SPECIES: Scientific [common]	*Centrocercus urophasianus* [Greater Sage-grouse]
Forest:	Bridger-Teton National Forest
Forest Reviewer:	Randall Griebel, James Wilder
Date of Review:	03/19/2018; updated 4/17/2025
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. All Known Occurrences, Years, and Frequency within the Planning Area

Year Observed	Number of Individuals	Location of Observations	Source of Information
1988-1989	36	Greys River Ranger District	Wyoming Game & Fish Department; Wyoming Natural Diversity Database; USFS Natural Resource Information System (February 2018)
1995-2006	22		
1982-1988	20	Kemmerer Ranger District	Wyoming Game & Fish Department; Wyoming Natural Diversity Database; USFS Natural Resource Information System (February 2018)
1994-2007	25		
1978-1988	58	Pinedale Ranger District	Wyoming Game & Fish Department; Wyoming Natural Diversity Database; USFS Natural Resource Information System; Teton Raptor Center (February 2018)
2015-2016	225		
1980-1989	65	Big Piney Ranger District	Wyoming Game & Fish Department; Wyoming Natural Diversity Database; USFS Natural Resource Information System; Teton Raptor Center (February 2018)
1991-2015	272		
1988	3	Blackrock Ranger District	Wyoming Game & Fish Department; Wyoming Natural Diversity Database; USFS Natural Resource Information System (February 2018)
2006-2010	10		
1979-1989	230	Jackson Ranger District	Wyoming Game & Fish Department; Wyoming Natural Diversity Database; USFS Natural Resource Information System (February 2018)
1991-2011	767		

Table 2. All Known Greater Sage-grouse Lek sites within the Planning Area

Year Observed	Lek Name	Location of Observations	Source of Information
2000	Breakneck Flats	Jackson Ranger District; Gros Ventre River Drainage	Wyoming Game & Fish (February 2018)
2005	Dry Cottonwood	Jackson Ranger District; Grose Ventre River Drainage	Wyoming Game & Fish (February 2018)
2010	Clark Draw	Big Piney Ranger District; Clarks Draw-Hoback River	Wyoming Game & Fish (February 2018)
2014	Wagon Creek	Pinedale Ranger District; Upper Green River Drainage - Located on private land surrounded by FS. (*Discovered near confluence of Wagon Creek and Green River late in May of 2014 during a helicopter flight. No birds found in 2015. Active in 2016 and 2017; verified as an official lek in 2017*)	Wyoming Game & Fish (February 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___

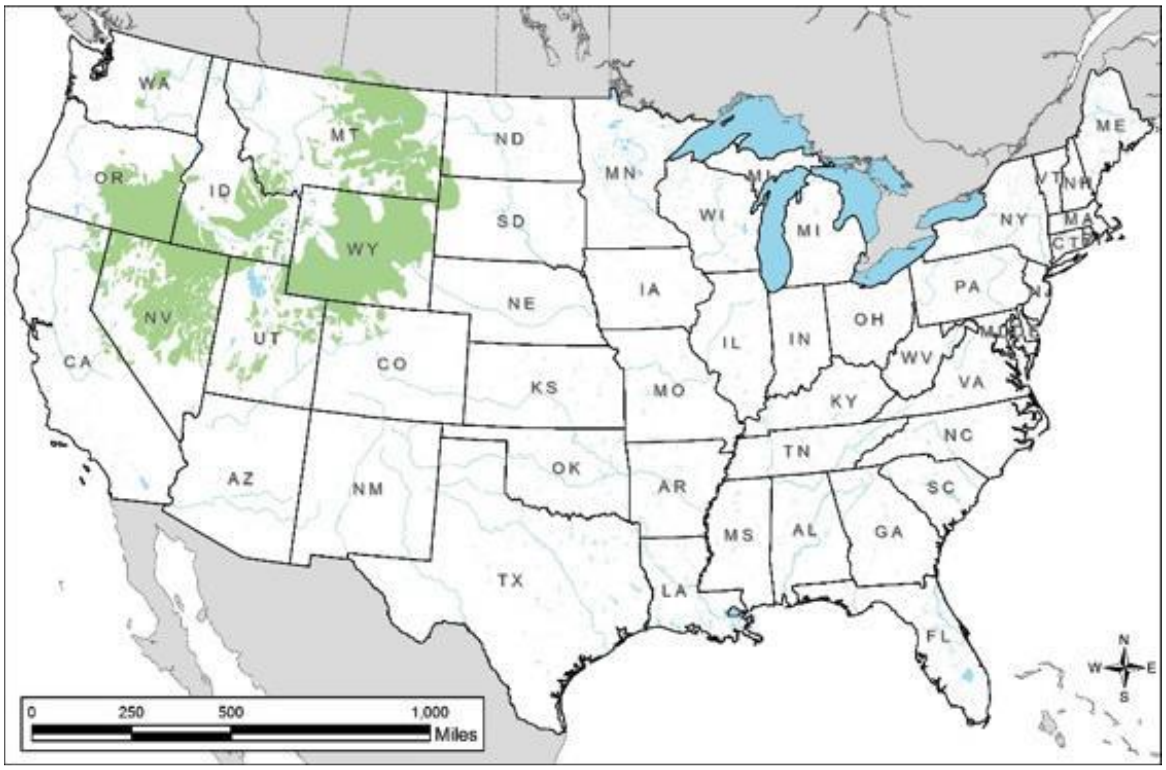
If no, provide explanation and stop assessment.

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_ X__ No___

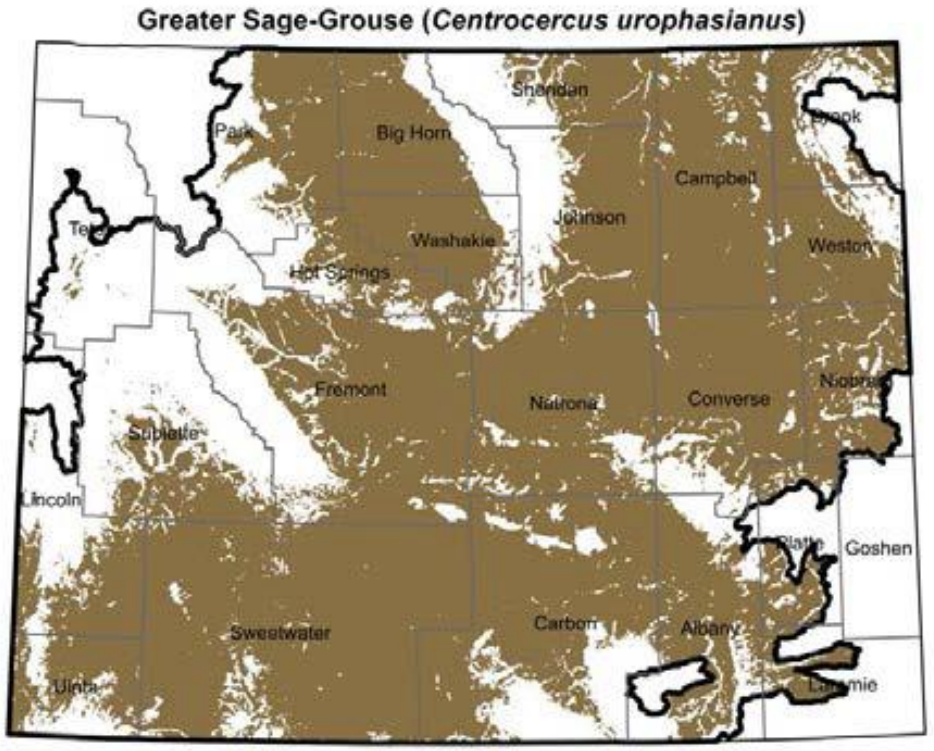
If no, provide explanation and stop assessment.

d. **Map 1**, Greater sage-grouse range map of North America



Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Greater Sage-grouse (*Centrocercus urophasianus*).

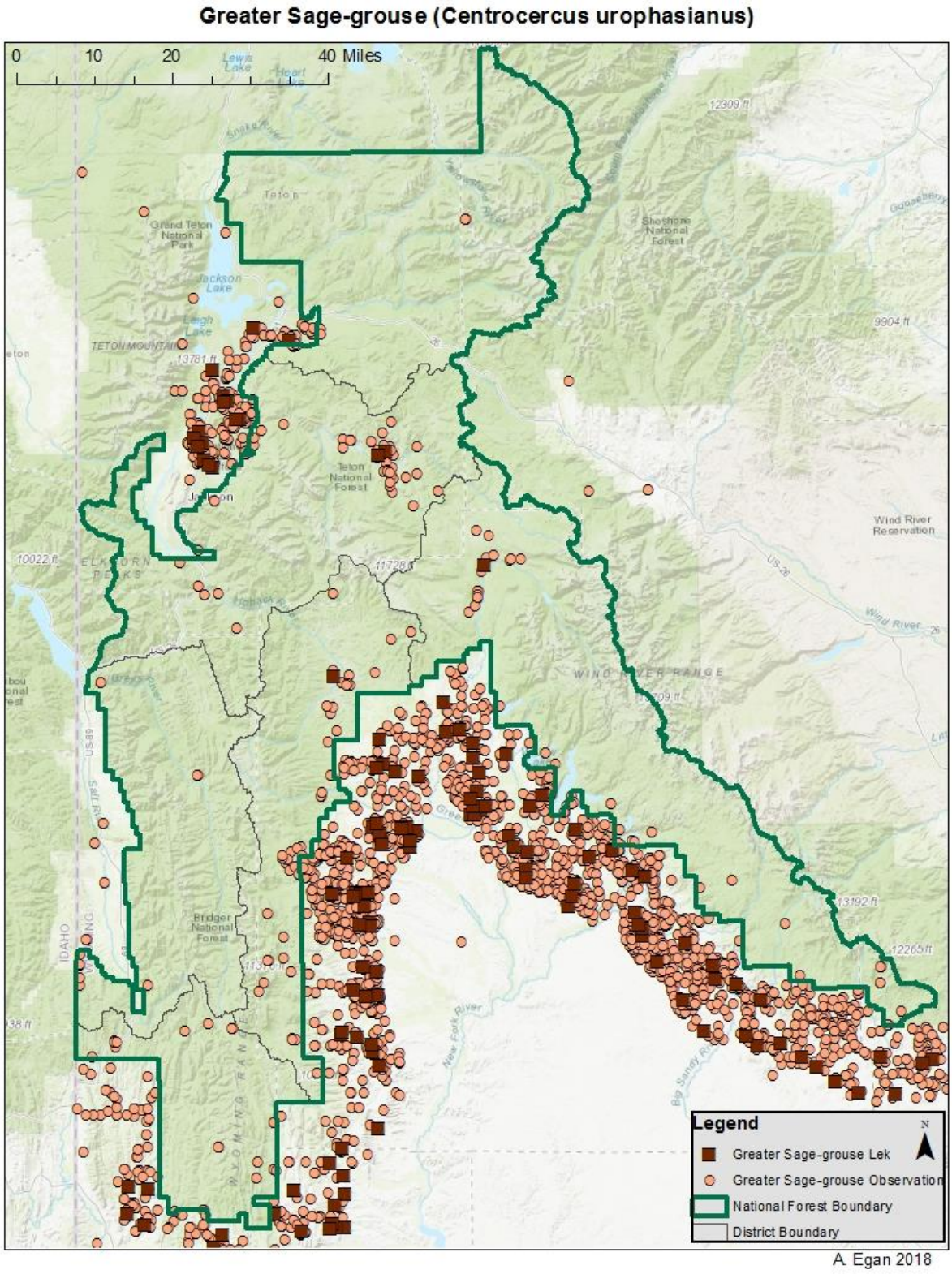
e. **Map 2**, Range and predicted distribution of *Centrocercus urophasianus* in Wyoming.



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.

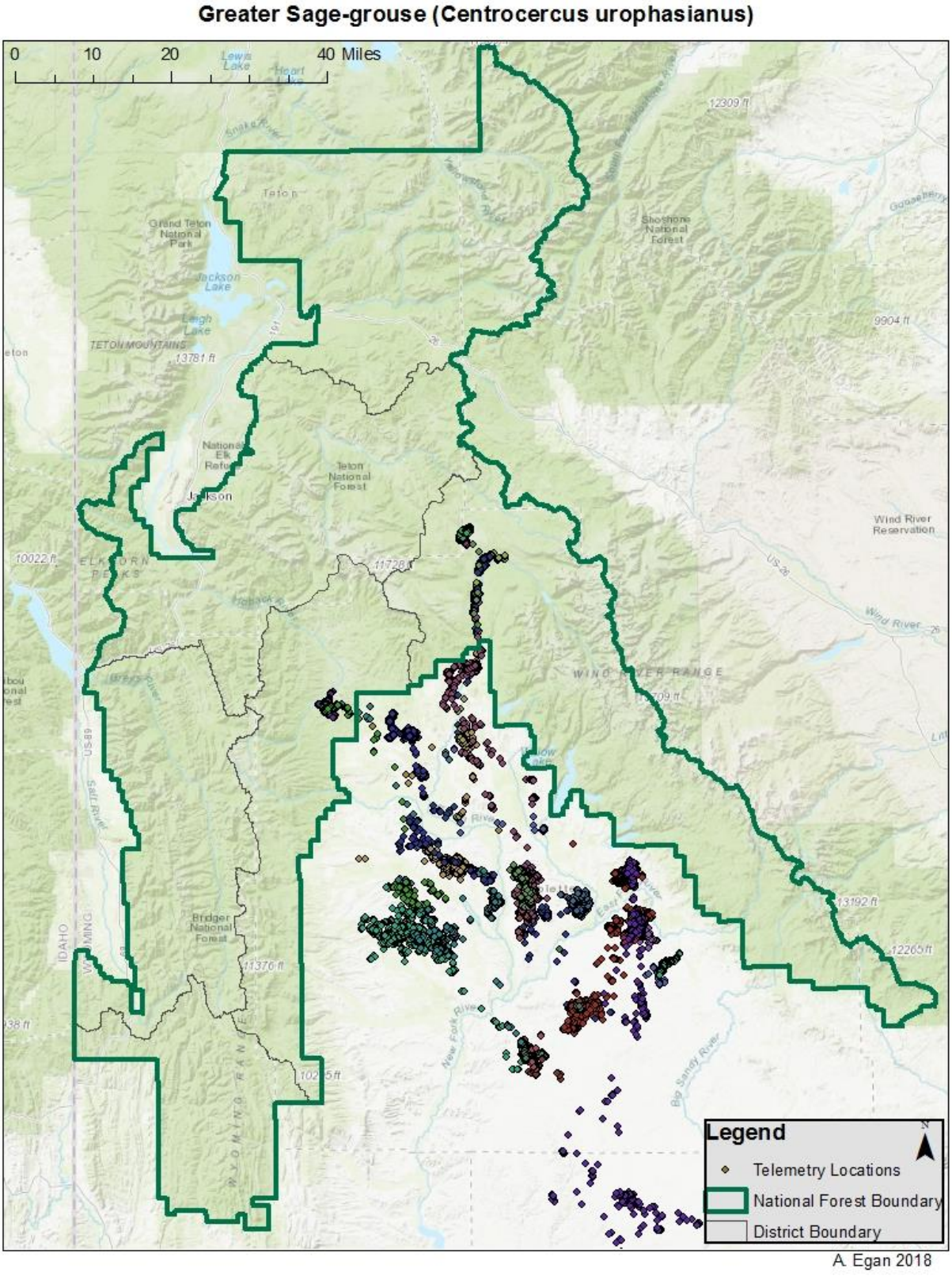
Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Greater Sage-grouse (*Centrocercus urophasianus*).

f. **Map 3**, Map of Greater sage-grouse occurrences and lek sites on the Bridger-Teton National Forest and vicinity (Wyoming Natural Diversity Database, USFS Natural Resource Information System, Wyoming Game & Fish Department, [February 2018])

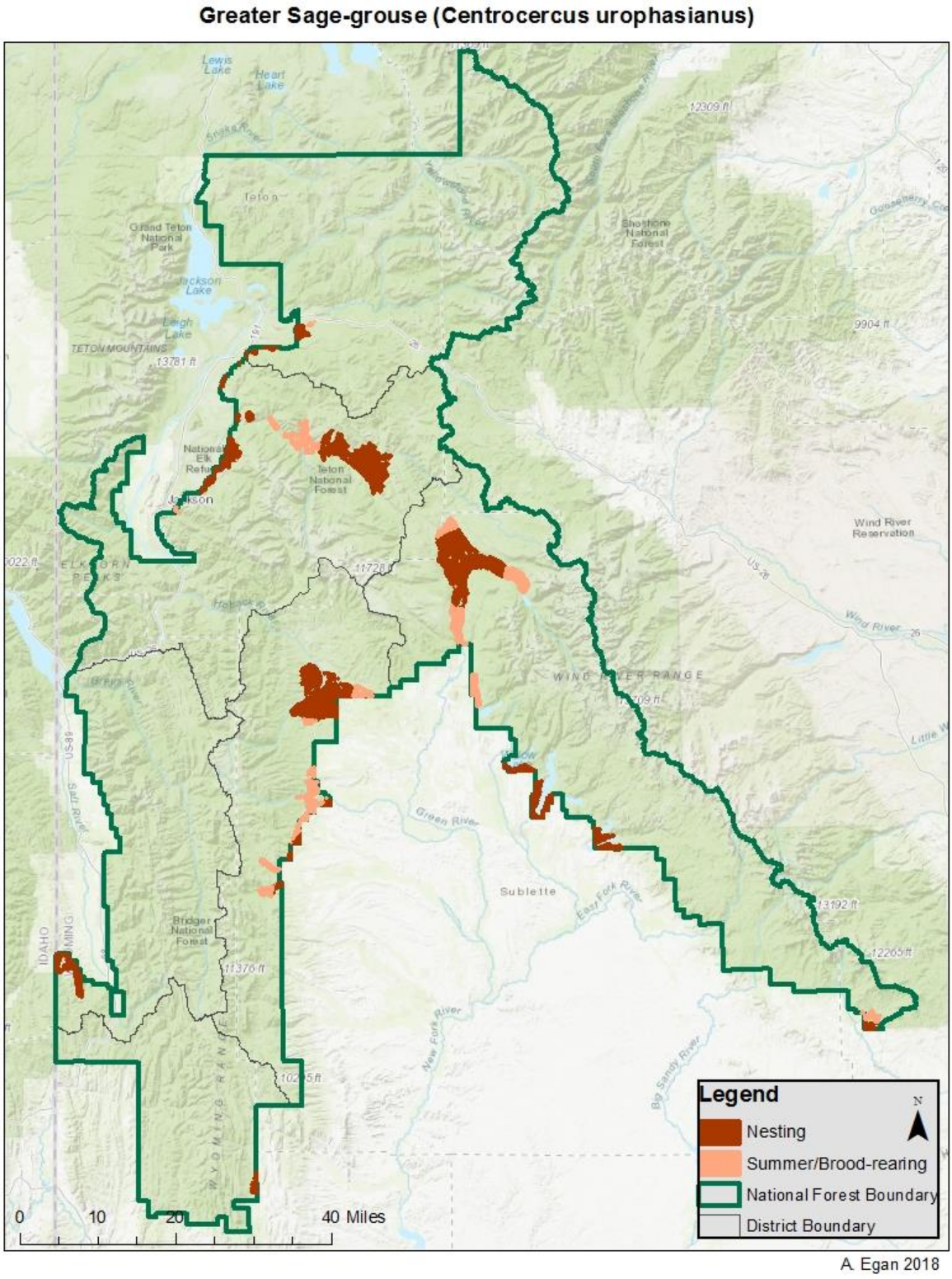


Single occurrence locations may have groups of individuals observed.

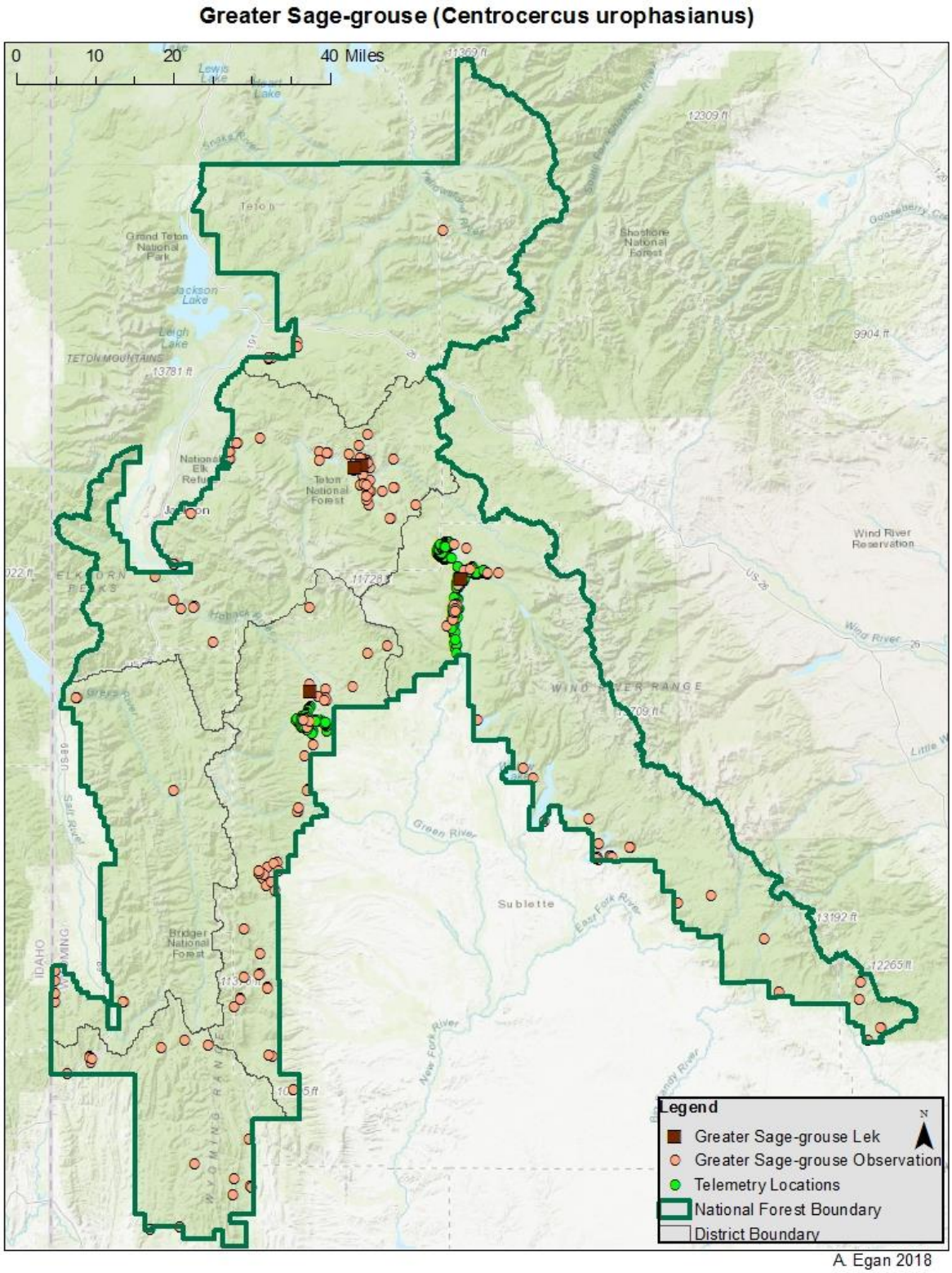
g. **Map 4**, Map of radio-collared Greater sage-grouse in 2014-2015 on the Bridger-Teton National Forest (Teton Raptor Center, [February 2018])



h. **Map 5**, Map of modeled Greater sage-grouse habitat on the Bridger-Teton National Forest.



i. **Map 6**, Map of Greater sage-grouse occurrences, lek sites, and recent telemetry data on the Bridger-Teton National Forest **only** (Wyoming Natural Diversity Database, USFS Natural Resource Information System, Wyoming Game & Fish Department, [February 2018])



Single occurrence locations may have groups of individuals observed.

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 3. Status summary based on existing conservation assessments

Entity	Status/Rank (include definition if Other)
NatureServe Global Status	**G3G4— Vulnerable/Apparently Secure** *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.* *Apparently Secure: Uncommon but not rare; some cause for long-term concern due to declines or other factors.* *"Widely distributed and still relatively common in the core of the range in western and central North America; range has contracted significantly and now encompasses about 56% of the potential pre-settlement distribution; abundance has declined, primarily as a result of loss, fragmentation, and degradation of sagebrush habitat; rate of decline decreased significantly after 1985, but the number of males per lek and the number of active leks continue to decline, and the species is significantly threatened by loss, fragmentation, and degradation of sagebrush habitat now and for the foreseeable future." [Nature Serve 2018]*
NatureServe State Status	**S4— Apparently Secure** *Uncommon but not rare; some cause for long-term concern due to declines or other factors.*
WGFD	**NSS4 (Bc), Tier II** *Population Status: Population size or distribution is restricted or declining but extirpation is not imminent.* *Limiting Factors: Limiting factors are moderate and appear likely 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 - 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 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)
UDI FWS	**No Special Status; Listing Not Warranted**
WY BLM	**Sensitive** *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	**NT- Near Threatened** *A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.*

	(IUCN – Red List Categories and Criteria)
Partners in Flight (PIF) Continental Concern Score	**"D" Yellow Watch List Species** *Declining populations ("D"): These species have lost 50%-90% of their population in the past 40 years, declines that are representative of deteriorating conditions in virtually every terrestrial habitat and region.*

Table 4. Status summary based on best available scientific information.

Species (Scientific and Common Name): ***Centrocercus urophasianus [Greater sage-grouse]***		
Criteria	**Rationale**	**Literature Citations**
Distribution on Bridger-Teton National Forest	In Wyoming, Greater sage-grouse occupy approximately 91% percent of their historical range (WGFD 2017) and much of the state overlaps with the species current range (Map 1). While 37% of North America's population of Greater sage-grouse is within the state of Wyoming (WGFD 2017), the Bridger-Teton National Forest is on the very edge of this species range and little suitable habitat is located on the Forest (Map 2). Most of the sage-grouse occurrences and lek sites are located on public and private lands adjacent to the BTNF, resulting in very low distribution across the Forest (Maps 3 & 5). There are two distinct populations of Greater sage-grouse that occur on the BTNF. The Jackson Hole population, located predominantly outside the Forest within the sagebrush flats of the Snake River Valley and National Elk Refuge, has two isolated sub-populations located in the Gros Ventre River corridor on the Jackson Ranger District. The Wyoming Basin population is one of the largest in Wyoming and is also predominantly located outside the BTNF, encompassing a large portion of Sublette county. The BTNF is on the fringe of this population's suitable habitat, located within the Upper Green River corridor of the Pinedale Ranger District and Hoback River (Bondurant) area of the Big Piney Ranger District, respectively. Map 4 displays telemetry results from this population and how they utilize a small portion of habitat on the Forest.	Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Greater sage-grouse (*Centrocercus urophasianus*).
Abundance on the Bridger-Teton National Forest	Strong estimates of abundance are not available for Greater sage-grouse on the Bridger-Teton National Forest. However, the BTNF is located within Management Zone II, as designated by the USFWS (2013), and represents the	U.S. Fish and Wildlife Service. 2013. Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives:

Species (Scientific and Common Name): ***Centrocercus urophasianus [Greater sage-grouse]***		
Criteria	**Rationale**	**Literature Citations**
	highest abundance of sage-grouse relative to other management zones across the species' range. This area also contains the most highly connected network of sage-grouse leks in its range (Knick and Hanser 2011 *in* USFWS 2013) with 1,833 known occupied leks in Wyoming and 252 leks located within 20 miles of the BTNF. This Management Zone is also significant for this species because it contains the second largest area of habitat range-wide (and the largest in the eastern range) (USFWS 2013).	Final Report. U.S. Fish and Wildlife Service, Denver, CO. February 2013.
Population Trend on the Bridger-Teton National Forest	Since a significant portion of this species occupied range is located adjacent to the BTNF, evaluation of sage-grouse occupancy and habitat for the state of Wyoming rather than at the Forest level is valuable. In many areas of the west, including Wyoming, studies have found that Greater sage-grouse populations are declining where populations were once widespread and abundant. North American Breeding Bird Survey data from Sauer et al. (2014) indicates a non-significant, long-term (1966–2015) decrease of 0.25% per year and short-term (2005–2015) decrease of .8% per year in Greater sage-grouse populations across Wyoming. Corresponding data for the Northern Rockies shows a non-significant decrease of .34% and increase of .41% per year, respectively. In Region 4 of the USFS, sage-grouse have demonstrated an average of 5% reduction in grouse since 2014, with a 68% confidence level that the trend is actually negative (Shivik, in prep., 2025). Sage-grouse leks within the Bridger-Teton are somewhat isolated with only four known. The Ollie's Draw lek and the Clark Draw lek are part of the Upper Green River Conservation Area (UGRCA) as of the 2024 season, while the Breakneck Flat and Dry Cottonwood leks in Gros Ventre belong to the Upper Snake River Basin Conservation Area (USRBCA) (WGFD 2025). The USRBCA population is small and isolated. Following a population rebound in 2015 and 2016, the population underwent a significant decline from 2019-2021. Lek counts in spring 2019 were the lowest on record for this population.	Sauer, J. R., D. K. Niven, J. E. Hines, D. J. Ziolkowski, Jr, K. L. Pardieck, J. E. Fallon, and W. A. Link. 2017. The North American Breeding Bird Survey, Results and Analysis 1966 - 2015. Version 2.07.2017 USGS Patuxent Wildlife Research Center, Laurel, MD. U.S. Fish and Wildlife Service. 2013. Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report. U.S. Fish and Wildlife Service, Denver, CO. February 2013. WGFD. 2025. Statewide Job Completion Report. Prepared By: Nyssa Whitford, Sage-Grouse Biologist Period Covered: 6-30-2023 to 12-31-2024. 134 pp.

Species (Scientific and Common Name): ***Centrocercus urophasianus [Greater sage-grouse]***		
Criteria	**Rationale**	**Literature Citations**
	Numbers have increased slightly in recent years, but the population remains very low (WGFD 2025). The peak number of males and average number of males per lek are used as the main measures of population trends over time in the USRBCA. During the population low from 2019-2021, total peak males was 52-67. It has increased slightly in recent years, but is still well-below the highs of over 200 males in 2015 and 2016 (WGFD 2025). The sub-population in the Gros Ventre drainage is particularly concerning because these birds breed on only two known leks (Breakneck Flats and Dry Cottonwood). The Dry Cottonwood Lek is located less than 1 mile from the larger Breakneck Flats Lek and was reported as a separate lek in 2005. It is likely that the birds use both leks and Dry Cottonwood fluctuates annually on occupancy (i.e., some years it is not used at all). Dry Cottonwood lek was last active in 2016. The Breakneck Flats lek had a high of 34 males in 2016, but since then has steadily declined, with only 4 males observed in 2024 (WGFD 2025). Due to low population numbers, population isolation, and a high degree of threats, this population is considered high risk (USFWS 2013). The UGRCA population differs from the USRBCA population and is the largest within the species' range and is very robust (USFWS 2013). Results from UGRCA lek monitoring in 2024 showed the average number of males/lek for all active leks increased to 38 in 2024, compared to the past two years of 25 in 2023, and 24 in 2022. This results in a 56% increase from 2023 but is still 31% lower than the last peak in 2016 (WGFD 2025). Although long-term population trends are slightly downward, due to the large size of this population, the presence of large, contiguous habitats, and regulatory measures providing habitat protection, this population is considered low risk (USFWS 2013).	

Species (Scientific and Common Name): ***Centrocercus urophasianus [Greater sage-grouse]***		
Criteria	**Rationale**	**Literature Citations**
	There are two designated leks on the BTNF associated with this population – the Clark Draw and Ollie's Draw Leks. Additionally, the Wagon Creek Lek in the Upper Green River Corridor is located on private land but nesting habitat on the BTNF is nearby and utilized by the birds. The Clark's Draw lek has been monitored since 2010. The 2024 lek count showed an increase from 2023 but lower than the peak in 2015. The Ollie's Draw lek was likely discovered as a potential lek in either 2014 or 2015 from aircraft or a transmitted bird. Maximum number of males on the lek has been relatively small and fluctuating, but the 2024 had the highest male count.	
Habitat Trend on the Bridger-Teton National Forest	Greater sage-grouse is a sagebrush obligate species that depends on large areas of contiguous sagebrush (WGFD 2017). Sage-grouse habitat in Wyoming includes mosaic habitats of big sagebrush and silver sagebrush, mixed sagebrush with abundant forbs, and riparian and wet meadows. Leks are located on relatively open sites surrounded by sagebrush, or in areas where sagebrush density is low, such as exposed ridges, knolls or grassy swales (Schroeder et al. 1999). Nest sites are typically located in areas with taller sagebrush, greater shrub canopy cover, and more ground litter (Musil et al. 1994). Both a dense sagebrush overstory and an herbaceous understory of grasses and forbs are characteristic of nesting habitats. In early spring, brood-rearing habitat is critical to brood survival. Hens with broods tend to use sagebrush uplands adjacent to nest sites (Connelly et al. 2000) where sagebrush overstory, herbaceous understory, and the presence of plentiful insects are the three important factors (Connelly 1999). During summer months, sage-grouse move to mesic areas such as wet meadows or riparian areas, in response to desiccation of herbaceous vegetation in the uplands (WGFD 2017). Greater sage-grouse depend entirely on sagebrush exposed above the snow for food and cover during winter seasons (WGFD 2017). Individuals are known to move considerable distances for suitable winter ranges (Robertson 1991).	Connelly, J. 1999. What do we know about sage grouse needs? Presentation given to the Western Sage Grouse Status Conference, Jan. 14-15, 1999, Boise, ID. Online. Available: http://www.rangenet.org/projects/grouse.html. Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. Wildlife Society Bulletin 28:967-985. Musil, D. D., K. P. Reese, and J. W. Connelly. 1994. Nesting and summer habitat use by translocated sage grouse (CENTROCERCUS UROPHASIANUS) in central Idaho. Great Basin Nat. 54:228-233. Robertson, M.D. 1991. Winter ecology of migratory sage grouse and associated effects of prescribed fire in southeastern Idaho. M.S. Thesis, University of Idaho, Moscow. 88 pp.

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Criteria	**Rationale**	**Literature Citations**
	Aside from areas of energy development, sage-grouse habitat associated with the Wyoming Basin population – the largest population in the vicinity of the BTNF – is expansive and relatively intact (USFWS 2013). On the Bridger-Teton National Forest, there is 46,062 identified acres of sage-grouse nesting habitat and 14,851 acres of brood-rearing habitat (Map 5). To put this in perspective, the BTNF contains only 1.76% suitable breeding (nesting and brood-rearing) habitat for Greater sage-grouse and the majority of winter, summer, and nesting habitat utilized by this species is located outside the BTNF. The BTNF conducted habitat surveys in 2016 and 2017. After two field seasons of gathering Habitat Assessment Framework (HAF) data (Stiver et al. 2015), the BTNF can best be characterized as providing marginal to suitable nesting habitat and suitable brood-rearing habitat. The difference between receiving a suitable vs marginal rating can be subtle and actually vary from year to year. For the most part, the sagebrush component across the forest is in the suitable category with a few locations marginal where the cover is actually >25%. The relatively high elevation and shortened growing season seem to have a bigger impact on the nesting habitat measurements, primarily grass and forb height, than the summer/brood rearing measurements that are taken later in the summer and fall. A total of 258 HAF Transects were completed over the last two field seasons (208 in 2016 and 50 in 2017).	Schroeder, M. A., J. R. Young, and C. E. Braun. 1999. Sage Grouse (*Centrocercus urophasianus*). In A. Poole and F. Gill, editors, The Birds of North America, No. 425. The Birds of North America, Inc., Philadelphia, PA. Stiver, S. J., E. T. Rinkes, D. E. Naugle, P. D. Makela, D. A. Nance, and J. W. Karl, eds. 2015. Sage-grouse Habitat Assessment Framework: A Multiscale Assessment Tool. Technical Reference 6710-1. Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver, Colorado. U.S. Fish and Wildlife Service. 2013. Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report. U.S. Fish and Wildlife Service, Denver, CO. February 2013. Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Greater sage-grouse (*Centrocercus urophasianus*).
Threats to the Species and its Habitat on the Bridger-Teton National Forest	The Greater sage-grouse is highly vulnerable to threats since the species has specific sagebrush habitat requirements, has limited ability to disperse, has a relatively low fecundity, is predisposed to West Nile virus mortality, and is sensitive to habitat fragmentation and disturbance (Nature Serve 2017; USFWS 2013; WGFD 2017). Minimizing threats to this species is therefore very important to conservation of Greater sage-grouse and this species persistence on the BTNF. The significant threats to sage-grouse are discussed in greater detail below.	Bedrosian B. and D. Craighead. 2010. Sage-grouse completion report: 2007 – 2009. Unpublished report, Craighead Beringia South, Kelly, WY. 119pp. Blickley, J.L., D. Blackwood and G.L. Patricelli. 2012. Experimental evidence for the effects of chronic anthropogenic noise on abundance of greater sage-grouse leks. Conservation Biology 26:461-471.

Species (Scientific and Common Name): ***Centrocercus urophasianus [Greater sage-grouse]***		
Criteria	**Rationale**	**Literature Citations**
	Threats Specific to Jackson Population: Limited winter habitat continues to be the primary issue for this population. Therefore, protecting winter habitat is a priority. Key areas on public lands used by sage-grouse should be protected from management actions which could have adverse impacts on that habitat, including recreation disturbance. Wildfire suppression should be considered in occupied sage-grouse habitat in the Gros Ventre drainage. Restoration of native sagebrush habitats on lands formerly hayed in the Gros Ventre drainage appears to have the greatest potential to expand and enhance habitat used by sage-grouse in the USRBCA (WGFD 2025). Threats to this population consists of internal habitat fragmentation resulting from wildfires, prescribed burns, herbivory of sagebrush by elk and bison winter feeding operations, urban development, and recreational activities (USFWS 2013). Based on studies by Holloran and Anderson (2004) and Bedrosian and Craighead (2010), this high mountain valley population is influenced by deep snowpack and the amount of available winter habitat is a limiting factor. Urban development is restricted as a result of limited private lands overlapping with the Jackson population, but includes some crucial winter habitat. *Threats Specific to Wyoming Basin Population:* Energy development, long-term drought, and brush eradication programs are primary threats to this population (USFWS 2013). Declines of sage-grouse near oil and gas fields in this area have been well documented (Lyon 2000; Holloran 2005; Holloran and Anderson 2004; Kaiser 2006) and residential development has been identified as a threat to this population (USFWS 2013). *Threats General to Greater Sage-grouse:* *<u>Direct Habitat Loss & Habitat Connectivity</u>* The primarily threat to Greater sage-grouse is from loss, fragmentation, and degradation of sagebrush habitat. Many of the recorded population declines	Connelly, J.W. and C.E. Braun. 1997. Long-term changes in sage grouse *Centrocercus urophasianus* populations in western North America. Wildlife Biology 3:229-234. Connelly, J.W., S.T. Knick, M.A. Schroeder, and S.J. Stiver. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Unpublished Report, Western Association of Fish and Wildlife Agencies. Cheyenne, WY. 610pp. Holloran, M.J. 2005. Greater sage-grouse (*Centrocercus urophasianus*) population response to natural gas field development in western Wyoming. Ph.D Dissertation, University of Wyoming, Laramie, WY. 215pp. Holloran, M.J. and S.H. Anderson. 2004. Greater sage-grouse seasonal habitat selection and survival in Jackson Hole, Wyoming. Job Completion Report, Wyoming Game and Fish Department, Cheyenne, WY. Kaiser, R.C. 2006. Recruitment by greater sage-grouse in association with natural gas development in western Wyoming. M.S. Thesis, University of Wyoming, Laramie, WY. 102pp. Knick, S.T., D.S. Dobkin, J.T. Rotenberry, M.A. Schroeder, W.M. Vander Haegen, and C. Van Riper III. 2003. Teetering on the edge or too late? Conservation and research issues for avifauna of sagebrush habitats. Condor 105:611-634.

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Criteria	**Rationale**	**Literature Citations**
	over the past several decades have resulted in a decrease in leks, indicating either a direct loss of habitat or habitat function (USFWS 2010). In Wyoming, sagebrush habitat has been fragmented by energy development, agricultural activities, transportation corridors and rural residential development (WGFD 2017). In areas occupied by Greater sage-grouse, habitat loss and fragmentation are likely contributing to an increase in population isolation and in some areas, an increased risk of extirpation. Due to a loss in leks and reduced sage-grouse population size since 1965, connectivity among sage-grouse populations has declined (USFWS 2010). This decreases in lek connectivity has resulted in lek abandonment, suggesting that current isolation of leks by distance (including habitat fragmentation) will likely result in future loss of isolated leks. This is particularly important to the Jackson hole population and sub-populations on the BTNF, where available habitat is minimal and populations are isolated. <u>*Livestock Grazing*</u> Livestock grazing is the most widespread type of land use across the sagebrush biome (Connelly et al. 2004) and almost all sagebrush areas are managed for livestock grazing in Wyoming (Knick et al. 2003). Livestock grazing is a significant part of resource management on the BTNF. Livestock grazing can adversely impact sage-grouse nesting and brood-rearing habitat by decreasing vegetation concealment from predators, compacting soils, decreasing herbaceous retention, increasing erosion, and increasing the probability of non-native plant species (Nature Serve 2017). Additionally, massive fencing systems constructed to manage livestock can cause direct mortality to sage-grouse, while livestock management involving water development can degrade important brood-rearing (mesic) habitat. <u>*Energy Development*</u> Energy development is a significant risk to the Greater sage-grouse in Wyoming	Lyon, A.G. 2000. The potential effects of natural gas development on sage grouse (*Centrocercus urophasianus*) near Pinedale, Wyoming. M.S. Thesis, University of Wyoming, Laramie, WY. 129pp. Miller, R.F. and L.L. Eddleman. 2001. Spatial and temporal changes of sage-grouse habitat in the sagebrush biome. Oregon State University Agricultural Experiment Station Technical Bulletin 151. NatureServe. 2017. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://explorer.natureserve.org. (Accessed: March 1, 2018). U.S. Fish and Wildlife Service (USFWS). 2010. Endangered and threatened wildlife and plants; 12-month findings for petitions to list the greater sage-grouse (*Centrocercus urophasianus*) as threatened or endangered. Federal Register 75(55):13910-14014. U.S. Fish and Wildlife Service. 2013. Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report. U.S. Fish and Wildlife Service, Denver, CO. February 2013. Walker, B.L., D.E. Naugle, and K.E. Doherty. 2007. Greater sage-grouse population response to energy

Species (Scientific and Common Name): ***Centrocercus urophasianus [Greater sage-grouse]***		
Criteria	**Rationale**	**Literature Citations**
	– particularity influencing the Wyoming Basin population on the BTNF – resulting in a direct reduction in habitat, decreased populations, and habitat fragmentation of some of the last remaining large expanses of habitat (Nature Serve 2017). Sage-grouse populations can be significantly reduced, and in some cases locally extirpated, by non-renewable energy development activities, even when mitigated measures are implemented (Walker et al. 2007). In Wyoming, where wind development is advancing and predicted to increase, the effects may claim a substantial toll on sage-grouse habitats and geographic areas that were in the past considered refugia for the species (Nature Serve 2017). While this type of development is not taking place on the Forest, the impacts may influence populations like those of the Wyoming Basin, which utilize the BTNF. *Wildfire* Fire is one of the primary factors linked to loss of sagebrush-steppe habitat and corresponding population declines of Greater sage-grouse (Connelly and Braun 1997; Miller and Eddleman 2001). Loss of sagebrush habitat to wildfire has increased in the last decade and the presence of invasive annual grasses has resulted in a change in fire frequency and fire regimes (Nature Serve 2017). Additionally, restoring these communities to natural conditions is extremely challenging and Greater sage-grouse are slow to recolonize burned areas even if the shrub community has recovered. This is in part because sagebrush has a low intrinsic resistance to fire and long recovery times; the sagebrush ecosystem is particularly susceptible to increases in fire return intervals (USFWS 2013). Fire frequency is likely to increase in the foreseeable future due to increases in cheatgrass and the projected effects of climate change (USFWS 2010). *Noxious Weeds & Conifer Encroachment* Exotic annual grasses and other invasive plants alter habitat suitability for sage-grouse by reducing or eliminating native forbs and grasses essential for food and cover (USFWS 2013). As Non-native grasses and native conifers (e.g., pinyon pine & juniper species) continue to expand in their range, sagebrush	development and habitat loss. Journal of Wildlife Management 71:2644-2654. Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Greater sage-grouse (*Centrocercus urophasianus*). WGFD. 2025. Statewide Job Completion Report. Prepared By: Nyssa Whitford, Sage-Grouse Biologist Period Covered: 6-30-2023 to 12-31-2024. 134 pp.

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	ecosystems are negatively impacted. Such expansion is facilitated by ground disturbances such as wildfire, livestock grazing, and infrastructure (Nature Serve 2017), and decreased fire return intervals and increases in global carbon dioxide concentrations associated with climate change (WGFD 2017). <u>*Human Disturbance*</u> Given current trends in the Rocky Mountain west, including the Bridger-Teton National Forest, infrastructure development is expected to continue to fragment sage-grouse habitat. Fragmentation of sagebrush habitats through a variety of mechanisms including powerlines, roads, communication towers, oil & gas development, and fences has been cited as a primary cause of the decline of sage-grouse populations (Nature Serve 2017). Additionally, Greater sage-grouse avoid areas due to human activities, including noise, even though sagebrush remains intact, resulting in functional habitat loss and contributing toward habitat fragmentation (Blickley et al. 2012). <u>*Climate Change*</u> Under current climate change projections, cheatgrass is likely to continue to invade sage-grouse habitat, along with native conifer species, and fire frequency (including extent and severity) will likely continue to increase across this landscape (Nature Serve 2017). Climate change is likely to exacerbate existing threats to Greater sage-grouse.	
Summary and recommendations: The Bridger-Teton National Forest is generally located outside the range of Greater sage-grouse and suitable nesting and brood-rearing habitat is isolated on the Forest. The majority of the Greater sage-grouse habitat is located adjacent to the BTNF and distributed throughout the state of Wyoming where sage-grouse abundance is higher. Although the Wyoming Basin population seems secure over the long-term simply from a numbers and range occupancy standpoint; on the BTNF, they are still isolated in very distinct areas of the forest with only two designated leks, and one of those is located on private land in the Upper Green River Basin.		Date: March 15, 2018

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Although the loss of one of those leks on the BTNF would probably not impact the Wyoming Basin Population significantly, it could result in very significant concerns for the species to persist on the forest. Similarly, the majority of the Jackson Hole population is not located on the BTNF, the two sub-populations located on the Jackson Ranger District are at high risk from habitat loss and challenging winter conditions. This species, and particularly the Jackson Hole population on the BTNF, is highly vulnerable to forest management activities and because there is <2% of suitable sage-grouse breeding habitat on the BTNF, the value of this habitat is imperative to the conservation of these populations on the BTNF. Although sage-grouse distribution and abundance is high throughout its range in Wyoming (encompassing the large Wyoming Basin population), the habitat on the BTNF that supports this species is scarce and is critical to the persistence of Greater sage-grouse on the Forest. While the Wyoming Basin population in its entirety may not be a concern, maintaining sage-grouse populations on the Bridger-Teton National Forest over the long-term is a potential concern. These populations are considered to be in decline and the species ability to occupy suitable habitat on the BTNF may be challenging. Therefore, it is recommended that the Greater sage-grouse is a Species of Conservation Concern for the Bridger-Teton National Forest. Evaluator(s): Ashley Egan, Randall Griebel		