

Northern Goshawk

Accipiter gentilis



Photo by Martin Meyers

Habitat Use Profile

Habitats Used in Nevada	
Aspen Coniferous Forest (Pinyon-Juniper) (Springs)	
Key Habitat Parameters •	
Plant Composition	Aspen, mixed coniferous trees, sagebrush, willows, montane shrubs
Plant Density & Size	Nests in mature tree stands (usually aspen) with $\geq 60\%$ canopy closure; nest trees 10 – 15 m [33 – 50 ft] tall ^{3, 12}
Mosaic	Mature aspen stands surrounded by undisturbed coniferous forest and/or montane shrubland for foraging ^{7, 12}
Distance to Water	Close to water ^{3, 12}
Response to Vegetation Removal	Negative ^{E0}
Area Requirements •	
Minimum Patch Size	Aspen stand: ≥ 0.8 ha [2 ac], at least 180 m [600 ft] long, 23 m [75 ft] wide ³
Recommended Patch Size	$> 3,500$ ha [8,700 ac] including foraging areas ¹²
Home Range	570 – 3,500 ha [1,400 – 8,700 ac] ¹²

Conservation Profile

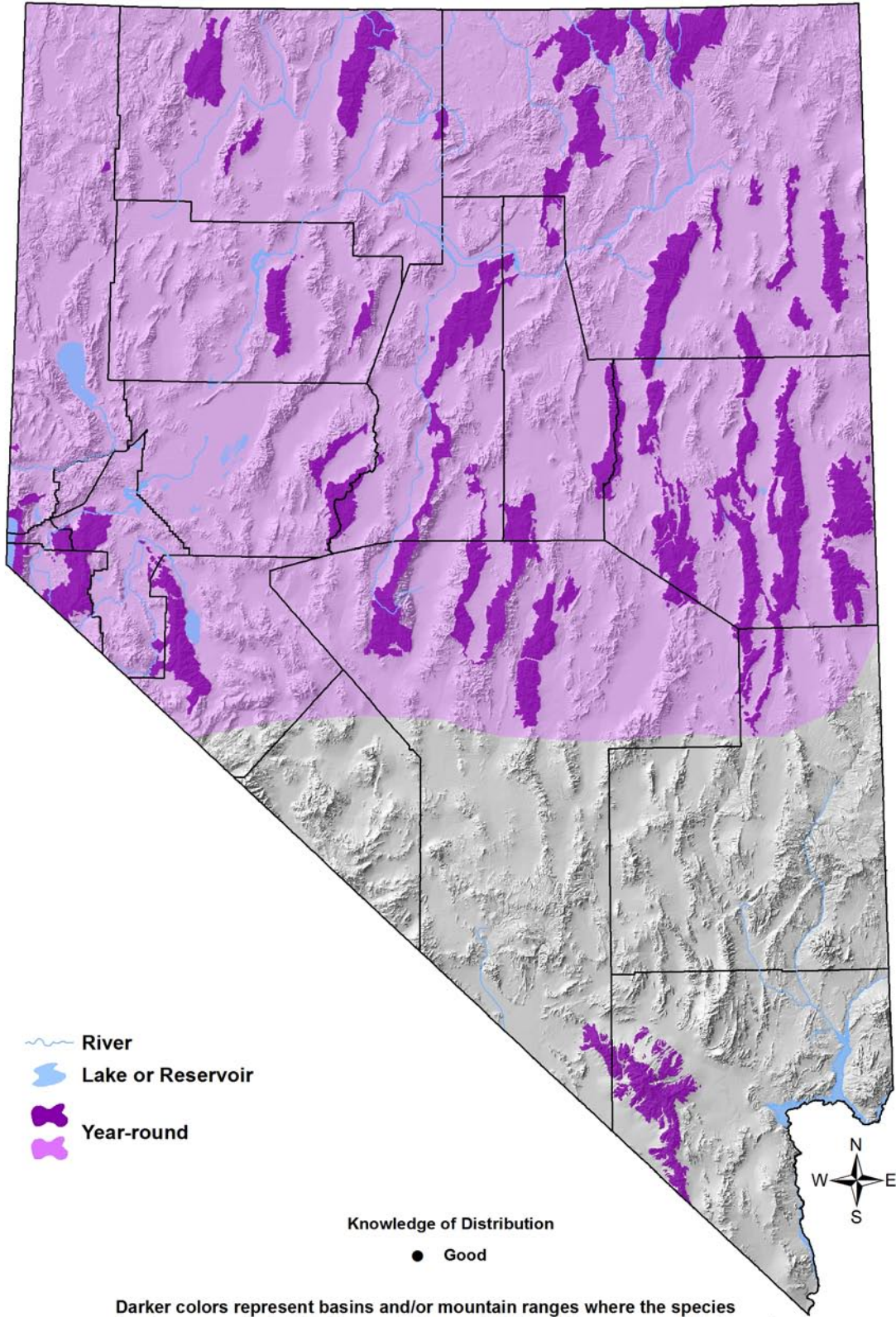
Priority Status	
Conservation Priority Species	
Species Concerns	
Restricted habitat Small population size Possible recent declines Habitat threats	
Other Rankings	
Continental PIF	None
Audubon Watchlist	None
NV Natural Heritage	S2
USFWS	Migratory Bird
BLM	Sensitive Species
USFS	Sensitive Species
NDOW	Conservation Priority
Trends	
Historical ○	Unknown in the West
Recent ●	In Nevada, information mixed, but recent declines possible ^{3, 5, 6, E0}
Population Size Estimates	
Nevada (NBC) ●	700 ³
Global ●	580,000 ⁸
Percent of Global	$< 1\%$
Population Objective	
Maintain / Increase ^{E0}	
Monitoring Coverage	
Source	USFS, NDOW raptor surveys, Nevada Bird Count
Coverage in NV	Good
Key Conservation Areas	
Protection	Carson, Jarbidge, Schell Creek, Snake, Toiyabe, Monitor, Bull Run, Independence, Ruby, and East Humboldt ranges
Restoration	Degraded Great Basin aspen stands

Natural History Profile

Seasonal Presence in Nevada	
Year-round	
Known Breeding Dates in Nevada	
Early April – August ^{1, 12}	
Nest and Nesting Habits	
Nest Placement	In large top branches of mature tree ^{9, 12}
Site Fidelity	High for nesting area ^{E0}
Other	Multiple alternate nests used within stand ¹²
Food Habits	
Basic	Aerial predator
Primary Diet	Small to medium sized mammals and birds ¹²
Secondary Diet	n/a

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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

Although the Northern Goshawk is not a priority species in most regional or national conservation plans, they are a definite conservation priority in Nevada, particularly on USFS lands in the Sierra Nevada, where detailed management guidelines have been developed.^{7,14} Concern for goshawks in Nevada is related to their strong association with aspen woodlands, which are limited in extent and subject to many threats (p. Hab-3-1), and recent data suggest that the species is declining.⁵ There has also been a wider regional conservation concern for goshawks since at least the 1990s, when an unsuccessful attempt was made to list the bird under the ESA.³

Unlike some other raptors, goshawks do not appear to select nesting areas based on prey abundance, but rather based on forest structure.² Goshawks in Nevada usually nest in mature aspen stands (or less commonly, coniferous stands) with trees large enough to support their substantial stick nest.¹⁶ This association with aspen in Nevada is somewhat unique, for in most other parts of the West, goshawks more typically nest in coniferous forest.¹² It should be noted that there are at least two recent reports of goshawk nests in pinyon-juniper woodlands (Kathleen Johnson and Adam Ryba, *pers. comm.*), and the possibility that this occurs more widely should be further explored. Current information regarding the need for understory cover within aspen nesting habitat is somewhat contradictory and needs to be clarified. Winter habitat use is also poorly understood, but preliminary data on immature birds suggest that they wander within a radius of about 150 km [95 miles] during the post-breeding season.¹¹

Nevada's aspen stands are at significant risk of decline and loss, and therefore a conservation strategy to promote the health and persistence of aspen stands is probably the most beneficial strategy for Northern Goshawks in Nevada.

Abundance and Occupancy by Habitat

- The NBC population estimate and the estimate provided by Herron³ are in close agreement (~ 700 birds)
- In Nevada, there is usually a single pair per aspen patch.³ There are usually < 5 pairs / 100 km² [25,000 ac]¹²

Nevada-Specific Studies and Analyses

- NDOW aerial and ground surveys from 2000 – 2010⁴ suggest population declines in eastern and southern Nevada, with more than half of historical nesting sites currently unoccupied by goshawks (Pete Bradley *pers. comm.*)
- In the Sierra Nevada region, the USFS conducts annual monitoring of historically occupied goshawk territories as well as surveys of potential habitat, using the *USFS Pacific Southwest Regional Survey Methodology for Goshawks*.¹¹ Detections and survey efforts are recorded in a national USFS database.

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- Recent research in the Lake Tahoe Basin highlights the effects of anthropogenic disturbance and provides guidance on how to prioritize territory locations for restoration.⁴

Main Threats and Challenges

Habitat and Other Threats

- Loss or degradation of mature aspen stands, which may be caused by:
 - Livestock or other ungulate grazing and browsing that prevents stand regeneration or removes understory vegetation
 - Tree pathogens or Aspen Decline Syndrome (p. Hab-3-1)
 - Stand-wide fires that destroy suitable nesting trees (although less intense fires may stimulate regeneration)
 - Invasion and eventual replacement of aspen stands by conifers
- Illegal take of eggs or nestlings for falconry
- Human recreational activity in proximity to nest sites may be detrimental

Research, Planning, and Monitoring Challenges

- The importance of aspen understory integrity is not known
- It is possible that nesting occurs outside of aspen stands (i.e., in pinyon-juniper) more often than is currently realized
- It is not known whether or not West Nile Virus might be a significant source of mortality, as suggested by anecdotal reports
- The frequency and impact of illegal take of eggs or nestlings is currently unknown and should be investigated



Small aspen stand in western Nevada. Photo by John Boone.

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Conservation Strategies

Established Strategies

- Northern Goshawk management guidelines and standards for USFS lands in the Sierra Nevada region are specified in the *Sierra Nevada Framework Plan Amendment*.¹⁴ This document recommends a two-year pre-project survey be conducted in suitable habitat to determine if goshawks are present. Occupied areas can be protected by specific strategies including limitations on land disturbance near nesting areas and during other critical time periods (15 April – 15 July)
- Reynolds et al.⁷ provide detailed goshawk management guidelines for the southwest region, but these were primarily based on areas where goshawks nest in conifers

Habitat Strategies

- The Aspen (p. Hab-3-1) and Coniferous Forest (p. Hab-5-1) habitat conservation strategies, with emphasis on the following elements, benefit this species
- Protect aspen stands from levels of grazing and motorized recreation that prevent stand regeneration
- Allow regenerating burns to occur in stands where active or traditional nest sites are not at risk
- Remove conifers encroaching aspen stands where appropriate and feasible
- Retain intact, relatively undisturbed mosaics of suitable habitat (aspen stands of the recommended size and adjacent coniferous forest or shrubland) at the recommended patch size (< 3,500 ha [8,700 ac]) wherever possible
- Continue stringent restrictions on egg and nestling take until trends in Nevada are better quantified, and consider increased law enforcement during the nesting season

Research, Planning, and Monitoring Strategies

- Continue and broaden coverage by current monitoring programs to allow better determination of statewide trends
- Increase efforts to quantify nesting outside of aspen stands
- Study habitat requirements during the non-breeding season
- Investigate the scope and impact of illegal takes
- Investigate the susceptibility of Northern Goshawks to West Nile Virus and possible impacts
- Consider statewide implementation of the nationwide monitoring strategy that has been developed by the USFS¹⁵ and applied in the Lake Tahoe Basin.¹⁰

continued

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Conservation Strategies (continued)

Public Outreach Strategies

- None identified

References: ¹GBBO unpublished Atlas data; ²Greenwald et al. (2005); ³Herron (1999); ⁴Morrison et al. (2010); ⁵NDOW unpublished ground and aerial raptor survey data 2000-2010 (Pete Bradley pers. comm.); ⁶Nevada Wildlife Action Plan Team (2006); ⁷Reynolds et al. (1992); ⁸Rich et al. (2004); ⁹Shuford and Gardali (2008); ¹⁰Slauson et al. (2008); ¹¹Smith (2000); ¹²Squires and Reynolds (1997); ¹³USFS (2000); ¹⁴USFS (2001); ¹⁵Woodbridge and Hargis (2006); ¹⁶Young and Bechard (1994); ^{EO} Expert opinion



Aspen patch in western Nevada. Photo by John Boone.