

## **Grace's Warbler (*Dendroica graciae*)**

NMPIF level: Species Conservation Concern, Level 1 (SC1)

NMPIF assessment score: 19

NM stewardship responsibility: High

National PIF status: Watch List

New Mexico BCRs: 16, 34, (35)

Primary breeding habitat(s): Ponderosa Pine Forest

Other habitats used: Mixed Conifer Forest, Madrean Pine-Oak Woodland

### **Summary of Concern**

Grace's Warbler is a tall pine specialist that is patchily distributed but may be locally common in ponderosa pine habitat in New Mexico. BBS data show significant and sharp declines in New Mexico and elsewhere, and the species is thought to be less common than historically due to loss of open forest areas of mature ponderosa pine.

### **Associated Species**

Flammulated Owl (SC1), Lewis's Woodpecker (SC1), Williamson's Sapsucker (SC2), Western Wood-Pewee, Dusky Flycatcher, Plumbeous Vireo (SC2), Pygmy Nuthatch, Western Bluebird (SC2), Western Tanager, Chipping Sparrow.

### **Distribution**

Grace's Warbler is resident in appropriate habitat across much of western and central Mexico and Central America. In northern Mexico and the southwest United States, the species is considered a migrant breeder. The United States range extends from southeast California and southern Nevada east through central New Mexico and far west Texas, and from southern parts of Utah and Colorado south to the Mexican border. As a migrant breeder, the species breeds in the Sierra Madre Occidental in Chihuahua and Sonora. Grace's Warbler is year-round resident from northern parts of Sinaloa and Durango south along the Pacific slope and interior uplands of Mexico, with discontinuous and local distribution as far south as Nicaragua (Stacier and Guzy 2002).

In New Mexico, Grace’s Warbler occurs in upland areas throughout the state, west of the plains and far northeastern mountains, though it is far less common in the isolated Chihuahuan Desert mountains in BCR 35 and in far northern New Mexico.

**Ecology and Habitat Requirements**

Grace’s Warbler is a pine specialist. It prefers park-like stands of mature tall pines, a habitat that has declined over time due to logging and fire suppression. In the southwest United States, it occurs primarily in ponderosa pine habitat, though Chihuahua pine and pine-oak woodlands of the Mexican Highlands are also used. Breeding may sometimes extend upslope into mixed conifer habitat (Stacier and Guzy 2002). In New Mexico, it is described as inhabiting mesa tops and canyon bottoms with ponderosa pine (Travis 1992), and may prefer areas with a Gambel oak understory (Levad 1998). In appropriate habitat in Arizona, Grace’s Warbler may be one of the more abundant species (Rosenstock 1996), but its densities are as much as 50% lower in New Mexico (Stacier and Guzy 2002). In northern Arizona, the species was common on both silviculturally thinned plots and control plots (Szaro and Balda 1979). It avoids lower elevation areas, even during migration, with far fewer records from the lowlands during migration than other migrant montane species.

Grace’s Warbler arrives in New Mexico in mid- late-April and initiates nesting in May. It maintains a large breeding territory of three to six hectares, depending on habitat quality (Stacier and Guzy 2002). Nests are typically well-hidden in outer foliage of upper branches, 8-12 meters high in ponderosa pines. Clutch size is usually three or four. There is no evidence of double-clutching, but nesting data are limited. Heavy cowbird parasitism (~50%) was noted in one study in Los Alamos county, but the extent to which this a problem is not known (Travis 1992). Grace’s Warbler typically feeds fairly high in tall pines, picking insects from foliage.

**Conservation Status**

**Species Assessment**

DISTRIBUTION	4
THREATS	3
GLOBAL POPULATION SIZE	3
LOCAL POPULATION TREND	5
IMPORTANCE OF NEW MEXICO TO BREEDING	4

**COMBINED SCORE****19**

Grace's Warbler is a Species Conservation Concern, Level 1 species for New Mexico, with a total assessment score of 19. It receives a maximum vulnerability score of 5 from NMPIF for its sharply negative population trend in the state. It also receives a score of 4 from PIF for its relatively restricted breeding range. Grace's Warbler is a national PIF Watch List Species. Grace's Warbler is a U.S. Fish and Wildlife Service (2002) national Bird of Conservation Concern.

**Population Size**

Total population for the state is unknown. PIF estimates a species population of 2 million, and that New Mexico holds about 21% of the species population, or about 420,000 birds. Such a high percentage estimate indicates that New Mexico has a high stewardship responsibility for this species.

**Population Trend**

Grace's Warbler is not extensively sampled by BBS. Nevertheless, it meets most standard criteria for an adequate sample size and a robust trend. Data indicate negative population trends across the southwest, particularly in New Mexico. BBS data for 1966-2004 are:

	Annual Trend (%)	P-value	Number of Routes
New Mexico	-5.5	0.05	17
FWS Region 2	-2.7	0.10	33
Western States	-2.3	0.10	39

**Threats**

The primary threat to Grace's Warbler in New Mexico is the further loss or alteration open tall pine habitat. New Mexico's ponderosa pine forests today differ greatly from pre-settlement forests, due to a history of logging, fire suppression and grazing (Block and Finch 1997). In many areas, trees are smaller and form a more closed canopy than in the more park-like stands favored by this species. Given its reliance on large trees, it is likely that Grace's Warbler is less common in ponderosa pine forests now than it was historically (Stacier and Guzy 2002). Because of its specific habitat requirements, the species may be threatened by continuing habitat loss associated with development, logging, overgrazing, fire suppression and the resultant catastrophic fires which can result, on both its breeding and wintering

grounds. Although data are scarce, cowbird parasitism may be a significant threat in New Mexico, particularly in fragmented habitat.

### **Management Issues and Recommendations**

Management for Grace's Warbler should focus on maintenance of healthy stands of mature ponderosa pine forest habitat in all of the state's main forest areas. Forest management that will bring about more open parklands, with extensive stands of large, mature trees, is expected to benefit this species. In northern Arizona, Grace's Warbler was more abundant in a silviculturally thinned forest (236 trees/ha of mixed-age and heterogeneous vertical and horizontal structure) than in unthinned, dense forest (646 trees/ha but similar foliage volume) (Szaro and Balda 1979).

### **NMPIF Recommendations**

- Use logging, grazing and controlled burn practices to maintain high-quality older growth ponderosa forest with relatively open understory.
- Avoid removal of taller, older trees in mature ponderosa pine habitat.

### **Species Conservation Objectives**

#### **PIF Objectives**

The PIF North American Landbird Conservation Plan places Grace's Warbler in the conservation action category Management. It sets a population objective of increasing the current population size by 50% over the next 30 years.

#### **NMPIF Objectives**

- Stabilize and increase current negative trend on BBS routes in the state
- Maintain density of 1 pair per 40 ac in suitable habitat areas of BCR 16 and BCR 34.

### **Sources of Information**

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