SPECIES: Scientific [common]	*Strix nebulosa* [Great Gray Owl]
Forest:	Bridger-Teton National Forest
Forest Reviewer:	Randall Griebel, James Wilder
Date of Review:	2/4/2020; reviewed 5/21/2025
Forest concurrence (or recommendation if new) for inclusion of species on list of potential SCC: (Enter Yes or No)	NO

FOREST REVIEW RESULTS:

1. The Forest concurs or recommends the species for inclusion on the list of potential SCC:
   Yes____ No_X__

2. Rationale for not concurring is based on (check all that apply):
   Species is not native to the plan area _____
   Species is not known to occur in the plan area _____
   Species persistence in the plan area is not of substantial concern ___X____

FOREST REVIEW INFORMATION:

1. Is the Species Native to the Plan Area? Yes_X__ No___

   If no, provide explanation and stop assessment.

2. Is the Species Known to Occur within the Planning Area? Yes_X__ No___

   If no, stop assessment.

Table 1. All Known Occurrences, Years, and Frequency within the Planning Area

Year Observed	Number of Individuals	Location of Observations	Source of Information
Pre 1990	0	Greys River Ranger District	Wyoming Natural Diversity Database; USFS Natural Resource Information System (November 2019)
1993-2018	9		
Pre 1990	0	Kemmerer Ranger District	
2004-2014	13		
1987	1	Pinedale Ranger District	
1990-2018	21		
1988	2	Big Piney Ranger District	
1999-2018	24		
1965-1989	14	Blackrock Ranger District	
2019	26		
1979-1989	23	Jackson Ranger District	
1990-2018	58		
2013-2018	• 105 individuals observed between visual and night surveys. • 27 nest sites representing 54 individuals.	Jackson Valley Vicinity; Jackson Blackrock, and Greys River Ranger Districts	Teton Raptor Center (February 2018)

a. Are all Species Occurrences Only Accidental or Transient?

Yes___ No_X__

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___

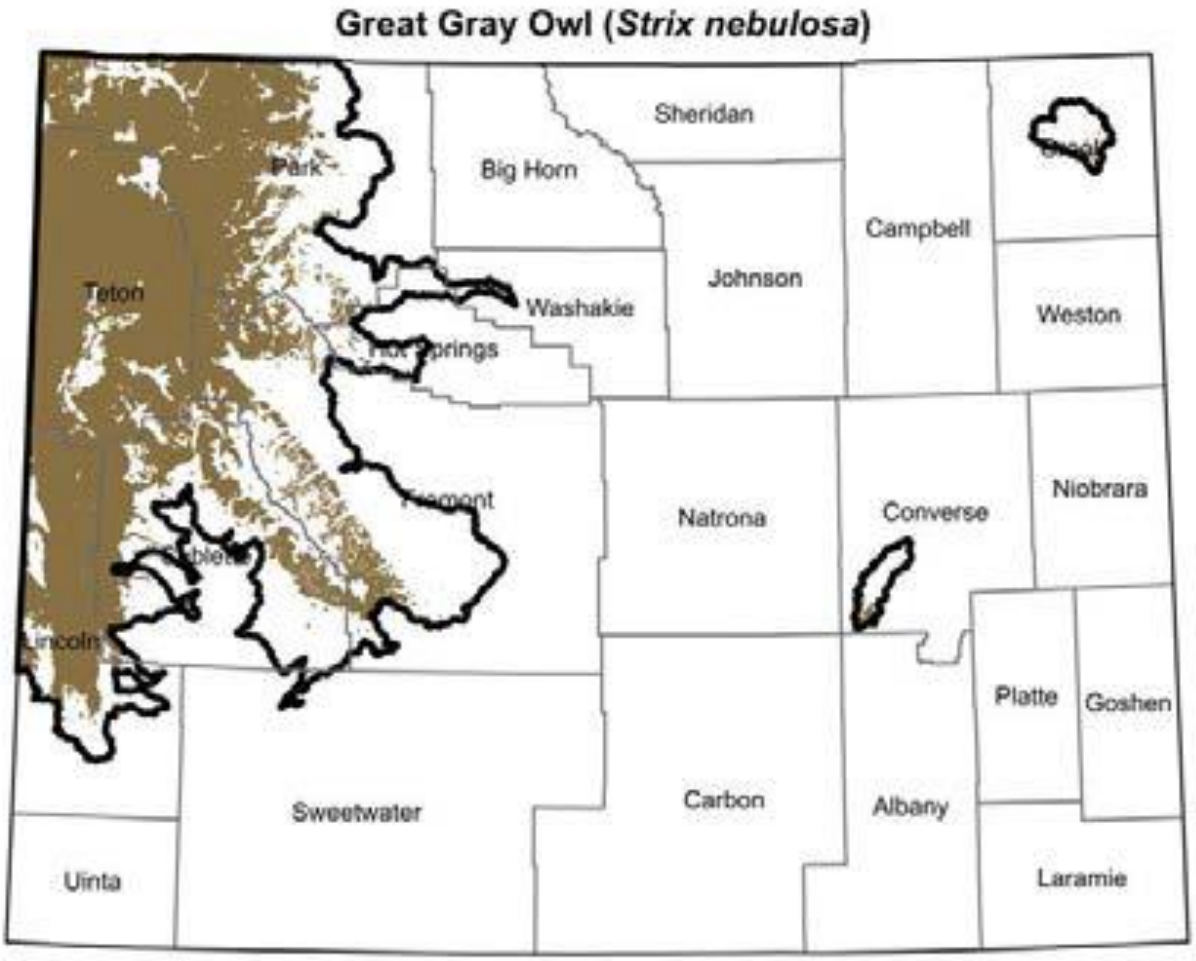
c. For species with known occurrences on the Forest predating 1990, does the weight of evidence suggest the species still occurs in the plan area?

Yes_X__ No___

d. **Map 1**: Great gray owl range map of North America.

Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Great gray owl (*Strix nebulosa*).

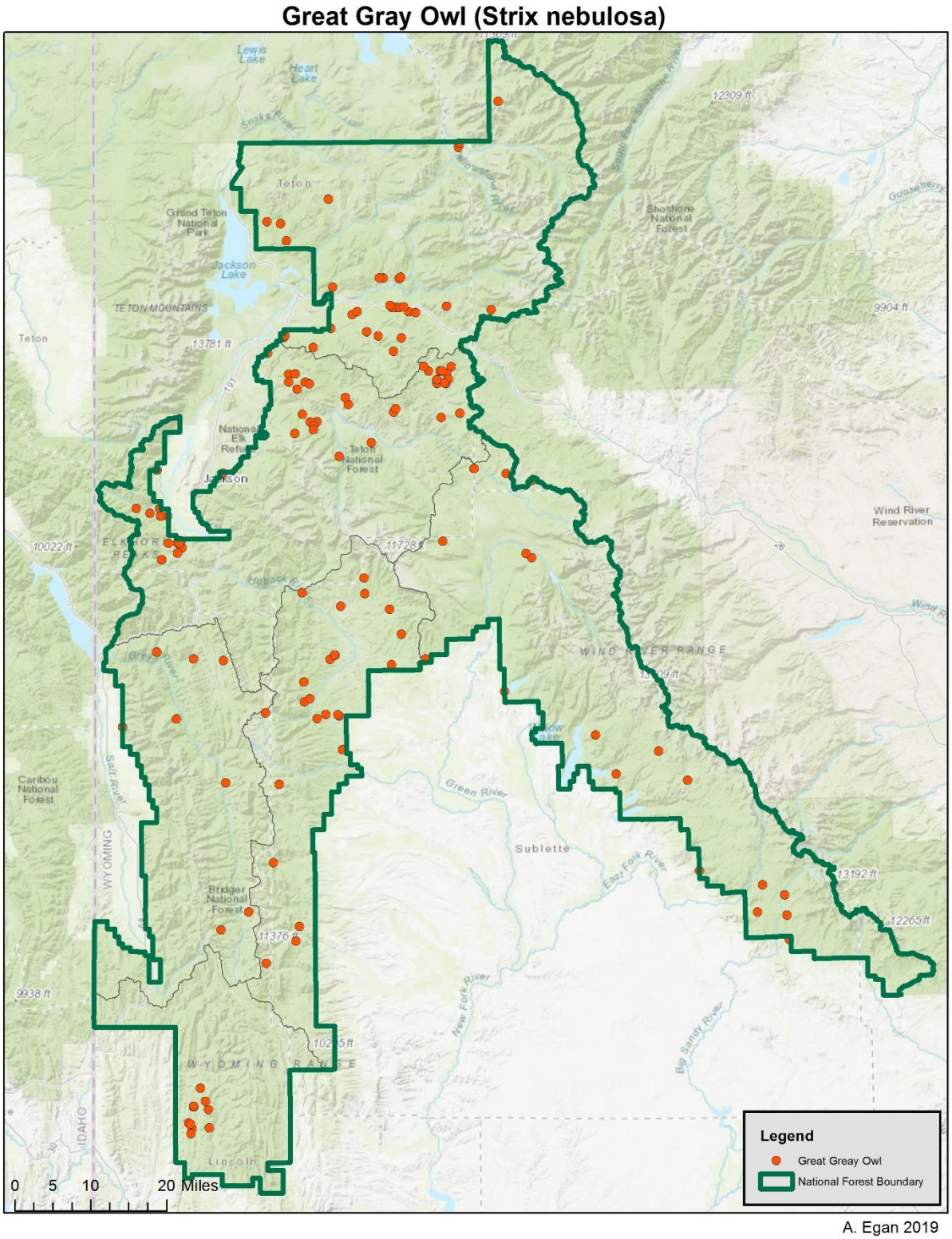
e. **Map 2**: Range and predicted distribution of Great gray owl in Wyoming.



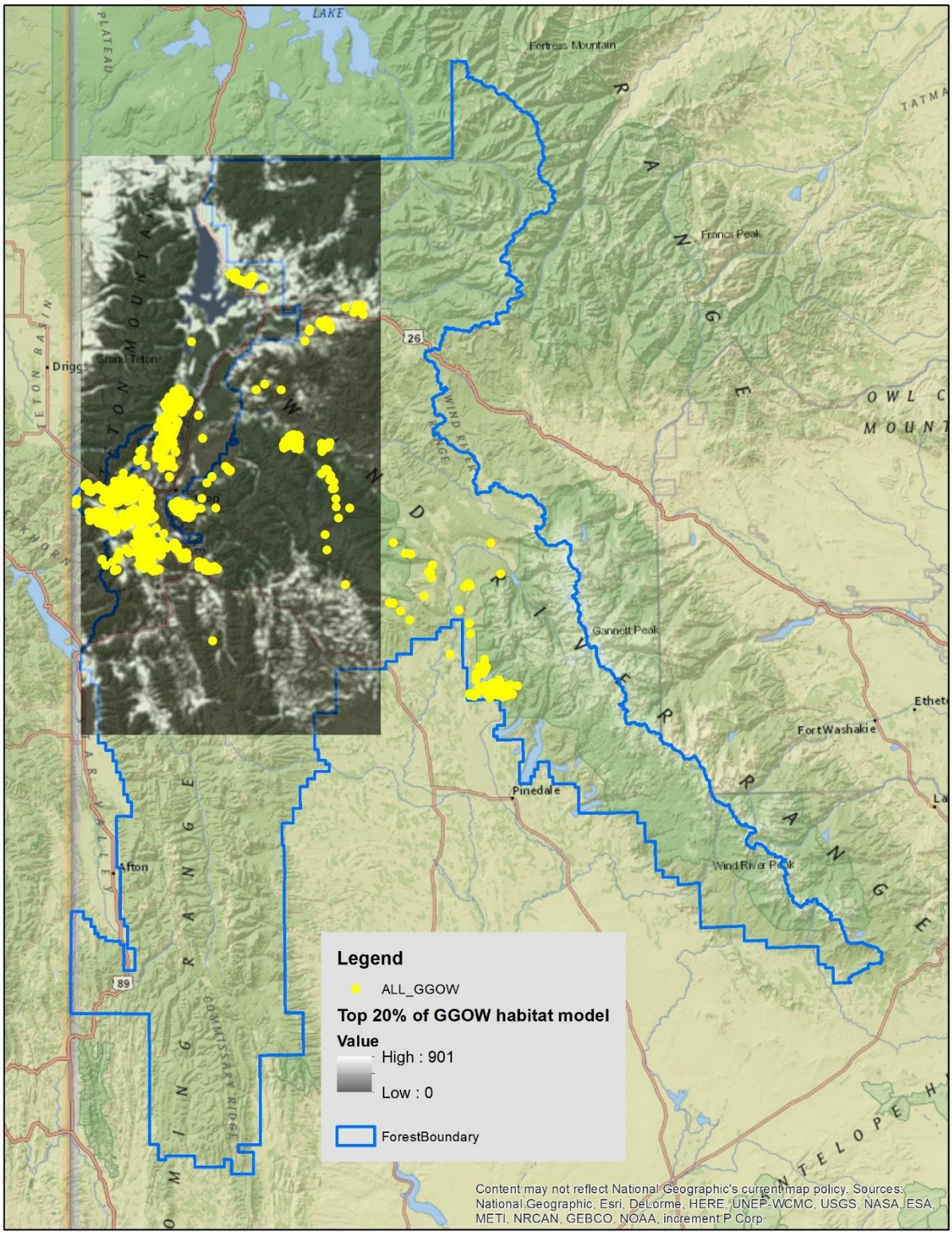
SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: Sept. 2016.
Wyoming Game and Fish Department and Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.
Note that brown indicates the predicted distribution of the species;
heavy black lines indicate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

Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Great gray owl (*Strix nebulosa*).

f. **Map 3**: Map of Great gray owl occurrences on the Bridger-Teton National Forest (Wyoming Natural Diversity Database, USFS Natural Resource Information System [November 2019])



g. **Map 4**: Map of additional Great gray owl occurrences on the Bridger-Teton National Forest from 2013-2018 acoustic surveys (Map courtesy of Teton Raptor Center [February 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)
NatureServe Global Status	**G5— Secure** *Common; widespread and abundant. Wide range and apparently large numbers and occurrences seem to make this species secure.*
NatureServe State Status	**S2— Imperiled** *Imperiled because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation.*
WGFD	**NSSU (U), Tier II** Necessary information is lacking for some species. These species are placed in a separate status category as NSS Unknown (NSSU) until additional information is obtained. *Population Status: Unknown* *Limiting Factors: Unknown* *Tier II: Moderate priority* *[The WGFD's Species of Greater Conservation Need (SGCN) designation process is based upon its **Native Species Status (NSS)** classification system that compares population and limiting factor variables using a 16 cell matrix. As a species moves from a placement closest to the upper left corner of the matrix (Aa/NSS1) toward the lower right corner (Dd/NSS7) the species' population status in Wyoming is considered more secure. Numerical scores were assigned to each of these variables and summed to provide a total score (i.e. NSS3). SGCN were placed into one of three tiers based on their total score: Tier I – highest priority, Tier II – moderate priority, and Tier III – lowest priority.]* (WGFD - 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; Migratory Bird**
WY BLM	**No Special Status**
IUCN	**LC – Least Concern** *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.* (IUCN – Red List Categories and Criteria)
Partners in Flight (PIF) Continental Concern Score	**11**

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

Species (Scientific and Common Name): ***Strix nebulosi [Great Gray Owl]***		
Criteria	**Rationale**	**Literature Citations**
Distribution on Bridger-Teton National Forest	Throughout North America, the Great gray owls range extends along the Cascade Range, Sierra Nevada's, and Rocky Mountains. Wyoming is the southernmost part of the species Rocky Mountain Range (Map 1) and much of the species predicted distribution in the state overlaps with the Bridger-Teton National Forest (Map 2). Great gray owls are known to breed in the Teton Range, Wyoming Range, and Wind River Range (WGFD 2017). The Great gray owl has been documented on all 6 ranger districts where mature deciduous	Teton Raptor Center. 2017. 2017 Teton To Snake Project Report. Jackson, WY. Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Great gray owl (*Strix nebulosi*).

Species (Scientific and Common Name): ***Strix nebulosi [Great Gray Owl]***		
Criteria	**Rationale**	**Literature Citations**
	and coniferous forest is present (Map 3 & 4). Occupancy records on the BTNF indicate the species has been present on the Forest since the mid-60s, although documentation of the species has increased greatly in the last few decades due to an increase in Great gray owl surveys, particularly in the vicinity of the Jackson Hole Valley (Table 1, Map 4). Results from an intensive year-round study in 2013–2015 that was focused on Great grey owl seasonal movements, found that the owls nests were distributed evenly across suitable habitat on the Bridger-Teton National Forest and surrounding Jackson Hole area (WGFD 2017). Conversely, during the winter season, most owls were less distributed and concentrated in a small area in the Snake River riparian corridor south of Jackson, suggesting how limited winter habitat may be in Wyoming (WGFD 2017).	
Abundance on the Bridger-Teton National Forest	There are no roust abundance estimates for Great greys owls. In Wyoming, the Great gray owl has an abundance rank of *very rare* because they are rare to uncommon within suitable environments in an occupied area (WGFD 2017). According to the WGFD, the Great gray owl has never been detected during Wyoming Breeding Bird Surveys (BBS) between 1968 to 2015. Additionally, only 3 Great gray owls where detected during Integrated Monitoring in Bird Conservation Regions (IMBCR) surveys between 2009 to 2015. The caveat, is that neither the BBS nor the IMBCR surveys are designed to detect owl species. While abundance of Great gray owls is suggested to be low for the state of Wyoming, abundance appears to be higher on the Bridger-Teton National Forest, where most of the species suitable habitat is distributed in the state.	Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Great gray owl (*Strix nebulosi*).
Population Trend on the Bridger-Teton National Forest	Currently, there are no population estimates for Wyoming and a long-term population trend is unknown for the BTNF. However, population trends are thought to have remained relatively stable across North America (WGFD 2017). The Forest Service has conducted Great gray owl callback surveys on the Bridger-Teton National Forest in 2001, and 2008-2009, resulting in a limited number of owl territories (WGFD 2017). However, an increase in acoustic	Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Great gray owl (*Strix nebulosi*).

Species (Scientific and Common Name): ***Strix nebulosi [Great Gray Owl]***		
Criteria	**Rationale**	**Literature Citations**
	surveys conducted by the Teton Raptor Center from 2013-2018 has resulted in an increase in known Great gray owl occupancy on the BTNF (Map 4). This coincides with an effort in 2013-2015 that studied Great gray owl seasonal movements in the Jackson Hole area. As a result, 36 nest attempts were documented with a nest success of 75% to 83%, suggesting moderately high nest success. However, nest occupancy and owl detections appeared to decrease with increased snowfall, and nest productivity overall appeared to be lower than earlier studies in the 80s and 90s (WGFD 2017).	
Habitat Trend on the Bridger-Teton National Forest	In the Rocky Mountains, the Great gray owl prefers mature deciduous and coniferous forests during the breeding and non-breeding seasons (WGFD 2017). In Wyoming, the species has been documented in Lodgepole pine, Douglas fir, Aspen, Cottonwood mix, and Spruce (WGFD 2017). Breeding and non-breeding habitat is generally the same, although nest locations are typically in close proximity to open clearings with perches for foraging. Recent studies concluded that Great gray owls nest in both broken-top snags and raptor stick nests, with few pairs utilizing low elevation cottonwood-spruce riparian habitat for nesting in the Teton Range of the Bridger-Teton National Forest and surrounding area (WGFD 2017). A vegetation assessment completed in 2012 for the BTNF was used to determine the amount of suitable Great grey owl nesting and roosting habitat across the Forest. A total of approximately 39% (1,360,500 acres) of the BTNF is classified as suitable mature coniferous and deciduous forest and contributes to Great gray owl nesting and roosting habitat (Table 2). Small patches of isolated winter cottonwood-conifer nesting habitat on the BTNF adds an additional 399 acres. Helmbrecht and others (2012) concluded that overall vegetation trends show there is a surplus of late development forested vegetation occurring on the BTNF. With increased fire suppression and less stand replacing wildfires on the landscape, early successional stands are being converted to late successional stands, resulting in an increase in potential Great gray owl nesting and roosting habitat.	Helmbrecht, D., M. Williamson, and D. Abendroth. 2012. Bridger-Teton National Forest Vegetation Condition Assessment. Kalinowski, R. S., M. D. Johnson, and A. C. Rich. 1994. Habitat Relationships of Great Gray Owl Prey in Meadows of the Sierra Nevada Mountains. Wildlife Society Bulletin. 38(3):547–556; 2014; DOI: 10.1002/wsb.436. Reynolds, R. T., R. T. Graham, M. H. Reiser, R. L. Basset, P. L. Kennedy, D. A. Boyce, Jr., G. Goodwin, R. Smith, E. L. Fisher. 1992. Management recommendations for the northern goshawk in the southwestern United States. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, General Technical Report GTR-RM-217. 90pp. Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Great gray owl *(Strix nebulosi).*

<table>
<tr><td colspan="3">Species (Scientific and Common Name): Strix nebulosi [Great Gray Owl]</td></tr>
<tr><td>Criteria</td><td>Rationale</td><td>Literature Citations</td></tr>
<tr><td></td><td>Table 2. Potential Great gray owl habitat on the BTNF (Helmbrecht et al. 2012).
<table>
<tr><th>Vegetation Class</th><th>Definition</th><th>Percent on BTNF</th></tr>
<tr><td>Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland</td><td>Lodgepole pine, Aspen, Conifer-mix</td><td>24.5</td></tr>
<tr><td>Rocky Mountain Aspen Forest and Woodland</td><td>Aspen Dominate; conifer component</td><td>5.85</td></tr>
<tr><td>Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland</td><td>Spruce/Fir mix; Lodgepole pine</td><td>5.4</td></tr>
<tr><td>Douglas Fir</td><td>Douglas Fir</td><td>3.5</td></tr>
<tr><td>TOTAL</td><td></td><td>39.25</td></tr>
</table>

In addition to late development forested communities for nesting and roosting, forest openings with herbaceous vegetation is critical to the great grey owls foraging success. The primary prey for Great gray owls are voles (Kalinowski et al. 2014). Where herbaceous vegetation is reduced to less-than-suitable conditions on parts of the BTNF, vole populations likely are lower than what they otherwise would have been, which in turn has the potential to affect Great gray owls. Herbaceous communities, including moist meadow, grassland, herbland, forbland, silver sagebrush, and big sagebrush, contribute to the overall suitable foraging habitat present for Grey gray owls across the BTNF. These early succession communities; however, are decreasing across the Forest as conifer forests continue to encroach. Reductions of non-forest habitat (e.g., meadow, grassland, herbland, and silver sagebrush) is extensive in parts of the BTNF given the major expansion of fire-return intervals and are likely associated with grazing in some areas. Additionally, wet meadow and meadow-willow communities are decreasing with the absence of beaver. A decrease in such communities ultimately results in reduced acreage and distribution of habitat for prey species (Reynolds et al. 1992).</td><td></td></tr>
<tr><td>Threats to the Species and its Habitat on the</td><td><u>Habitat Reduction</u>
Forest management practices, insect and disease epidemics, and forest</td><td>Bleich, V. C., J. G. Kie, E. R. Loft, T. R. Stephenson, M. W. Oehler, and A. L. Medina. 2012. Chapter 27: Managing</td></tr>
</table>

Species (Scientific and Common Name): ***Strix nebulosi [Great Gray Owl]***		
Criteria	**Rationale**	**Literature Citations**
Bridger-Teton National Forest	wildfires limit Great gray owl habitat by reducing the amount of mature forest and canopy cover (WGFD 2017). Activities that occur in mature forests such as road construction, mining and drilling, timber harvest, and facility improvements at ski-areas may negatively affect Great grey owl habitat quantity and quality because they directly reduce the coverage of these forest types. Where such stands are limited and the habitat change occurs over a large spatial scale, the loss of Great gray owl habitat may be significant. Additionally, development or management that occurs in lower elevation riparian-cottonwood habitat may reduce and limit the quality of wintering habitat for Great gray owls (WGFD 2017). Mechanical fuels treatments that remove large trees and high intensity prescribed fire treatments that result in stand replacement and reduce the amount of large old-growth trees, can negatively affect Great grey owls and reduce their habitat. Similarly, wildfires that burn at high intensity may directly reduce the quality and abundance of mature forests at a much larger landscape scale. Widespread fire suppression that promotes forest succession may increase the development of mature stands, increasing Great gray owl habitat and resulting in beneficial impacts to the species. Human-related factors that include primarily fire-suppression activities—promoting conifer encroachment, road development, and livestock grazing, contribute to loss of vegetation habitat for prey and other aspects of foraging habitat for Great gray owls. Given vole habitat and preferred cattle foraging habitat are nearly the same, the suitability of Great gray owl foraging habitat can be impacted when grazing herbaceous vegetation reaches a limiting threshold (Bleich et al. 2014). In other words, habitat degradation from intense livestock grazing in montane meadows may negatively impact Great gray owl foraging habitat and prey abundance (WGFD 2017). A study done in the Sierra Nevada Mountains found a negative relationship between vole abundance and cattle grazing, suggesting Great gray owl productivity is likely impacted, and vegetation management is important for Great gray owls (Kalinowski et al.	rangelands for wildlife. Pages 74-94 *in* Silvy, N. J. (ed.). The wildlife techniques manual: management (7th edition, vol. 2). The John Hopkins University Press, Baltimore, Maryland. Kalinowski, R. S., M. D. Johnson, and A. C. Rich. 1994. Habitat Relationships of Great Gray Owl Prey in Meadows of the Sierra Nevada Mountains. Wildlife Society Bulletin. 38(3):547–556; 2014; DOI: 10.1002/wsb.436. Wyoming Game and Fish Department. 2017. State Wildlife Action Plan. Great gray owl *(Strix nebulosi).*

Species (Scientific and Common Name): ***Strix nebulosi [Great Gray Owl]***		
Criteria	**Rationale**	**Literature Citations**
	2012). <u>*Natural Stressors*</u> Optimal suitable nesting habitat has been documented as a limiting factor for Great gray owls since the species does not construct nests and primarily depends on existing nest structures (WGFD 2017). However, this does not appear to be a limiting factor for owls in the Jackson Hole area specifically, according to a seasonal use study in 2013-2015. The species also has a low fecundity (breeding maturity), large home range size, and depends significantly on prey abundance and availability, all impacting the nesting and foraging success and survival of the species. <u>*Climate Change*</u> Long-term effect due to climate change may affect Great grey owl habitat where forested communities are affected by warming temperatures, decreased humidity, fire frequency and intensity, and a change in precipitation patterns. This trend, overtime, could decrease the amount of Great grey owl nesting and foraging habitat. Prey density and availability may also be affected by changes in climate temperatures.	
Summary and recommendations: Much of the Great gray owls' distribution in Wyoming overlaps with the Bridger-Teton National Forest. Great grey owl abundance appears higher on the BTNF compared to the rest of the state, likely due to the amount of suitable habitat. Although Great gray owl observations have been recorded across the BTNF sporadically since the 60s, more recent acoustic survey efforts resulted in an increase in occupancy records and evidence the species may be present in greater numbers on the forest. Additionally, recent surveys have concluded that Great gray owl nests were well distributed throughout suitable habitat in the Jackson Hole Valley and BTNF, occurring throughout the Teton Range, Wyoming Range, and Wind River Range. Most owl occupancy records have been documented in the Jackson Hole area where multi-year acoustic, visual, and nesting surveys have been completed, suggesting that areas where there is a gap in observations are more likely due to a lack of surveys.		Date: November 20, 2019

Species (Scientific and Common Name): ***Strix nebulosi [Great Gray Owl]***		
Criteria	**Rationale**	**Literature Citations**
Threats to the species are primarily associated with actions that decrease mature forest cover and herbaceous vegetation. However, with increased fire suppression and less stand replacing wildfires on the landscape, early successional stands are being converted to late successional, resulting in an increase in Great gray owl nesting and roosting habitat across the forest. Contrarily, Great grey owl foraging habitat is declining across the Forest as suitable herbaceous vegetation communities are reduced, contributing to a loss of habitat for prey and other aspects of foraging habitat for Great gray owls. A reduction in acreage, distribution, and quality of vegetation communities is due to increased fire return intervals and conifer encroachment, the natural productivity of meadows on the BTNF, as well as human-related factors that primarily include fire-suppression activities, road development, and livestock grazing. Extensive habitat distribution across the Forest, an increase in available nesting and roosting habitat (i.e. late development forest), and increases in Great gray owl occupancy records, suggest Great gray owl populations are not of substantial concern on the BTNF. While great grey owl foraging habitat (i.e. herbaceous vegetation) is in decline in some areas of the Forest, there is no evidence that suggests it is contributing to or resulting in a decline in Great grey owl populations on the BTNF at this time. Therefore, the species' capability to persist over the long-term within the planning unit is currently adequate, and it is recommended that the Great gray owl is not a Species of Conservation Concern for the Bridger-Teton National Forest. Evaluator(s): Ashley Egan, Randall Griebel		