

1. **Species:** Burrowing Owl (*Athene cunicularia*)
2. **Status:** Table 1 summarizes the current status of this species or subspecies by various ranking entity and defines the meaning of the status.

Entity	Status	Status Definition
NatureServe	G4	<i>Species is Apparently Secure</i> 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	<i>Species is Apparently Secure</i> 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	State Threatened	Colorado List of Threatened and Endangered Species.
USDA Forest Service	R2 Sensitive	Region 2 Regional Forester’s Sensitive Species
USDI FWS ^b	BoCC	Included in USFWS Birds of Conservation Concern list
^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 *Athene cunicularia* is accepted as valid (ITIS 2015).

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

Burrowing owls are also distributed throughout western North America, south from central Alberta to Tierra del Fuego in South America. Range contractions have occurred at the edges of the western distribution. In particular, burrowing owls have been extirpated from British Columbia and Manitoba, Canada, with concurrent southerly range contraction in Alberta and Saskatchewan. In recent years, westerly range contractions have occurred in all U.S. states at the eastern edge of the species’ distribution, including extirpation of the Minnesota populations.

Historically in Colorado, burrowing owls were reported as locally common (Bailey and Niedrach 1965). More recently, VerCauteren et al. (2001) identified 423 burrowing owl locations in eastern Colorado, the large majority of which were on private lands. Each burrowing owl location

represented one to many burrowing owls; thus, the number of locations is much lower than the actual burrowing owl population size in eastern Colorado (McDonald et al. 2004).

There is strong evidence for a widespread, persistent decline in western burrowing owl numbers (Sheffield 1997a cited in McDonald et al. 2004). There are no confirmed occurrences of this species within the planning area; therefore, no trend information for this species in the planning area is available.

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

Known Occurrences in the past 20 years	0
Year Last Observed	N/A

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

Burrowing owl habitat typically consists of open, dry, treeless areas on plains, prairies, and deserts. These areas are also occupied by burrowing mammals and other animals that provide nest burrows. Main components at the macrohabitat scale within USFS Region 2 are as follows (McDonald et al. 2004):

- Open, dry, treeless areas, typically occupied by burrowing mammals that provide nest burrows
- Rangelands grazed by burrowing mammals and domestic livestock, which maintain short vegetation

The following list and subsequent discussion provide a thorough enumeration of the habitat components that consistently emerge with significance in burrowing owl habitat studies throughout USFS Region 2 (McDonald et al. 2004):

- High densities of available burrows for nesting.
- Active, or very-recently abandoned, prairie dog colonies.
- Close proximity to other nesting burrowing owls.
- Close proximity to occupied prairie dog burrows.
- Short vegetation around nest burrow, low shrub density, and high forb density.
- Presence of dried manure for lining of nest burrow.

Plumpton (1992 in Klute et al. 2003) found nesting burrowing owls occupied burrows with a shorter distance to the nearest road, and shorter grass and forb height than generally available, while using black-tailed prairie dog towns with greater burrow density and percentage of bare ground than available. VerCauteren et al. (2001) found burrowing owl density was inversely related to the area of prairie dog towns, but total number of burrowing owls was positively related to town size.

Juveniles permanently disperse from the nest burrow around the end of July, or approximately four weeks after fledging. In a migratory Canadian population, average maximum dispersal distance detected prior to migration was 3.4 mi (Clayton and Schmutz 1999 in McDonald et al. 2004). Mean natal dispersal distances were much lower in a Florida population, suggesting that these distances may be greater in migratory than in resident populations.

Although most western North American burrowing owl populations migrate in winter months, the specifics of burrowing owl migration are poorly understood. There is some regional variability in the time that burrowing owls arrive on the breeding grounds although most reports show burrowing owls migrating north in March and April (Haug et al. 1993 cited in McDonald et al. 2004).

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

Management strategies are required that support burrowing owl nesting and foraging habitat, burrowing owl prey species, and the burrowing mammals that provide nest burrows. Primary considerations in developing such management strategies may include the following (McDonald et al. 2004):

- Manage for well-connected, large, active colonies of prairie dogs.
- Reverse the longstanding sentiment towards widespread prairie dog eradication in the form of poisoning and shooting, and support research into the control of sylvatic plague within prairie dog populations.
- Manage to maintain historical burrowing owl nest sites.
- Practice grazing regimes that promote vegetation community diversity and co-exist with primary burrower communities (especially prairie dogs).
- Collaborate with private landowners and public land managers.

7. Threats and Risk Factors

Recognized threats to the persistence of burrowing owls in Region 2 (McDonald et al. 2004) include:

- **Habitat Loss and Fragmentation.** Because of their close association with prairie dogs, loss of burrowing owl habitat can generally be equated with loss of active prairie dog colonies through eradication programs, agricultural and urban conversion, and sylvatic plague (*Yersinia pestis*). Habitat fragmentation caused by urbanization and agricultural conversion may increase road densities, and thus may increase burrowing owl mortality from vehicular collisions. Fragmentation may also increase negative edge effects on burrowing owls, such as susceptibility to predation and interspecific competition.
- **Anthropogenic Sources of Mortality.** Vehicular traffic, pesticides, domestic animals, and recreational shooting of prairie dogs can negatively impact burrowing owl populations directly through mortality or indirectly through their effect on reproductive success or food supply of owls.
- **Losses on the Wintering Grounds.** Little is known of the wintering range of burrowing owls that breed in Region 2, but many may overwinter largely in Mexico. Because matrix-based demographic analyses suggest that the population dynamics of burrowing owls are particularly sensitive to changes in “adult” and first-year survival, these threats may have even greater impact on the wintering grounds. Return rates of yearling and experienced breeders from the wintering grounds are critical to the persistence of healthy

populations and represent an inherent biological vulnerability stemming from the life history.

8. Key literature:

Klute, D.S., W.H. Howe, S.R. Sheffield, L.W. Ayers, S.L. Jones, T.S. Zimmerman, M.T. Green, and J.A. Shaffer. 2003. Status assessment and conservation plan for the western burrowing owl in the United States. Biol. Tech. Pub. BTP-R6001-2003. U.S. Fish and Wildlife Service, Northern Prairie Research Center. 108 pp.

McDonald, D., N.M. Korfanta, and S.J. Lantz. (2004, September 14). The Burrowing Owl (*Athene cunicularia*): a technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region. Available: <http://www.fs.fed.us/r2/projects/scp/assessments/burrowingowl.pdf> [07/02/2015].

Plumpton, D.L. and R.S. Lutz. 1993a. Prey selection and food habits of burrowing owls in Colorado. Great Basin Naturalist 53(3): 299-304.

Plumpton, D.L. and R.S. Lutz. 1993b. Nesting habitat use by burrowing owls in Colorado. Journal of Raptor Research 27(4): 299-304.

VerCautenen, T.L., S.W. Gillihan, and S.W. Hutchings. 2001. Distribution of burrowing owls on public and private lands in Colorado. Journal of Raptor Research 35(4): 357-361.

9. Map of Modeled Habitat and Known Occurrences

Burrowing owl modeled habitat reflects habitat modeled as suitable for Gunnison's prairie dog, which was depicted using elevation, slope, soils, and vegetation characteristics. Areas below 10,500 feet on slopes less than 15%, with suitable soils for excavating (e.g. loamy, outwash, limy, and sandy) that coincide with grass or riparian cover types generally lacking tree cover (<10%) were selected. A total of 115,951 acres is modeled as suitable within the planning area (Figure 1).

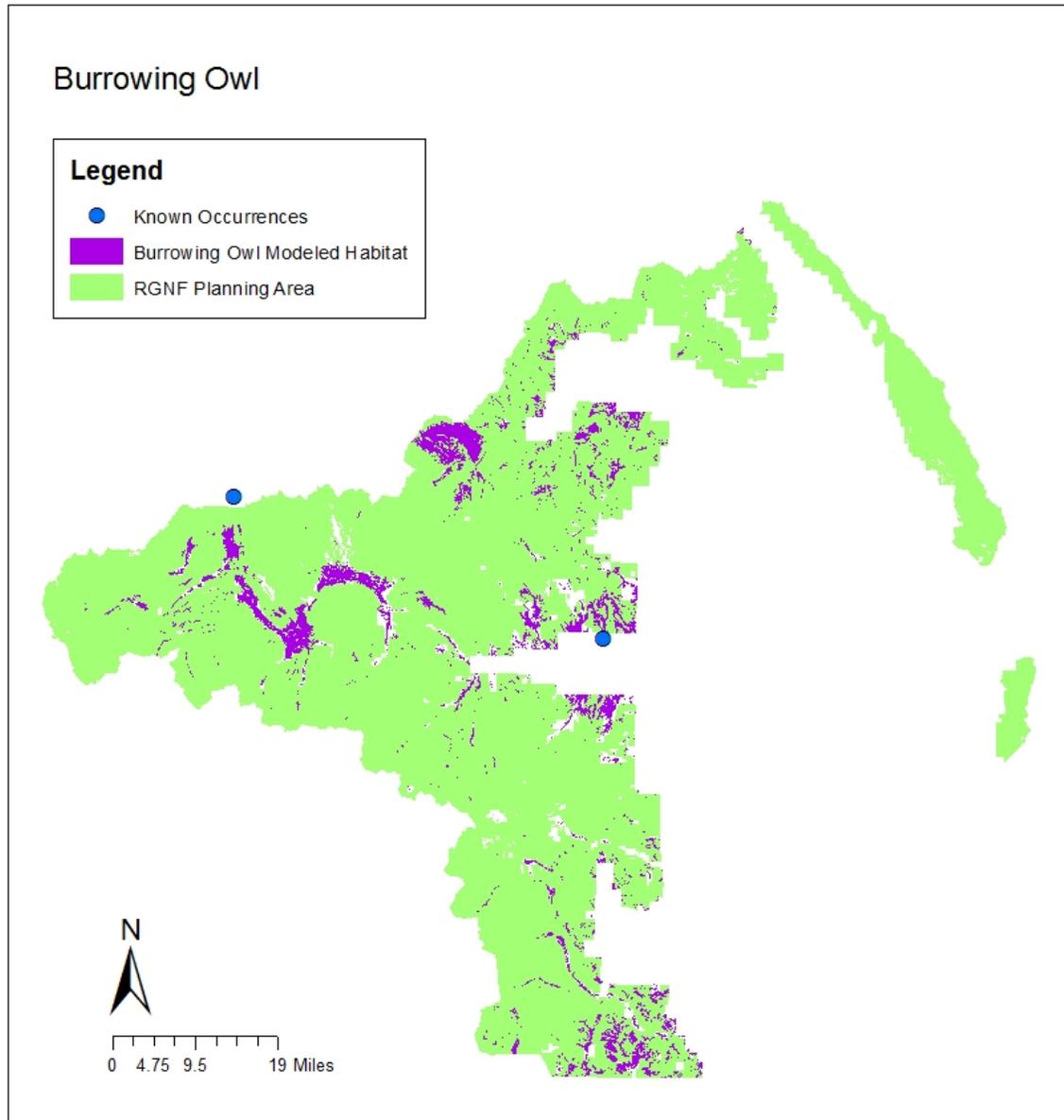


Figure 1. Burrowing Owl Modeled Habitat and Known Occurrences.