

## **Sage Sparrow (*Amphispiza belli*)**

NMPIF level: Species Conservation Concern Level 2 (SC2)

NMPIF assessment score: 16

NM stewardship responsibility: Low

National PIF status: Stewardship (Intermountain West region)

New Mexico BCRs: 16

Primary breeding habitat(s): Great Basin Desert Shrub

Other habitats used: In winter, Chihuahuan Desert Shrub

### **Summary of Concern**

Sage Sparrow is vulnerable due to its dependency on native sage shrub habitat, and has declined in some areas. Population trends for New Mexico are uncertain.

### **Associated Species**

Sage Thrasher (BC2), Brewer's Sparrow, House Finch

### **Distribution**

Sage Sparrow is a widespread breeder in shrub-steppe habitats from the northern edges of the Great Basin south to northern Arizona and New Mexico, and from eastern portions of Washington, Oregon and California east to central Wyoming, western Colorado and northwest New Mexico. Resident subspecies also occur in coastal and central California, and Baja California. The Great Basin race *A. b. nevadensis* is a short-distance migrant, wintering mostly south of the breeding range in Arizona, New Mexico, Sonora and Chihuahua (Martin and Carlson 1998).

In New Mexico, Sage Sparrow breeds in the northwest quadrant of the state, south to Gallup and east to Taos. In winter, it is fairly common in desert scrub in the southern part of the state, less common north as far as Albuquerque (Parmeter et al. 2002).

## Ecology and Habitat Requirements

Sage Sparrows are associated with big sagebrush and other desert shrub or chaparral vegetation throughout their range. This species prefers semiopen areas with evenly spaced shrubs, 2-6 feet high. Vertical structure and density of vegetation may be important in habitat selection (Wiens and Rotenberry 1981, Wiens 1985). Sage Sparrows in New Mexico may occupy pure stands of big sagebrush, or areas with sagebrush interspersed with bitterbrush, saltbush, shadscale, rabbitbrush, or greasewood. They occur less commonly in ecotonal areas of mixed sagebrush and juniper (Martin and Carlson 1998).

Sage Sparrows nest mainly in shrubs, but sometimes in grass clumps or on the ground. They generally prefer taller shrubs with larger canopies, which provide more cover (Petersen and Best 1985). In New Mexico, nests may be placed in sagebrush or any of the other shrub species listed above. The nest shrub is generally higher than average height of surrounding vegetation, and contains at least 75% live material. In thinly vegetated areas, nest sites are often located where shrubs are clumped (Martin and Carlson 1998). Sage Sparrows arrive early on their breeding grounds in northwest New Mexico, and may remain through September. Two and sometimes three broods per season are raised, with a new nest created for each clutch (Martin and Carlson 1998). They forage on the ground, and typically remain on the ground when seeking cover.

## Conservation Status

### Species Assessment

DISTRIBUTION	4
THREATS	4
GLOBAL POPULATION SIZE	3
LOCAL POPULATION TREND	3
IMPORTANCE OF NEW MEXICO TO BREEDING	2
<b>COMBINED SCORE</b>	<b>16</b>

Sage Sparrow is a Species Conservation Concern, Level 2 species for New Mexico, with a total assessment score of 16. At the continental level, it receives high PIF vulnerability scores of 4 for its limited non-breeding distribution and for threats during the breeding season.

## Population Size

PIF estimates a species population of 4.3 million, and that New Mexico holds about 4% of the estimated species population, or about 175,000 birds. Highest densities occur in Idaho, Nevada and Utah. Breeding density estimates for Great Basin populations include 57–145 individuals/km<sup>2</sup> (Rotenberry and Wiens 1980) and 0.85-0.95 individuals/ha (Martin and Carlson 1998).

### Population Trend

Populations appear to be generally stable, though declines have been noted for different regions and time periods. Interior populations in the Great Basin Desert, Wyoming Basin, Intermountain Grassland, and Columbia Plateau physiographic provinces all show moderate, non-significant declines. This species is not well-sampled by BBS in New Mexico. NMPIF assigns a score of 3 for local population trend, indicating uncertainty. BBS data for 1966-2004 are:

	Annual Trend (%)	P-value	Number of Routes
New Mexico	-3.3	0.40	9
FWS Region 2	-0.8	0.69	16
Western BBS	0.0	0.98	227

### Threats

The main threats to intermountain and Great Basin Sage Sparrows are habitat loss due to shrub clearing and invasion of exotic grasses. Sagebrush has been removed in many areas to allow increased grass production for livestock grazing, and this has had a significant impact on Sage Sparrow distribution and population trends (Braun et al. 1976). Additional habitat is also lost to development. Habitat fragmentation has been associated with an increase in parasitism by Brown-headed Cowbirds. Significant declines in local Sage Sparrows have been observed following removal of native vegetation, although sometimes not until the second year (Wiens 1985). Increasing frequency and intensity of range fires, in association with invasion by exotic annuals such as cheatgrass, pose a significant threat to Sage Sparrow habitat in the Great Basin region. So far, sagebrush habitat in New Mexico has been less impacted by clearing and exotic species than have other parts of the breeding range. NMPIF assigns a moderate score of 3 for threats to breeding in the state.

### Management Issues and Recommendations

Management for Sage Sparrow in New Mexico should focus on large blocks of mature sage shrub habitat.

### **NMPIF Recommendations**

- Avoid clearing of sagebrush habitat, particularly in known breeding areas.
- Maintain evenly spaced sagebrush from 2-6 ft high.
- Maintain a high percentage (>75%) of live sage within stands of sagebrush.

### **Species Conservation Objectives**

#### **NMPIF Objectives**

- Monitor to better understand species trends in New Mexico.
- Maintain or expand existing populations.

### **Sources of Information**

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