

# Grace's Warbler

*Dendroica graciae*



Photo by Martin Meyers

## Habitat Use Profile

Habitats Used in Nevada	
Coniferous Forest (Montane Riparian)	
Key Habitat Parameters •	
Plant Composition	Ponderosa pine, white fir, bristlecone pine, juniper, pinyon pine
Plant Density	Park-like stands with 14 - 46 m [46 - 150 ft] spacing between large trees; average 46% canopy closure, ~ 911 trees / ha [370 / ac], 80 snags / ha [32 / ac] <sup>7</sup>
Mosaic	Trees of mixed age and size classes <sup>6</sup>
Slope, Aspect	Average 10%, north or east <sup>7</sup>
Distance to Water	Available information is contradictory <sup>7,EO</sup>
Response to Vegetation Removal	Positive to thinning of overgrown stands, negative to complete removal <sup>EO</sup>
Area Requirements •	
Minimum Patch Size	Unknown, but assumed to require large area <sup>EO</sup>
Recommended Patch Size	100 ha [250 ac] <sup>EO</sup>
Territory Size	1 - 6.25 ha [2.5 - 15 ac] <sup>7</sup>

## Conservation Profile

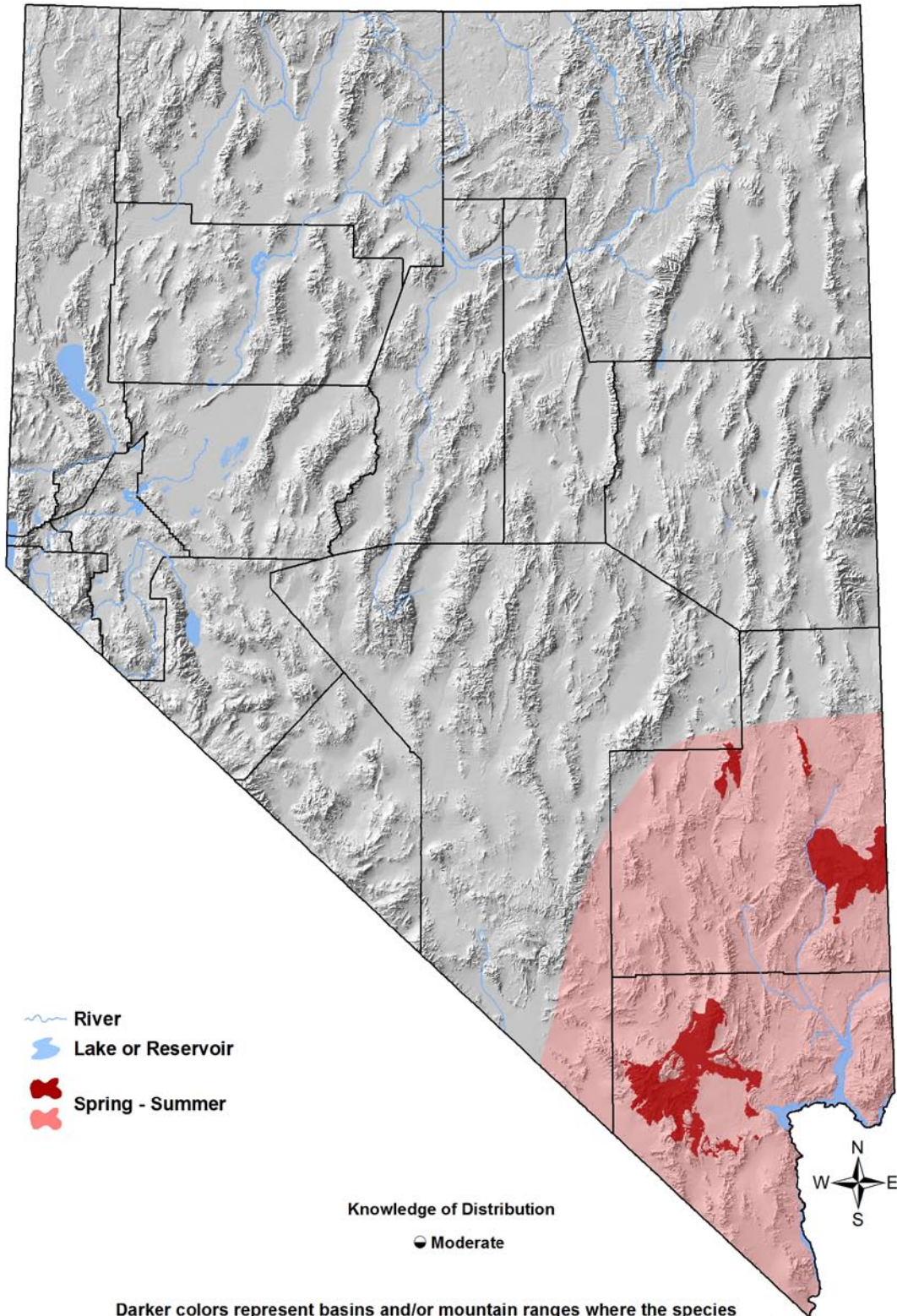
Priority Status	
Conservation Priority Species	
Species Concerns	
Small population size Restricted habitat Possible habitat threats	
Other Rankings	
Continental PIF	Watch List
Audubon Watchlist	Yellow
NV Natural Heritage	S2B
USFWS	Migratory Bird
BLM	None
USFS	None
NDOW	Conservation Priority
Trends	
Historical ○	Unknown <sup>6</sup>
Recent •	Stable or slowly declining <sup>6, 7</sup>
Population Size Estimates	
Nevada (NBC) •	610
Global •	1,000,000 <sup>4</sup>
Percent of Global	< 1%
Population Objective	
Maintain / Increase <sup>EO</sup>	
Monitoring Coverage	
Source	Nevada Bird Count
Coverage in NV	Good / Fair
Key Conservation Areas	
Protection	Spring Mountains, Sheep Range, Clover Mountains
Restoration	Same

## Natural History Profile

Seasonal Presence in Nevada	
Spring - Summer	
Known Breeding Dates in Nevada	
Late April - late July <sup>1, EO</sup>	
Nest and Nesting Habits	
Nest Placement	In live conifer branch, 6 - 18 m [20 - 60 ft] off ground <sup>7</sup>
Site Fidelity	Unknown
Food Habits	
Basic	Arboreal gleaner
Primary Diet	Arboreal arthropods <sup>7</sup>
Secondary Diet	n/a

# Grace's Warbler

*Dendroica graciae*



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.

# Grace's Warbler

*Dendroica graciae*

## Overview

Grace's Warblers may have reached southern Nevada only during the last 50 years as the result of a northward range expansion.<sup>2</sup> They are still not very numerous in the state, and exhibit substantial annual variation in numbers.<sup>7</sup> Grace's Warblers are largely restricted to ponderosa pine forests with tall trees, but beyond this, many aspects of their habitat needs and conservation status have not been well characterized, particularly in Nevada.<sup>7</sup> The species has been documented in a relatively small number of mountain ranges, and additional work needs to be done to determine whether Grace's Warblers breed in other southern ranges that provide appropriate habitat.

The response of Grace's Warbler to fire will depend on both severity and spatial scale of the disturbance as well as pre-fire forest structure. In general, low-severity fires that help maintain open pine forest structure should be beneficial, and high-severity fires that threaten the limited ponderosa pine forests in Nevada should be detrimental. However, studies of the effect of moderate to severe fire in Arizona are ambiguous.<sup>3, 5</sup> More study is required to identify the most beneficial fire management practices. Although the PIF continental population objective for the species is to increase numbers by 50%,<sup>3</sup> maintaining current numbers in Nevada is a more reasonable goal given the limited opportunities for creating new habitat.

## Abundance and Occupancy by Habitat

### Birds / 40 ha on NBC Transects in the Mojave Region

Primary Habitat at Transect	Transects Occupied	Birds/40 ha (95% C.I.)
Coniferous Forest	75% (3/4)	1.1 (0.8 – 1.4)
Montane Riparian	22% (2/9)	1.0 (n/a)

## Nevada-Specific Studies and Analyses

No information

## Main Threats and Challenges

### Habitat Threats

- Threats are poorly known.<sup>7</sup> Issues of possible concern include:
  - Loss of park-like ponderosa pine forests to large, intense fires
  - Loss of surface water sources within forests due to diversions or plugging of springheads
  - Urban encroachment in the Spring Mountains
  - Outbreaks of conifer pathogens and insects causing forest degradation

# Grace's Warbler

*Dendroica graciae*

## Research, Planning, and Monitoring Challenges

- Uncertainty about distribution, population size, trends, and conservation threats
- Uncertainty about most appropriate fire management strategies
- The possible importance of montane riparian habitat and proximity of water needs clarification

## **Conservation Strategies**

### **Habitat Strategies**

- The Coniferous Forest (p. Hab-5-1) habitat conservation strategies benefit this species
- Maintain ponderosa pine forests in occupied range (especially in the Key Conservation Areas, see above) in healthy condition with multiple age classes, large trees, and adequate regeneration
- Moderate silvicultural thinning to open forest structure can be beneficial if existing forest tree density is high<sup>7</sup>

### **Research, Planning, and Monitoring Strategies**

- Continue current monitoring to better document trends and population size
- Investigate other possible breeding locations within potential breeding range (see map above), including the Virgin, Hiko, and Grant ranges
- Determine fire management rules to benefit the species and promote long term persistence of healthy ponderosa pine forests
- Conduct research to determine whether availability of montane riparian habitat and water sources are important to Grace's Warblers
- Assuming that water sources are beneficial, protect or restore springheads in the Spring Mountains and Sheep Range

### **Public Outreach Strategies**

- None identified

References: <sup>1</sup>GBBO unpublished Atlas data; <sup>2</sup>Johnson (1994); <sup>3</sup>Kirkpatrick et al. (2006); <sup>4</sup>Rich et al. (2004); <sup>5</sup>Saab et al. (2007); <sup>6</sup>Sauer et al. (2008); <sup>7</sup>Stacier and Guzy (2002); <sup>EO</sup> Expert opinion