Burrowing Owl

Athene cunicularia

Photo by Derek Hall

Habitat Use Profile

Habitats Used in Nevada	
Sagebrush Salt Desert Scrub (Mojave Scrub) (Joshua Tree)	
Key Habitat Parameters ●	
Plant Composition	Treeless areas with low vegetation; usually sagebrush or salt desert, but also urban / suburban and disturbed sites[10]
Plant Density & Size	Vegetation must be low (< 15 cm [6 in] acceptable, < 5 cm [2 in] preferred),[6, 10, 19] with < 30% ground cover[EO]
Mosaic	Burrows dug by rodents or other small to medium sized mammals must be available, along with sufficient prey base[10, 19]
Distance to Water	Unknown, probably unimportant[10]
Response to Vegetation Removal	Often present where disturbance or grazing has shortened or removed some vegetation[10]
Area Requirements ◑	
Minimum Patch Size	~ 80 ha [200 ac][EO]
Recommended Patch Size	> 300 ha [750 ac][EO]
Home Range	50 – 500 ha [120 – 1,200 ac], but most activity occurs within 600 m [2,000 ft] of burrow[10]

Conservation Profile

Priority Status	
Special Status Species	
Species Concerns	
Unknown population trend	
Other Rankings	
Continental PIF	None
Audubon Watchlist	None
NV Natural Heritage	G4T4, S3B
USFWS	Migratory Bird, Bird of Conservation Concern
BLM	Sensitive Species
USFS	None
NDOW	Conservation Priority
Other	Proposed Covered Species under Clark County MSHCP amendment,[21] Covered Species under Coyote Springs Investment HCP[21]
Trends	
Historical ●	Large declines (> 50% in Nevada)[4, 10, 14]
Recent ○	Mixed in the West; patterns in Nevada uncertain[4, 10, 18]
Population Size Estimates	
Nevada (NBC) ◑	3,000
Global ◑	2,000,000 [15]
Percent of Global	< 1 %
Population Objective	
Maintain / Increase[EO]	
Monitoring Coverage	
Source	Nevada Bird Count
Coverage in NV	Fair
Key Conservation Areas	
Protection	Known colony sites
Restoration	Former colony sites

Natural History Profile

Seasonal Presence in Nevada	
Spring – Summer; Year-round in Mojave region[7, 11, 12]	
Known Breeding Dates in Nevada	
Mid-April – early August[5]	
Nest and Nesting Habits	
Nest Placement	Nests in burrows dug by burrowing animals, or artificial burrows[8, 10, 19, EO]
Site Fidelity	High for general breeding area; may also re-use burrows[10, 19]
Food Habits	
Basic	Terrestrial predator (nocturnal and diurnal)
Primary Diet	Variety of arthropod, small mammalian and reptilian prey[9, 10, 19, EO]
Secondary Diet	Carrion[10]

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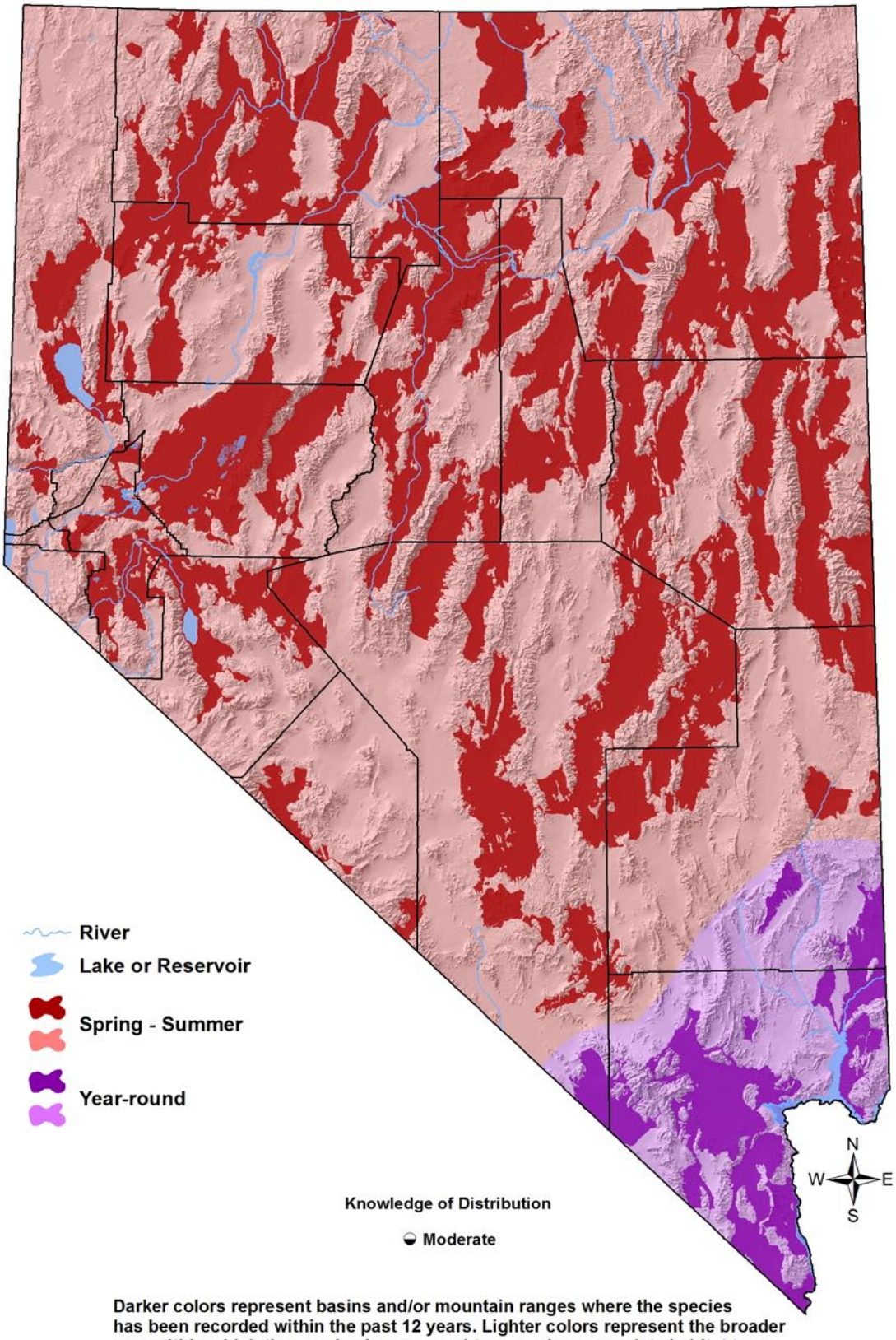

Darker colors represent basins and/or mountain ranges where the species has been recorded within the past 12 years. Lighter colors represent the broader area within which the species is presumed to occur in appropriate habitat types.

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Overview

Across much of its range, the Burrowing Owl has long been considered to be a declining species. It has also been the subject of many local and regional status assessments and planning documents, including the Western Burrowing Owl Assessment.[12] As a result, the Burrowing Owl is generally prominent on the "conservation radar screen", and in Nevada it is currently an Evaluation Species in the Clark County MSHCP.[1] Certainly Burrowing Owls have undergone substantial historical declines, but these have occurred mainly in the prairie regions to the east of Nevada, where loss of prairie dogs and large-scale agricultural conversion greatly reduced the amount of suitable habitat. In these regions, declines appear to be continuing, but the population status of the Burrowing Owl in Nevada and other parts of the arid west is harder to decipher, with verdicts ranging from "declining" to "increasing", depending on the source consulted.[4,10,12,13,18] The main reason for these contradictory results is that survey data on Burrowing Owls in Nevada are inadequate to determine statewide trends. This uncertainty is the reason for giving the Burrowing Owl a "Special Status Species" designation in this plan. The main need at this time is to determine whether or not the species is declining in Nevada, and if so, to identify the most important threats.

In Nevada, Burrowing Owls occur sporadically in valley bottoms, sometimes in loose colonies.[8,14] Apart from their need for burrows, suitable prey, and low vegetation, the importance of other habitat parameters and landscape features are not well understood.[4] The fact that disturbed areas are used by Burrowing Owls, though, suggests some flexibility in habitat use as long as the basic requirements are met.[12,17]

Abundance and Occupancy by Habitat

- NBC data show that 44% of observations occurred in Sagebrush habitat, 22% in grasslands, 21% in Salt Desert Scrub, and 9% in Agriculture
- The NBC population estimate for Nevada (3,000 birds) corresponds well with the population size range reported by Klute et al.[12] (1,000 – 10,000 birds), but is much lower than the BBS-derived estimate of 22,000 [15]

Nevada-Specific Studies and Analyses

Nevada National Security Site (Formerly Nevada Test Site) Studies

In Nevada, the Burrowing Owl has been most extensively studied at the Nevada National Security Site (NNSS). These studies have produced detailed information about the owl's natural history, ecology, breeding biology, and current status.[8,9] Interestingly, Burrowing Owls at the NNSS appeared to be fairly tolerant of human activities, and were frequently observed using human-created structures (culverts, pipes) as artificial burrows. USGS studies are also ongoing in southern and central Nevada, but results were not yet available at the time of this plan release.

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Main Threats and Challenges

Habitat Threats

- Habitat loss to urbanization, agriculture, or other development
- Reduction in populations of burrowing animals
- Disturbance of breeding colonies by humans or dogs in some areas[10]
- Possible pesticide impacts[10]

Research, Planning, and Monitoring Challenges

- Population status and trends in Nevada are not known

Conservation Strategies

Habitat Strategies

- Elements of the Sagebrush (p. Hab-17-1) and Salt Desert Scrub (p, Hab-18-1) habitat conservation strategies benefit this species, insofar as they allow for areas of very low vegetation
- Manage known colony locations to maintain short vegetation, healthy populations of burrowing animals, and healthy owl prey populations (small vertebrates, arthropods)
- If possible, establish a no-disturbance buffer zone of 60 m (200 ft) around active nest burrows[8]
- Providing artificial burrows can be effective in helping to restore populations[10, 20]

Research, Planning, and Monitoring Strategies

- Establish and implement effective monitoring programs[2,3] and determine population status and trend in Nevada

Public Outreach Strategies

- Educate the public and private landowners about the impacts of disturbance
- Where breeding owls are present near agricultural lands, encourage absence of pesticide use within 600 m [2,000 ft] of nest burrows[4,14]

References: [1]Clark County (2000); [2]Conway and Garcia (2008); [3]Conway and Simon (2003); [4]Dobkin and Sauder (2004); [5]GBBO unpublished Atlas data; [6]Green and Anthony (1989); [7]Greger and Hall (2009); [8]Hall et al. (2003); [9]Hall et al. (2009); [10]Haug et al. (1993); [11]Herron et al. (1985); [12]Klute et al. (2003); [13]NatureServe (2010); [14]Paige and Ritter (1999); [15]Rich et al. (2004); [16]Rosenberg (2004); [17]Saab et al. (1995); [18]Sauer et al. (2008); [19]Shuford and Gardali (2008); [20]Trulio (1995); [21](Jeri Krueger, *pers. comm.*); [EO] Expert opinion