

# Golden Eagle

*Aquila chrysaetos*



Photo by Martin Meyers

## Habitat Use Profile

Habitats Used in Nevada	
Cliffs Sagebrush (Salt Desert Scrub) (Mojave Scrub) (Joshua Tree) (Mojave Lowland Riparian) (Wet Meadow) (Pinyon-Juniper)	
Key Habitat Parameters •	
Plant Composition	Variety of open / semi-open landscapes with sufficient mammalian prey base; avoids heavily forested areas <sup>10</sup>
Cliff Properties (mean ± 1 SD)	25.5 (± 14.8) m [80 ± 50 ft] in SW Idaho; 21.7 (± 12.8) m [72 ± 42 ft] in N Utah <sup>1</sup> ; multiple ledges preferred, with no consistent orientation preference <sup>10</sup>
Mosaic	Require suitable nest sites and sufficient prey base <sup>10</sup>
Distance to Water	No known relationship
Area Requirements •	
Minimum Patch Size	~ 250 km <sup>2</sup> [60,000 ac] <sup>E0</sup>
Recommended Patch Size	> 1,000 km <sup>2</sup> [250,000 ac] <sup>E0</sup>
Home Range / Territory Size	Variable by location, prey density, and season, but typical home range of ~ 250 km <sup>2</sup> / pair [60,000 ac / pair] in breeding season; defend territory of 20–35 km <sup>2</sup> [5,000 – 8,600 ac] or more <sup>10</sup>

## Conservation Profile

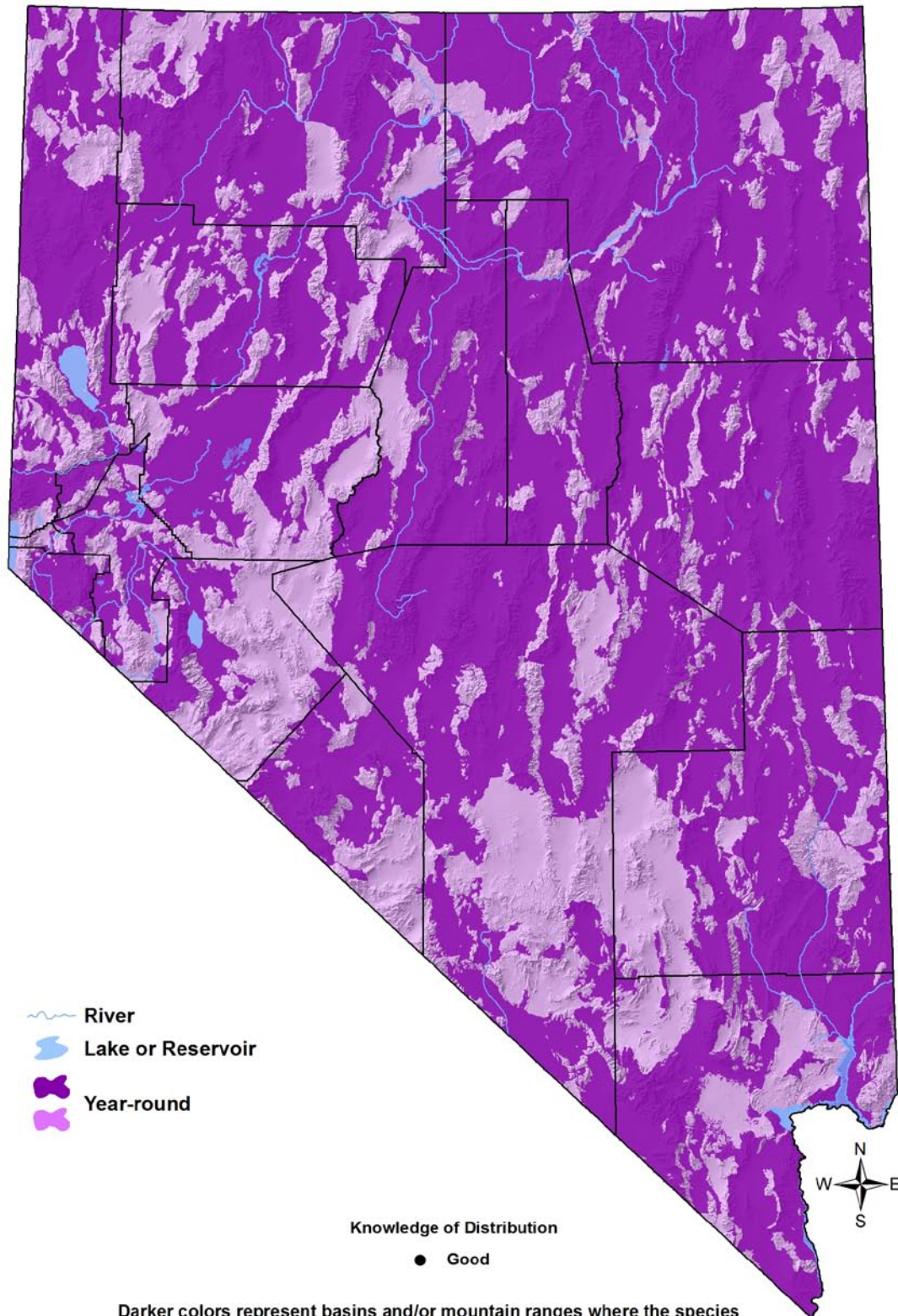
Priority Status	
Conservation Priority Species	
Species Concerns	
Historical declines Possible recent declines	
Other Rankings	
Continental PIF	None
Audubon Watchlist	None
NV Natural Heritage	G5, S4
USFWS	Eagle Act, Migratory Bird, Bird of Conservation Concern
BLM	Sensitive Species
USFS	None
NDOW	None
Trends	
Historical •	Substantial declines <sup>10</sup>
Recent •	Recent data suggest declines regionally and in Nevada <sup>10, 15</sup>
Population Size Estimates	
Nevada (NBC) •	3,000
Global •	172,000 <sup>14</sup>
Percent of Global	2 %
Population Objective	
Maintain <sup>E0</sup>	
Monitoring Coverage	
Source	NDOW winter raptor surveys, Nevada Bird Count
Coverage in NV	Good
Key Conservation Areas	
Protection	Intact shrublands near suitable nesting cliffs
Restoration	Degraded / fragmented shrublands near suitable nesting cliffs

## Natural History Profile

Seasonal Presence in Nevada	
Year-round, more abundant in winter	
Known Breeding Dates in Nevada	
Late January – August <sup>5, 10</sup>	
Nest and Nesting Habits	
Nest Placement	Most often on cliffs, but sometimes on ground, in trees, or on steep hillsides <sup>10, 12</sup>
Site Fidelity	High for breeding sites <sup>10</sup>
Food Habits	
Basic	Terrestrial hunter
Primary Diet	Jackrabbits, cottontails, large rodents <sup>10</sup>
Secondary Diet	Medium-sized birds (500 – 2,000 g) [1 – 4.5 lbs] <sup>10</sup>

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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

The Golden Eagle's distribution is largely restricted to the west, with some of its highest densities in the shrubsteppe habitats of the Great Basin.<sup>10</sup> In Nevada, the only habitats routinely avoided by the Golden Eagle are forests, large agricultural areas, and urban areas. Although the Golden Eagle is a year-round resident of Nevada, home ranges, densities, and activity patterns likely shift seasonally.

Key limiting factors for Golden Eagle populations are prey densities and availability of nest sites near suitable prey populations.<sup>2,10</sup> For these reasons, habitat management should primarily focus on maintaining populations of jackrabbits, cottontails, and larger rodents such as ground squirrels. Once Golden Eagles reach adulthood, their main source of premature mortality appears to be collisions with structures and electrocutions from power lines or other electrical equipment.<sup>12</sup> Direct disturbance of nests appears to be infrequent, but localized disturbances can cause nest failure or abandonment.<sup>10, EO</sup>

Of particular concern are recent data suggesting that after several decades of relative stability, Golden Eagle numbers may again be declining in the West, particularly in the sagesteppe region.<sup>4,6,8,10,16</sup> This possibility needs to be further investigated in Nevada. Also of concern are possible effects of large-scale energy developments on the Golden Eagle's foraging habitat. Monitoring has been conducted by west-wide aerial surveys from 2003-2009.<sup>11</sup> In 2011, the Great Basin Bird Observatory and NDOW will conduct a statewide inventory of Golden Eagle nesting sites, which will supplement NDOW raptor surveys and the Nevada Bird Count and improve our ability to evaluate population trends.

## Abundance and Occupancy by Habitat

- The NBC-based Nevada population estimate of 3,000 is close to Herron's<sup>7</sup> earlier estimate of 2,400
- Nest spacing of 0.8 – 16 km (mean 4.3 km) [0.5 – 10 mi, mean 2.7 mi] is typical in suitable habitat in southwestern Idaho<sup>10</sup>
- In Nevada, the highest Golden Eagle densities have been observed in long stretches of cliff located along river systems<sup>7</sup>

## Nevada-Specific Studies and Analyses

No information

## Main Threats and Challenges

### Habitat and Other Threats

- Reduction in prey populations due to degradation or loss of rangelands
- Large-scale wind/solar energy developments in rangelands could reduce prey densities and hunting opportunities

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- Electrocution may be significant source of mortality in some areas; vehicles on roadways may also cause significant mortality in some areas<sup>10,12,EO</sup>
- Human disturbance or activity may cause nest abandonment, render a nest site less productive, or prevent a suitable nest site from being utilized<sup>10,13</sup>
- Shooting and poisoning are much less common than in the past, but still may occur; the most important current source of poisoning may be mine tailings and heap leach<sup>EO</sup>

## Conservation Strategies

### Habitat Strategies

- Cliff (p. Hab-4-1) and Sagebrush (p. Hab-17-1) habitat conservation strategies benefit this species
- Manage open habitats for healthy mammalian prey populations, particularly jackrabbits and cottontails
- When siting energy developments, proximity to known or likely Golden Eagle nesting areas should be avoided, ideally with a 10 km or 6 mile buffer
- In areas with actual or potential nest disturbance issues, establish disturbance-free buffer zones of 1 km (0.6 mile) around nest locations where possible<sup>3,17</sup>
- To minimize electrocution deaths, use Eagle Guards on transmission lines with high electrocution risk,<sup>3</sup> and ensure that new lines are built to specifications established by the Avian Power Line Interaction Committee (newly updated)<sup>1</sup>
- Encourage burial of mining drip lines to minimize risk of poisoning<sup>EO</sup>

### Research, Planning, and Monitoring Strategies

- Improve monitoring and survey coverage, and conduct additional analysis, to better quantify current population trends, conservation requirements, and habitat needs
- U.S. Fish and Wildlife Service has new inventory and monitoring protocols that should be implemented in Nevada<sup>13</sup>

### Public Outreach Strategies

- Pursue road signage and public education to reduce the frequency of vehicular deaths<sup>EO</sup>

**References:** <sup>1</sup>Avian Power Line Interaction Committee (2006); <sup>2</sup>Beecham and Kochert (1975); <sup>3</sup>DeLong (2004); <sup>4</sup>Farmer et al. (2008); <sup>5</sup>GBBO unpublished Atlas data; <sup>6</sup>Good et al. (2007); <sup>7</sup>Herron (1985); <sup>8</sup>Hoffman and Smith (2005); <sup>9</sup>Kochert and Steenhof (2002); <sup>10</sup>Kochert et al. (2002); <sup>11</sup>Nielson et al. (2010); <sup>12</sup>Page and Seibert (1973); <sup>13</sup>Page et al. (2010); <sup>14</sup>Rich et al. (2004); <sup>15</sup>Sauer et al. (2008); <sup>16</sup>Smith et al. (2008); <sup>17</sup>Suter and Jones (1981); <sup>EO</sup> Expert opinion