

Lucy's Warbler (*Vermivora luciae*)

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

NMPIF assessment score: 17

NM stewardship responsibility: Moderate

National PIF status: Watch List

New Mexico BCRs: 16, 34, 35 (most in 34 & 35)

Primary breeding habitat(s): Southwest Riparian

Other habitats used: Middle-elevation Riparian

Summary of Concern

Lucy's Warbler breeds in lowland riparian areas of the southwestern United States, including the southern and western portions of New Mexico. It is at risk due to extensive loss of quality riparian habitat across its small breeding range.

Associated Species

Yellow-billed Cuckoo (BC1), Gila Woodpecker (BC2), Summer Tanager (BC2), Black-headed Grosbeak, Blue Grosbeak, Bullock's Oriole (SC2)

Distribution

Lucy's Warbler is a neotropical migrant that summers in lowland areas of the southwest, although they occasionally nest in sycamore-oak associations as high as 1,775 m elevation (Johnson et al. 1997). Its breeding range extends from southeast California through extreme southern portions of Nevada and Utah, and through western and southern Arizona and New Mexico. The breeding range also extends south into northern portions of Baja California and Sonora. The species winters along the Pacific slope of Mexico from southern Sonora and northern Jalisco south to Guerrero and Oaxaca (Johnson et al. 1997).

In New Mexico, Lucy's Warbler mainly occurs in the area south of the Mogollon Highlands. It occurs north in the Rio Grande Valley to Socorro, and is seldom found further east (Hubbard 1978, Parmeter et al. 2002).

Ecology and Habitat Requirements

Lucy's Warbler is a distinctly desert riparian species, often occupying drier and lower elevation habitat than other lowland-breeding warblers. Most studies have been conducted in Arizona, where it is found in close association with riparian mesquite bosques. Johnson et al. (1997) write: "Few vertebrate species are as closely associated with mesquite bosques as Lucy's Warbler, and few other avian species are as dependent on a single vegetation type." However, breeding habitat also includes willow and salt cedar thickets, cottonwood-mesquite associations, cottonwood-willow gallery forests, and riparian associations of sycamore, oak and other deciduous trees (Phillips et al. 1964, Johnson et al. 1997). Structurally, breeding habitat is generally mature, closed-canopy bosque and late successional stage woodlands, up to about 5,000 feet in elevation (Stoleson and Finch 1998). Dense populations have also colonized recently established salt cedar thickets along the Colorado River in the Grand Canyon (Brown et al. 1987).

Lucy's Warbler is the only cavity-nesting warbler of the western United States. It generally requires large trees to provide suitable nest sites. Nests are placed in natural cavities, in deserted woodpecker cavities, or behind loose bark. Occasionally, deserted Verdin or thrasher nests are used. Nests in New Mexico have been found in cottonwood, Goodding's willow and boxelder; in Arizona, the species nests primarily in tall, dense mesquite (Stoleson et al. 2000). In optimal Arizona mesquite habitat, Lucy's Warbler exhibits one of the highest breeding densities reported for an American warbler, up to 12.5 pair/ha (Johnson et al. 1997). Contrary to other reports, Stamp (1978) reported higher density in cottonwood (48 pairs/40 ha) than in mesquite (24 pairs/40 ha) in south-central Arizona. In New Mexico, Stoleson et al. (2000) report an average density of 92 pairs/40 ha in cottonwood-willow along the Gila River.

Lucy's Warbler arrives on its breeding grounds in early to mid-March; numbers decrease rapidly in late July although a few birds linger through August (Johnson et al. 1997, Stoleson et al. 2000). Two broods a year may be raised, with a typical clutch size of 4 or 5. Nest success is sometimes low, due to frequent parasitism by Brown-headed Cowbirds. However, Stoleson et al. (2000) observed a relatively high proportion of successful nests (19 of 23, 83%) and low rate of parasitism (2 nests). It should be noted that unlike other cavity-nesting species, Lucy's Warbler is not known to use nest boxes (Johnson et al. 1997). On its wintering grounds in western Mexico, Lucy's Warbler occupies habitat similar to breeding habitat, and together with Bell's Vireo showed the narrowest habitat breadth of 14 lowland wintering species studied (Hutto 1980). This species favors the tops of trees and ends of branches for foraging; its diet consists almost entirely of insects.

Conservation Status

Species Assessment

DISTRIBUTION	5
THREATS	4
GLOBAL POPULATION SIZE	3
LOCAL POPULATION TREND	3
IMPORTANCE OF NEW MEXICO TO BREEDING	2
COMBINED SCORE	17

Lucy's Warbler is a Species Conservation Concern, Level 1 species for New Mexico, with a total assessment score of 17. Lucy's Warbler is a national PIF Watch List species, and a Stewardship species for the Southwest Avifaunal Biome. It receives a maximum vulnerability score of 5 from PIF for its small breeding and winter range, and a score of 4 from NMPIF for threats to breeding in New Mexico.

Population Size

Total population for state is unknown. PIF estimates a species population of 1,200,000, and that New Mexico holds about 3%, or about 35,000 birds.

Population Trend

Historically, numbers are thought to have been greatly reduced due to loss of riparian habitat across the breeding range (Johnson et al. 1987). In New Mexico, only a single 1907 record of this species was published until Mellinger (1940) established Lucy's Warbler as a common breeding species along the Gila River and lower Rio Grande. Hubbard (1978) states "the species appears to have occupied its present range in New Mexico only since the turn of the century." Lucy's Warbler is poorly sampled by BBS, and no clear trends are shown by existing data. NMPIF assigns a score of 3 for local population trend, indicating uncertainty. Johnson et al. (1997) cite some evidence of long-term declines and local extirpations. BBS data for 1966-2004 are:

	Annual Trend (%)	P-value	Number of Routes
New Mexico	3.9	0.30	3
FWS Region 2	-0.3	0.75	39
Western BBS	-0.3	0.70	42

Threats

The primary threat to Lucy's Warbler in New Mexico is the further loss or alteration of riparian breeding habitat. Degradation and destruction of southwestern riparian habitats has had a heavy impact on this species (Johnson et al. 1987, Knopf et al. 1988). Cowbird parasitism may be a problem in some areas, although Stoleson et al. (2000) observed relatively high nest success and low parasitism along the Gila River. This species may also be threatened by loss or alteration of habitat on its wintering grounds in Mexico; additional studies are needed (Johnson et al. 1997).

Management Issues and Recommendations

Management for Lucy's Warbler should focus on maintenance of healthy riparian habitat in the southern half of New Mexico, from the Rio Grande Valley west.

NMPIF Recommendations

- Maintain closed canopy riparian forest/woodland.
- Maintain snags along streamsides, and limit fuelwood gathering to downed logs.
- Seek opportunities to engage in generalized riparian restoration efforts in potentially suitable habitat.
- Manage grazing as needed to maintain habitat quality and allow regeneration of dominant native vegetation.

Species Conservation Objectives

PIF Objectives

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

NMPIF Objectives

- Seek to maintain or increase the current population in New Mexico.

- Maintain density of 35 pairs per mile along the Gila River (Stoleson and Finch 1998).
- Maintain or enhance suitable habitat to establish 8 pairs per mile in the Rio Grande corridor from Socorro south.
- Maintain populations in the Mexican Highlands.

Sources of Information

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