1. **Species:** Southern White-tailed Ptarmigan (*Lagopus leucurus altipetens*)

2. **Status:** Table 1 summarizes the current status of this species or subspecies by various ranking entity and defines the meaning of the status.

Table 1. Current status of *Lagopus leucurus altipetens*

Entity	Status	Status Definition
NatureServe	G5	*Species is Secure* At very low risk or extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
CNHP	S4	*Species is Apparently Secure* At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
Colorado State List Status	SGCN, Tier 1	Species of Greatest Conservation Need
USDA Forest Service	R2 Sensitive	Region 2 Regional Forester's Sensitive Species
USDI FWS[b]	Under Review	Currently under FWS review subsequent to a positive 90-day finding.

[a] Colorado Natural Heritage Program.
[b] US Department of Interior Fish and Wildlife Service.

The 2012 U.S. Forest Service Planning Rule defines Species of Conservation Concern (SCC) as "a species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area" (36 CFR 219.9). This overview was developed to summarize information relating to this species' consideration to be listed as a SCC on the Rio Grande National Forest, and to aid in the development of plan components and monitoring objectives.

3. Taxonomy

Genus/species *Lagopus leucurus altipetens* is accepted as valid (ITIS 2015).

4. Distribution, abundance, and population trend on the planning unit [12.53.2,3,4]:

The white-tailed ptarmigan (*Lagopus leucura*) is endemic to alpine regions of western North America. Except for several transplants into previously unoccupied habitats, the distribution and abundance of this alpine grouse have remained relatively unchanged. Although it is not federally listed as threatened or endangered in any portion of its range, the white-tailed ptarmigan is listed as a sensitive species within the USDA. Forest Service (USFS) Rocky Mountain Region (Region 2), where it is found in suitable habitats throughout Colorado and in the Snowy Range of southern Wyoming (Hoffman 2006). Within Colorado, occupied areas are described as all alpine habitats, with the exception of Spanish Peaks, Greenhorn Mountain, and Pikes Peak (Braun and Rogers 1971). The species has since been introduced on Pikes Peak (Hoffman and Giesen 1983 cited in Hoffman 2006).

An estimated 260,794 acres of occupied range occurs within the planning area, represented approximately 16% of occupied range within USFS Region 2. While the distribution of white-tailed ptarmigan appears to be unchanged from historic levels, population sizes and trends are mostly unknown other than in localized areas of study (Hoffman 2006). A total of 26 observations have been reported for the planning area during the past 20 years (Table 2, NRIS database; RMBO 2015).

Table 2. Known Occurrence Frequency within the Planning Area (NRIS AND RMBO 2015)

Known Occurrences in the past 20 years	26
Year Last Observed	2014

5. Brief description of natural history and key ecological functions [basis for other 12.53 components]:

The breeding season lasts from mid-April to early July, with peak activity occurring from late April to late June (Hoffman 2006). Eggs are laid from early June to mid-July (including renests) and incubated for 22-26 days. Within 6-12 hours of hatching, the hen and chicks depart the nest site and do not return (Braun et al. 1993).

White-tailed ptarmigan feed on a wide variety of foods including buds, twigs, catkins, fruits, seeds, flowers, stems, leave and insects. Diets in Colorado were analyzed by. In Colorado, willow (Salix spp.) is the dominate food source from fall through spring, with increased use of forbs and shrubs as vegetation becomes available throughout the growing season. Composition of male summer diets differ those of females and juveniles. Males select *Carex* spp., clover (*Trifolium* spp.), chickweed (*Cerastium* spp.) and mustards, while females and juveniles utilize alpine bistort (*Polygonum viviparium*) predominately (May and Braun 1972, May 1975, summarized in Hoffman 2006).

Winter home range in north-central Colorado ranges averaged 0.44 square kilometers (108 ac) for males (n=2) and 1.62 square kilometers (400ac) for females (n=17; Giesen and Braun 1992). On summer ranges, movements become more localized with home ranges consisting of less than 124 acres. During dry years, movement to more moist areas may occur (Hoffman 2006). Brood home range, which may be occupied by clusters of hens with broods, ranged from 7 – 82 acres, and averaged 38 acres in Rocky Mountain National Park (Giesen 1977 summarized in Hoffman 2006).

6. Overview of ecological conditions for recovery, conservation, and viability [12.53 7, 9?, 10, 11, 12]:

Seasonal use areas described for white-tailed ptarmigan include breeding, brood-rearing/summer, fall, and winter habitats. Breeding habitats consist of snow-free areas on gentle to moderate slopes where willow is a major component. Elevations vary by latitude, slope, and aspect, ranging from 11,000 – 14,000 feet in Colorado. Most territories are situated near treeline early in the breeding season and encompass stands of willows more than 1.6 ft tall that protrude above the snow. As the snow melts and vegetation green-up occurs, territories extend upslope to include areas with more rocks, increased herbaceous vegetation, and less willow. Willow height tends to be lower, and rock cover typically exceeds 25% and includes rocks larger than 12 inches in diameter (Braun 1971 summarized in Hoffman 2006).

White-tailed ptarmigan are ground nesters. Nest sites typically occur within breeding territories on moderate slopes that are snow-free by June. Habitats selected in Colorado consist of krummholz (both evergreen and willow), rocky areas, and meadows often with the nest located next to rock or vegetation structure that serves as protection against inclement weather (Giesen et al. 1980).

Brood-rearing and summer habitats consist of high, rocky, windswept ridges, benches, and mountain tops with late-lying snow fields, solifluction terraces or other moist sites in a mosaic of rock fields and low vegetation consisting of grasses, forbs and/or sedges. Selected areas are located above breeding areas at elevations typically above 3,658 meters (12,000 feet), but as low as 3,506 meters (11,500 feet) (Braun 1971, Knight 1994 summarized in Hoffman 2006). Bird movement to fall habitats, located downslope within the breeding territory at the upper edges of willow communities, coincides with the first severe snowstorm (Hoffman 2006).

Partial segregation by gender occurs during the winter, with females wintering in large flocks near or below treeline and males wintering in small groups at higher elevations along the lower fringe of breeding areas (Hoffman and Braun 1977). Both genders winter in areas dominated or co-dominated by willow. Areas used in winter typically are in drainage basins and along low ridges at or slightly above treeline (10,500 to 12,500 ft) where food (willow) and roosting sites (soft snow) are readily available. Engelmann spruce and willow are the two prominent vegetation types on wintering areas. (Braun 1971a, Braun et al. 1976, summarized in Hoffman 2006).

7. Threats and Risk Factors

Past livestock grazing in alpine areas, during which long-term use and improper herding occurred, have had a substantial impact on the structure and composition of many alpine areas. In addition, range management practices that are designed to increase forage production for livestock (e.g., reseeding, applying herbicides and fertilization) have negative, unsuccessful, or inconclusive consequences when applied to alpine ranges (Scott and Billings 1964, Billings and Mooney 1968, Thilenius et al. 1974, Thilenius 1975, Bear 1978, summarized in Hoffman 2006). Grazing by wild ungulates also may negatively impact alpine habitats.

Any activity that reduces the forb component of plant communities in areas used by ptarmigan during the summer and fall will have negative consequences to the species (Hoffman 2006).

Recreational activities, in the form of hiking, camping, off-road vehicles (including snowmobiles), fishing, hunting, back-country skiing, downhill skiing, mountain biking, rock climbing, nature viewing, and photography, continue to be major uses and causes of disturbance and potential habitat impacts in alpine areas (Hoffman 2006).

Other potential risk factors include mining, climate change, reservoir construction, and exposure to Cadmium (Hoffman 2006).

8. Key literature:

Braun, C. E., K. Martin and L. A. Robb. 1993. White-tailed Ptarmigan (Lagopus leucura), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/068 [07/08/2015].

Giesen, K.M. and C.E. Braun. 1992. Winter home range and habitat characteristics of white-tailed ptarmigan in Colorado. Wilson Bulletin 104(2): 263-272.

Giesen, K.M., C.E. Braun, and T.A. May. 1980. Reproduction and nest-site selection by white-tailed ptarmigan in Colorado. Wilson Bulletin 92(2): 188-199.

Hoffman, R.W. 2006. White-tailed Ptarmigan (*Lagopus leucura*): a technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region. Available: http://www.fs.fed.us/r2/projects/scp/assessments/whitetailedptarmigan.pdf [06/24/2015].

Hoffman, R.W. and C.E. Braun. 1977. Characteristics of a winter population of white-tailed ptarmigan in Colorado. Wilson Bulletin 89(1): 107-115.

Rocky Mountain Bird Observatory (RMBO). 2015. Rocky Mountain Avian Data Center. Accessed online at: http://rmbo.org/v3/avian/ExploretheData.aspx [07/01/2015].

9. Map of Known Occurrences and Modeled Suitable Habitat

White-tailed ptarmigan habitat modeled for the planning area consists of areas of alpine containing grass, willow, and interspersed barren sites (Figure 1).

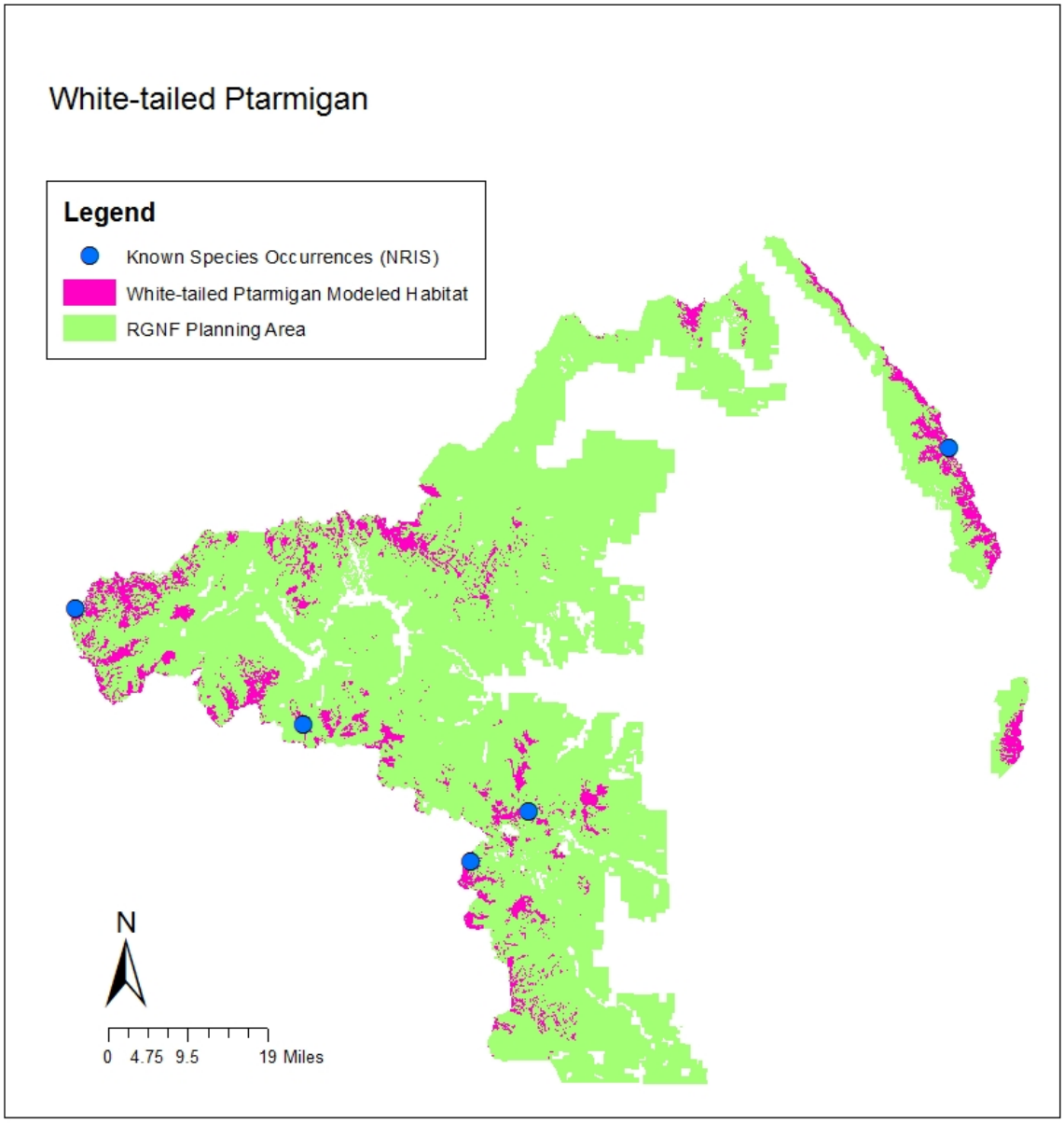

Figure 1. White-tailed Ptarmigan Modeled Habitat and Known Occurrences.