1. **Species:** Flammulated Owl (*Psiloscops (=Otus) flammeolus*)

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 *Psiloscops (=Otus) flammeolus*

Entity	Status	Status Definition
NatureServe	G4	*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.
CNHP	S4B	*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 2	Species of Greatest Conservation Need
USDA Forest Service	R2 Sensitive	Region 2 Regional Forester's Sensitive Species
USDI FWS[b]	N/A	N/A

[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 *Psiloscops flammeolus* not recognized as valid (ITIS 2015). NatureServe (2015) states that formerly merged with Otus (e.g. AOU 1983, 1998) but now treated as a separate genus on the basis of genetic data, which show it to be sister to *Megascops* (Proudfoot et al. 2007, Wink et al. 2009, AOU 2013).

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

Flammulated owls are widely distributed in western North America in a pattern that follows distribution of mature ponderosa pine and interior Douglas-fir forests. A total of 65 observations have been recorded within the planning area over the past 20 years (Table 2, Figure 1).

Population trends for this species in the planning area have not been reported.

Table 2. Known Occurrence Frequency within the Planning Area (NRIS database)

Known Occurrences in the past 20 years	65
Year Last Observed	2014

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

In Colorado, flammulated owls are primarily associated with open ponderosa pine and Douglas-fir forest with larger diameter trees and snags available for nesting in Colorado (Linkhart et al. 1998).

Males begin singing on breeding grounds late April–early May in Colorado. Nest structures consist of nest cavities excavated by other species in trees or snags. In New Mexico and Colorado, owls most often selected cavities of the Northern Flicker (*Colaptes auratus*), and less often used smaller cavities of Hairy Woodpecker (*Picoides villosus*) and Sapsucker (*Sphyrapicus* spp.).

Incubation initiation in Colorado ranges from mid to late May through mid-July, with the peak occurring on June 2, with the incubation period lasting an average of 22 days. Fledging dates in Colorado range from the first week in July to the first week in August, with the peak occurring in mid-June (Linkhart and McCallum 2013). No renesting or second clutches have been reported for this species. During the incubation and nestling periods, foraging is concentrated around the nest when foraging rates are high (Linkhart et al. 1998), so both foraging quality and adequacy for nesting may influence choice of nest site.

Flammulated owls are exclusively nocturnal feeders, foraging primarily insectivorous, feeding on moths, crickets, grasshoppers, and beetles (Linkhart and McCallum 2013).

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

In Colorado, productivity and territory occupancy by breeding pairs were positively correlated with old, open stands of ponderosa pine/Douglas-fir and negatively correlated with young, dense stands of Douglas-fir (Linkhart 2001 summarized in Linkhart and McCallum 2013).

Nesting occurs in cavities previously excavated by other species. Snags selected for nesting in New Mexico ranged from 14 to 22 inches dbh (McCallum 1994).

Preferred roosting habitat appears to be large live trees with significant overhead protection or dense vegetation. In Colorado, males preferred large diameter Douglas-firs or ponderosa pines with voluminous crowns and some with sprawling growth form (Linkhart 1984, Linkhart et al. 1998 summarized in Linkhart and McCallum 2013), which may provide the dense foliage found in thickets in other studies. Local studies conducted within the planning area indicate that aspen are a preferred nest tree. In addition, a demographic study of flammulated owls is planned to occur on the Conejos Peak Ranger District (R. Ghormley, pers. comm. 2015).

7. Threats and Risk Factors

Flammulated Owls are threatened by loss of suitable nesting habitat. Replacement of open, old-growth ponderosa pine and mixed conifer forest with younger, high-density vegetation is considered detrimental to this species. Elimination of large snags due to logging or firewood gathering may limit nesting opportunities and make habitat unsuitable. Forest change may also bring about changes in abundance of insect prey, with unknown consequences (McCallum 1994 summarized in NMACP 2015). Habitat for this species has deteriorated slowly over time, as decades of fire suppression have created large areas of dense ponderosa stands.

Immediate threats include the loss of remaining areas of open, mature forest habitat to logging or stand replacement fire. Forest thinning and controlled burning in overgrown ponderosa and mixed conifer habitat may help reverse long-term habitat degradation and hence benefit this species. However, such efforts should proceed with caution, as population responses to habitat restoration have not been adequately studied (NMACP 2015).

8. Key literature:

Ghormley, R. 2015. Randy Ghormley, Forest Wildife Biologist, Rio Grande National Forest. Personal Communication.

Linkhart, B.D., R.T. Reynolds, and R.A. Ryder. 1998. Home range and habitat of breeding flammulated owls in Colorado. Wilson Bulletin 110(3): 342-551.

Linkhart, B.D. and D.A. McCallum. 2013. Flammulated Owl (*Psiloscops flammeolus*), 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/093 [06/24/2015].

McCallum, D.A. 1994. Review of technical knowledge: flammulated owls. Pages 14-44 in Hayward, G. D. and J. Verner. 1994. Flammulated, boreal, and great gray owls in the United States: A technical conservation assessment. USDA Forest Service, GTR RM-253.

NMACP (New Mexico Avian Conservation Parters). 2015. Species Accounts. Accessed on line at: http://www.nmpartnersinflight.org/flammulatedowl.html [06/24/2015].

9. Map of Known Occurrences and Modeled Suitable Habitat

Habitat parameters modeled to represent flammulated owl habitat consist of ponderosa pine and Douglas-fir forest cover types in habitat structural stages 4A and 4B. Flammulated owl habitat modeled for the planning area totals 91,114 acres (Figure 1).

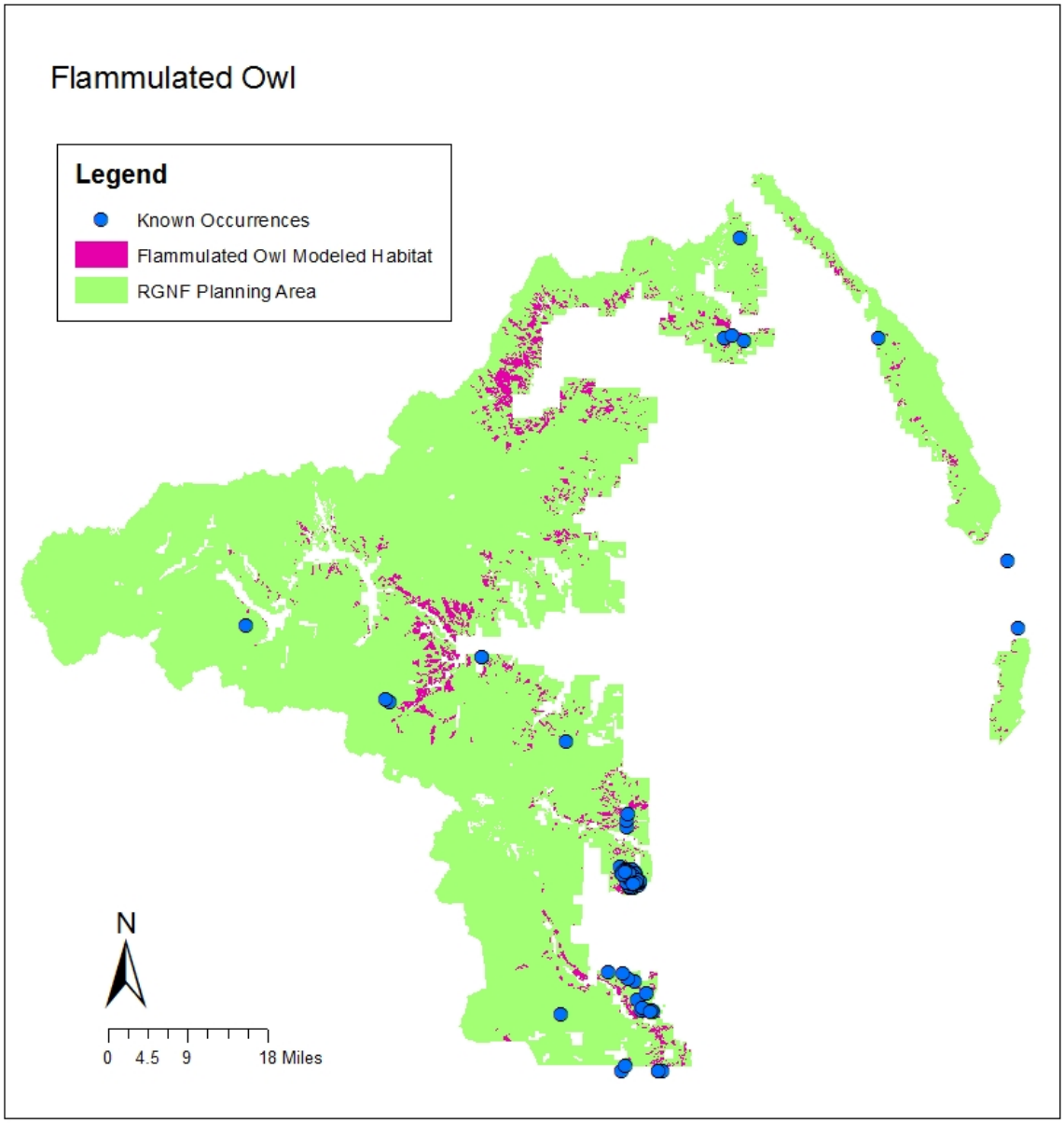

Figure 1. Flammulated Owl Modeled Habitat and Known Occurrences.