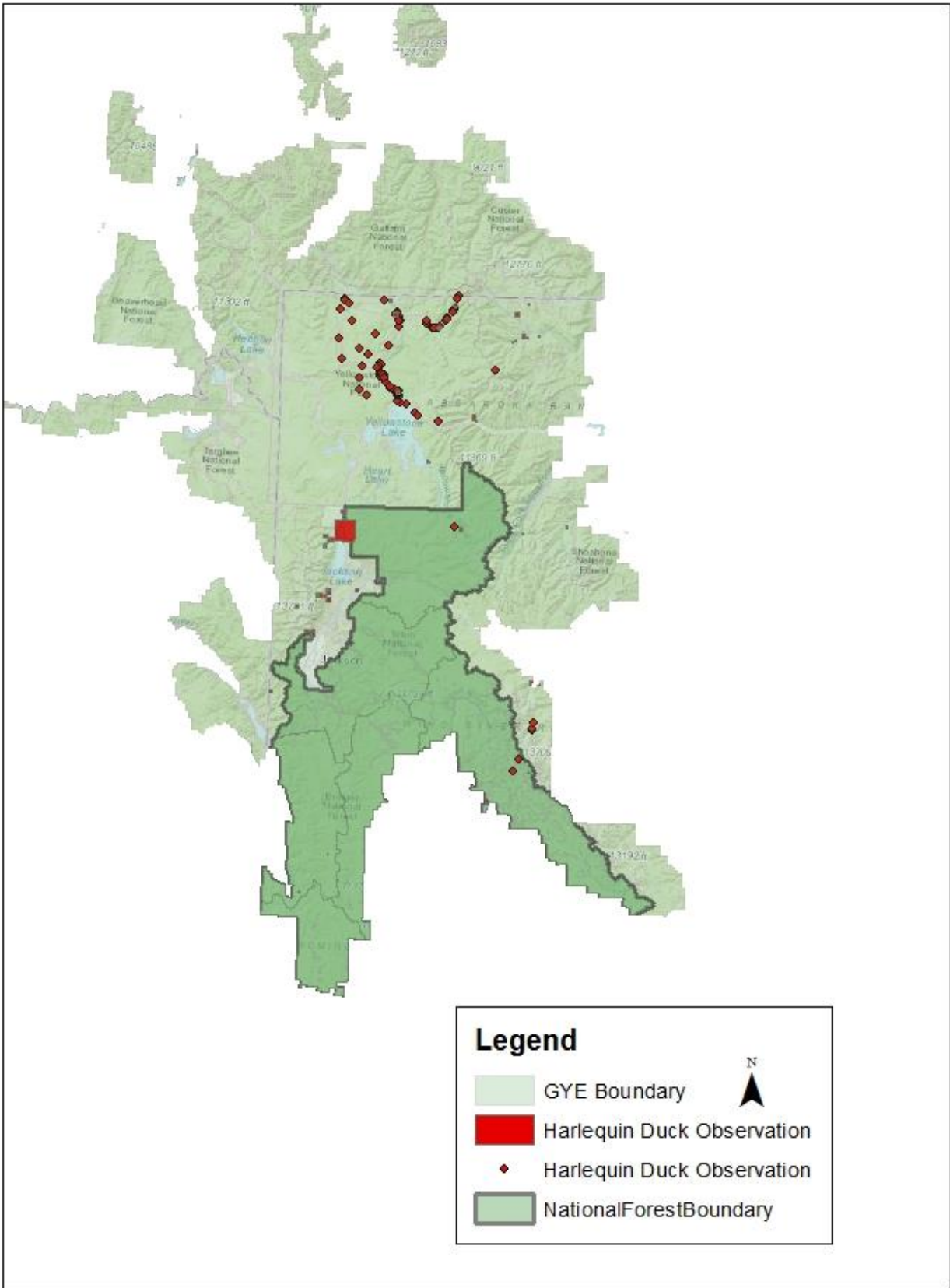
SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: Sept. 2016, Wyoming Game and Fish Department and Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.
Note that brown indicates the predicted distribution of the species;
heavy black lines indicate outermost boundaries of possible occurrence.

- f. **Map 3**, Map of Harlequin Duck occurrences on the Bridger-Teton National Forest (Wyoming Natural Diversity Database, 2025).

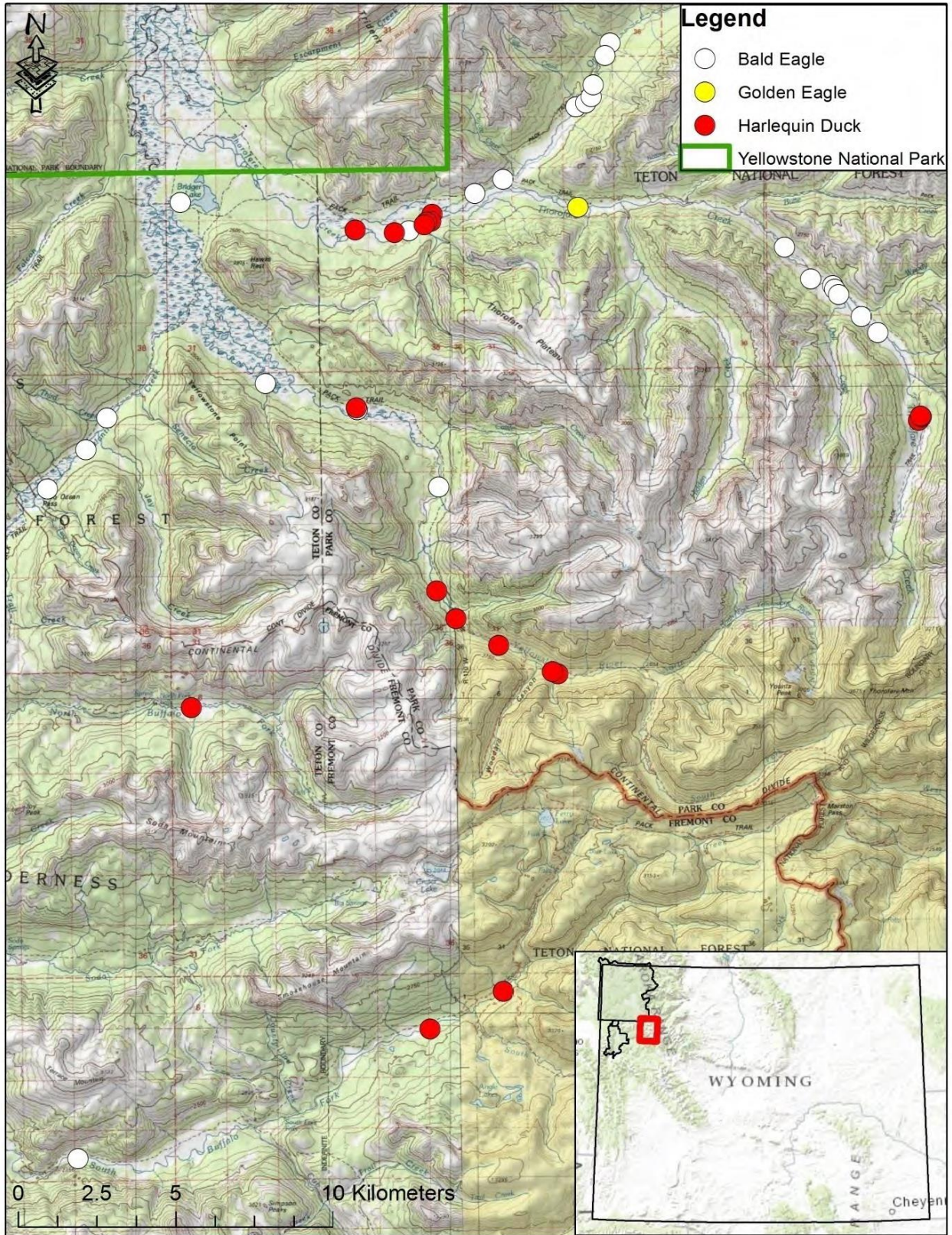
Harlequin Duck (Histrionicus histrionicus)



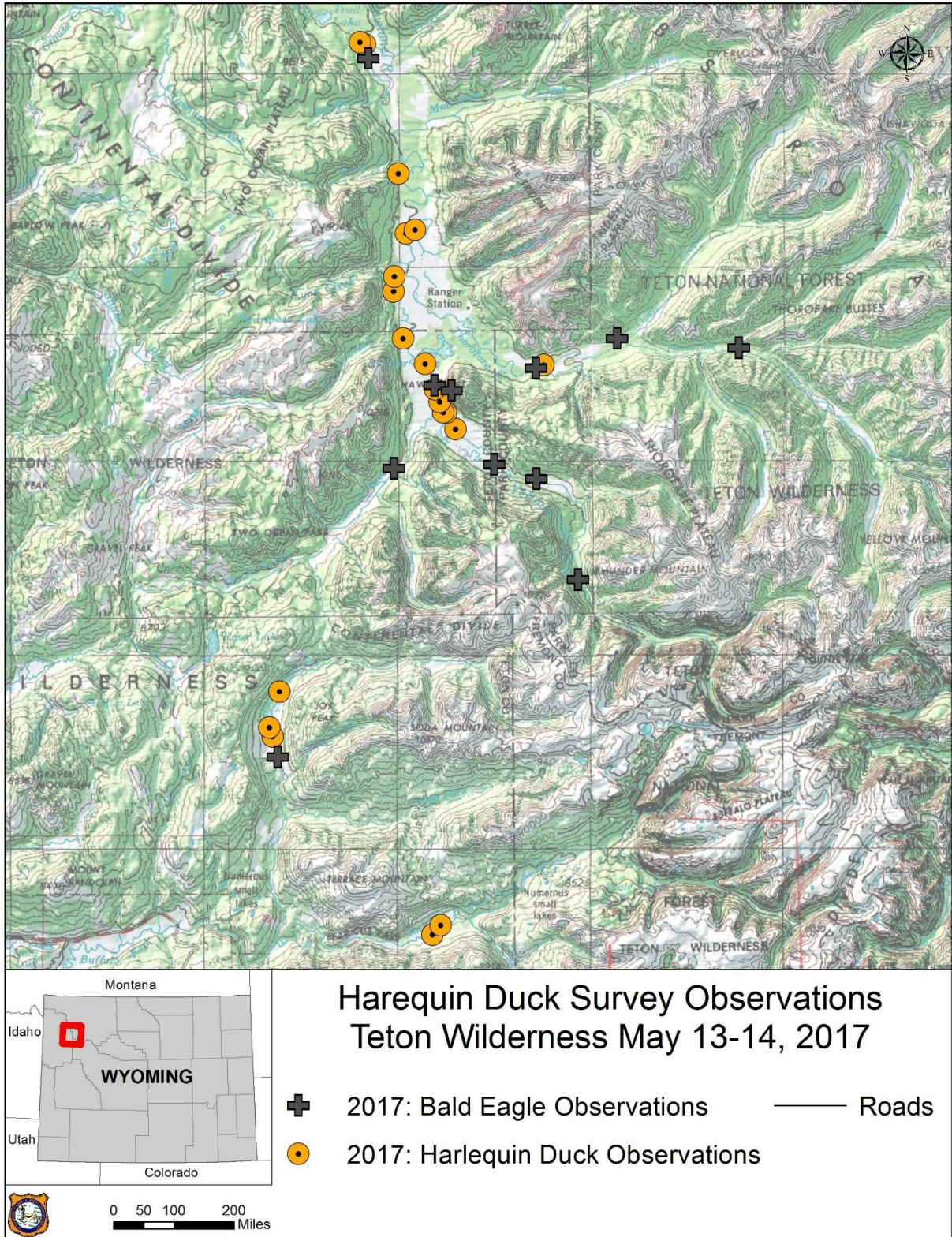
- g. **Map 4**, Map of Harlequin Duck occurrences within the Greater Yellowstone Ecosystem (GYE) (Wyoming Natural Diversity Database; eBird Database)



h. **Map 5**, Distribution of Harlequin Ducks and Bald Eagles (*Haliaeetus leucocephalis*) in the Teton Wilderness, Wyoming, 29-30 May 2012 (Oakleaf and Patla 2013).



- i. **Map 6**, Harlequin Duck observations in the Teton Wilderness, 2017 (S. Patla, WGFD, personal communication 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)
<p>NatureServe Global Status</p>	<p>G4— Apparently Secure</p> <p><i>Although still globally widespread, the Atlantic population may be reaching critically low levels and the Pacific population has experienced substantial declines. Harlequins may exhibit high breeding and wintering site fidelity and small local breeding populations, and are thus subject to local extirpations. Declining overall populations may provide little chance of recolonization.</i></p>
<p>NatureServe State Status</p>	<p>S1B— Critically Imperiled (Breeding)</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. Conservation status refers to the breeding population of the species in the nation or state/province</i></p>
<p>WGFD</p>	<p>NSS3 (Bb), Tier II</p> <p><i><u>Population Status:</u> Vulnerable - Population size or distribution is restricted or declining but extirpation is not imminent</i> <i><u>Limiting Factors:</u> Severe - Limiting factors are severe and are not increasing significantly</i> <i><u>Tier II:</u> 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.]</i> (WGFD - Wyoming Species of Greatest Conservation Need)</p>
<p>WYNDD</p>	<p>Species of Concern</p> <p><i>Species vulnerable to extirpation at the global or state level due to:</i></p> <p><i>a. their rarity (e.g., restricted distribution, small population size, low population density)</i></p>

	<p><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)</p>
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> <p><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> <p>(FSM 2670.5 – Threatened, Endangered & Sensitive Species)</p>
UDI FWS	No Special Status
WY BLM	No Special Status
IUCN	<p>LC – Least Concern</p> <p><i>A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.</i> (IUCN – Red List Categories and Criteria)</p>

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

Species (Scientific and Common Name): <i>Histrionicus histrionicus</i> [Harlequin Duck]	
Criteria	Rationale
Distribution on Bridger-Teton National Forest	The seasonal range and habitat for the harlequin duck is limited across North America and mainly located in northwest Oregon and parts of Montana, Idaho, and Wyoming (Map 1). In Wyoming, harlequin duck distribution is predominantly restricted to the northwest corner of the state, overlapping with much of the Bridger-Teton National Forest (BTNF) and Greater Yellowstone Ecosystem (GYE) (Map 2). Wyoming’s population is unique, representing the extreme southern and eastern extent of the western North American breeding population (Savoy 2015). Despite the range and predicted distribution of the duck within the planning area, species distribution on the Forest is low, with only 57 occurrences documented on the Bridger-Teton National Forest at 10 general locations, according to the Wyoming Natural Diversity Database and eBird datasets (Map 3; Table 1). Based on occurrences dating back to 1984, the harlequin duck has been observed on four of the six ranger districts, with occurrence records absent on the Kemmerer and Big PineyRanger Districts. Most breeding harlequin ducks are found in Grand Teton and Yellowstone National Parks, although the Teton

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	Wilderness on the BTNF provides habitat and the species is regularly documented there (Tables 2 and 3, Maps 5 and 6); however, non-breeding individuals represent many of the occurrences on the Forest (Map 4).
Abundance on the Bridger-Teton National Forest	The Wyoming abundance rank of <i>Very Rare</i> for the harlequin duck appears to coincide with that of the BTNF. A minimum of 70 breeding pairs of harlequin duck are estimated to occur in Wyoming (WGFD 2017). However, abundance estimates for the state are unknown due to insufficient long-term data. Occurrence records suggest that harlequin duck abundance on the BTNF is extremely low, and likely coincides with a lack of optimal breeding habitat.
Population Trend on the Bridger-Teton National Forest	Although population trends on the BTNF are unknown, harlequin duck population trends for Wyoming are thought to be stable, despite the decrease in nesting pairs (WGFD 2017). In 2002, the WGFD initiated aerial helicopter surveys every 5 years in the pre-nesting season (May) to monitor population trend over time. Additionally, there have been some limited brood surveys conducted on foot in specific drainages in August during certain years. Survey results indicate that the population has remained stable in key nesting areas with an estimated 70 nesting pairs. However, there does appear to be some range contraction and large variations in the number of breeding pairs have been documented during some years (Patla and Savoy 2017).
Habitat Trend on the Bridger-Teton National Forest	<p>The harlequin duck is only found during the breeding season, early March through mid-May on the BTNF and throughout the GYE. Harlequin ducks are habitat specialists, and select rapidly flowing mountain streams and rivers containing clear water, rocky substrate, and abundant aquatic insects. Harlequin duck breeding habitat studies in Wyoming have been primarily conducted in Grand Teton National Park. The preferred habitat characteristics included; 1) streamside perennial shrub vegetation; 2) meandering streams; 3) greater than three loafing sites per 10 mile; and 4) no human disturbance (Wallen 1987). Harlequin ducks nest on islands in streams and also in dense shrubs adjacent to streams (WGFD 2017). Suitable habitat in Wyoming is found in Grand Teton and Yellowstone National Parks, and in the Bridger-Teton and Shoshone National Forests (Oakleaf and Patla 2008 <i>in</i> WGFD 2017). During the fall, the species migrates out of the state to the Pacific coast, where it uses shallow intertidal and subtidal rocky benches and cobble beaches (Roberson and Goudie 1999).</p> <p>On the BTNF, the harlequin duck prefers streams/rivers in the Teton and Bridger Wilderness, although there have been observations of the species on Fremont Lake on the Pinedale Ranger District and both the Greys and Salt Rivers on the Greys River Ranger District. However, it is important to note that the Greys River sightings are very “dated” (Table 1). Most impacts to riparian systems on the forest are a result of motorized recreation and domestic livestock grazing which can impact water quality, streambank stability and vegetation. Since 1990, there has been a significant reduction in the number of active livestock grazing allotments across the Forest. Many have been closed, vacated or placed in forage reserve status in response to grizzly bear conflicts and/or concerns over disease transmission between domestic sheep</p>

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Criteria

Rationale

and bighorn sheep. Currently, active grazing allotments are located on ~45% of the Forest. Additionally, the forest has implemented travel management to address off-road motorized use and 1.41 million acres of the BTNF is designated as Wilderness or Wilderness Study Area. Additionally, 1.43 million acres are considered Roadless.

Most harlequin duck observations are located in streams and rivers in Wilderness areas on the BTNF. Since forest management activities are restricted in Wilderness, water quality and stream habitat desired by the species is usually in good condition. For example, the segments of the Buffalo Fork that are in the Teton Wilderness (includes the North fork, South Fork and Soda Fork; all three are long-term monitoring sites; Tables 2 and 3) are Class 1 waters.

For these segments, the following applies:

Class 1 [Outstanding] waters are those surface waters in which no further water quality degradation by point source discharges other than from dams will be allowed. Nonpoint sources of pollution shall be controlled through implementation of appropriate best management practices. Pursuant to Section 7 of these regulations, the water quality and physical and biological integrity which existed on the water at the time of designation will be maintained and protected. In designating Class 1 waters, the Environmental Quality Council shall consider water quality, aesthetic, scenic, recreational, ecological, agricultural, botanical, zoological, municipal, industrial, historical, geological, cultural, archaeological, fish and wildlife, the presence of significant quantities of developable water and other values of present and future benefit to the people.

Further direction in the Wyoming Water Quality Rules and Regulations, Chapter 1, for Class 1 Waters includes the following:

- (a) Except as authorized in paragraph (b), no new point sources other than dams, may discharge, and no existing point sources, other than dams, may increase their quantity of pollution discharge, to any water designated as Class 1.
- (b) Storm water and construction-related discharges of pollution to Class 1 waters may be authorized and shall be controlled through applicable water quality permits, Section 401 certifications and/or by the application of best management practices. Such discharges shall not degrade the quality of any Class 1 water below its existing quality or adversely affect any existing use of the water. Temporary increases in turbidity that are within the limits established in Section 23 of these regulations and that do not negatively affect existing uses can be permitted. For purposes of this section, temporary increases in turbidity shall not exceed the actual construction period. The department shall impose whatever controls and monitoring are necessary on point source discharges to Class 1 waters and their tributaries to ensure that the existing quality and uses of the Class 1 water are protected and maintained.

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	<p>(c) Nonpoint source discharges of pollution to Class 1 waters or tributaries of Class 1 waters shall be controlled by application of best management practices adopted in accordance with the Wyoming Continuing Planning Process. For Class 1 waters, best management practices will maintain existing quality and water uses (USDA, Forest Service 2014).</p> <p>Current and Future Visitor Use: In general, these river segments receive relatively low use since they are located within Wilderness Areas. Recreation use is primarily associated with hiking and backpacking, horse riding and pack trips, bank fishing, and big game hunting. Since these segments are accessed only by non-motorized trails located in remote areas and are generally smaller volume waters, boating use rarely occurs, although pack-rafting is possible. Winter use is light, due to remoteness and terrain. Monitoring trends suggest that recreation use is declining in the Teton Wilderness and remote portions of the Gros Ventre Wilderness. Therefore, river values are unlikely to be threatened in the near future and capacity estimates are considered imprecise (USDA, Forest Service 2014).</p>
Threats to the Species and its Habitat on the Bridger-Teton National Forest	<p>Natural threats to harlequin duck populations in Wyoming include unique habitat constraints and requirements, low fledgling survival rates, and strong site fidelity (WGFD 2017; NatureServe 2018). Additionally, males and females do not breed successfully until 3- 5 years of age. Harlequin duck breeding success is also known to decrease during years of high and early spring runoff. Aerial surveys of breeding pairs in Wyoming documented fewer ducks in 2007 when water levels were low and higher numbers of Bald eagles were observed (WGFD 2017). Climate change, and associated changes in annual temperature and precipitation, may have impacts to harlequin duck habitat, and therefore on breeding success over the long term.</p> <p>Potential human-caused threats to population viability in the Rocky Mountains include both habitat degradation and direct mortality in breeding and wintering areas. Human recreation, including hiking, fishing, and boating may cause harlequin ducks to abandon breeding sites (WGFD 2017). Forest fires, livestock grazing, timber harvest, and motorized route development may also result in increased disturbance to nesting birds, degraded stream conditions, increased sedimentation, and may cause streams to become turbid, therefore reducing optimal nesting habitat for harlequin ducks (WGFD 2017; NatureServe 2018). In addition to increased sedimentation in streams, livestock grazing in forest habitats can cause trampling of nests and of vegetation that provides nest cover.</p> <p>There is some speculation that the density of nesting raptors may also negatively impact harlequin ducks. Oakleaf and Patla (2013) noted “The impact on the nesting population of harlequins in the BTNF is not known, but many locations where we observed harlequins in 2012 were different compared to 2002. Results clearly show the separation of</p>

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	<p>harlequin observations and eagle observations in the 2012 survey, suggesting that harlequins are responding to the presence of eagles. The one exception is where we located a pair of harlequins near two immature Bald Eagles on the way up Thorofare Creek. On the return trip, eagles were gone and we located the original pair of harlequins and three additional pairs, suggesting that the additional pairs were hiding in response to eagles.” Also, see Maps 5-6.</p> <p>The Harlequin duck populations in Wyoming migrate to the pacific coastal regions for the winter. According to the WGFD, band recoveries during the winter and recent satellite tracking data suggests that Wyoming’s harlequin ducks concentrate in the Strait of Juan de Fuca in Washington state and British Columbia (Puget Sound). These areas are at risk from bilge discharge and oil spills (WGFD 2017).</p>

Summary and recommendations: The Bridger-Teton National Forest (BTNF) is located in the extreme southern edge of the breeding range of the harlequin duck, and while the species is known to occur on the Forest, it is considered rare with poor distribution and low abundance. Most observation records on the BTNF are located in the Teton and Bridger Wilderness areas and adjacent to the BTNF, within Grand Teton and Yellowstone National Parks. In Wyoming (i.e., the Greater Yellowstone Ecosystem, including the BTNF), survey results indicate that the population has remained stable since 2002 in key nesting areas with an estimated 70 nesting pairs.

The harlequin duck prefers streams and rivers in BTNF Wilderness areas as well as areas in Yellowstone and Grand Teton National Park that seem to provide optimal habitat conditions without the threats typically associated with the species (i.e., human disturbance associated with motorized recreation, fluctuating water levels, poor water quality, disturbed stream banks, lack of riparian vegetation and toxic pollutants). Thus, there is little concern for these sites to continue to provide optimal habitat for harlequin ducks in the future.

There is currently insufficient information to determine a substantial concern for harlequin ducks on the Forest. The species prefers streams and rivers in Wilderness areas and there is little concern that these sites will not provide suitable habitat for the species into the future. Since all other harlequin duck observations on the forest are mostly made up of individual birds that are considered transient or migratory, that type of habitat is plentiful across the forest. Until better information becomes available that indicates pair formation and nesting attempts in other locations, 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 harlequin duck is not a Species of Conservation Concern for the Bridger-Teton National Forest.

Evaluator(s): Michael Burdick, Ashley Egan, Randall Griebel

Date: September 24, 2018

Species (Scientific and Common Name): *Histrionicus histrionicus* [Harlequin Duck]

Criteria

Rationale

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