

# Lucy's Warbler

*Vermivora luciae*



Photo by Martin Meyers

## Conservation Profile

Priority Status	Conservation Target
Reasons for Priority Status	Dependence on restricted habitats Small population size Threats
Other Rankings	Continental PIF: Watch List Audubon Watchlist: Yellow Natural Heritage: S2S3B USFWS: Bird of Conservation Concern (Mojave), Migratory Bird BLM: Sensitive Species NDOW: Conservation Priority
Trends	Historical: Probable declines in parts of range [p1] Recent: Relatively stable [i1]
Population Size Estimates	Nevada (NBC): 2,900 Nevada (PIF): 29,000 Global: 920,000 [p5] Percent of Global: < 1%
Population Objective	TBD
Monitoring Coverage	Source: Nevada Bird Count Coverage and Adequacy: Excellent
Key Conservation Areas	TBD

## Habitat Use Profile

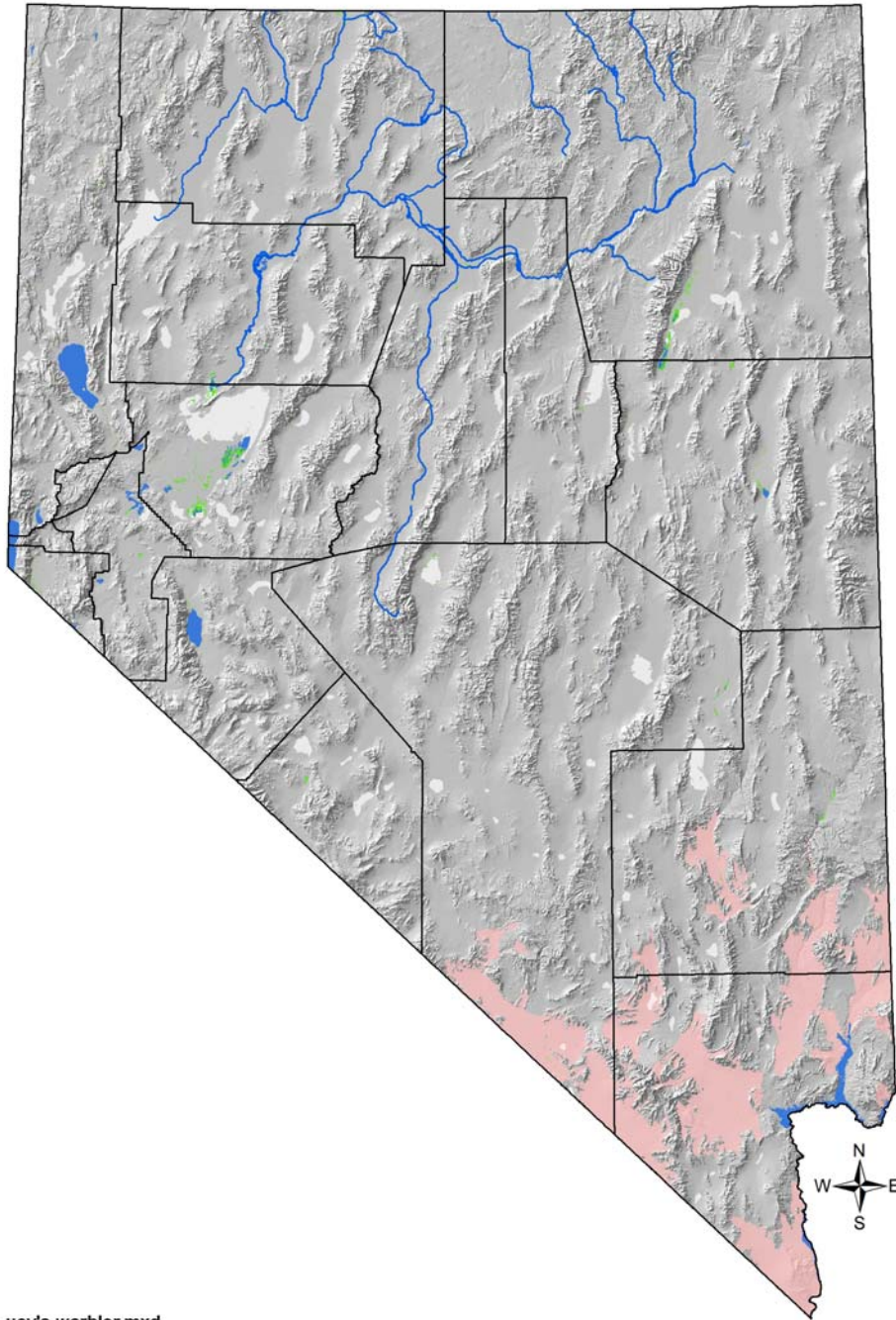
Main Habitats Used in Nevada	Mojave Desert Lowland Riparian Mesquite-Acacia
Key Habitat Use Parameters	Dense riparian mesquite woodland preferred, but upland mesquite woodlands or riparian woodlands containing tamarisk, cottonwood, or willow are also used [p1, p3, p6] Tends to prefer more mature mesquite woodlands [EO] Although data are limited, appears to prefer relatively closed tree canopy (40 – 70%) and little shrub understory [p2] Requires a good cavity substrate and insect prey populations [i6, p3, EO]
Minimum Patch Size	Not determined; no indication of avoidance of small patches Territories small, breeds in high densities, nests spacing may be as small as 30m [p1]

## Natural History Profile

Seasonal Presence in Nevada	Spring – summer
Known Breeding Dates in Nevada	Early March – early August [s4, EO]
Nesting Habits	Nests above ground in pre-excavated cavities, behind bark flakes, or in other cavity-like crevices [p1], ~ 1 – 6 m above ground [i6]
Food Requirements	Exclusively insectivorous [p1]

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File: Lucy's warbler.mxd

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### Temporary Map Key

- Pink: Breeding range
- Hot pink / magenta: For some birds, breeding data was limited, and was supplemented by extrapolation to include likely breeding range. In these cases, hot pink represents known breeding range, and lighter pink the extrapolated breeding range.
- Blue: Winter range
- Yellow: Important migration stopover areas
- Purple: Year-round range
- Green: In some maps, wetlands mapped by SWReGAP are shown in green for interpretational purposes
- Dot symbols: In cases where breeding records were isolated or very restricted in extent, they are represented by a pink dot symbol rather than a shaded area.
- Arrows: Major migration routes. These are shown only for birds for which there are migration-associated conservation issues.

### OVERVIEW

Lucy's Warbler is one of several Conservation Target species that has a restricted southwestern geographical range that includes southern Nevada. Unlike others, however, this unusual cavity-nesting warbler is often present in high densities in patches of suitable habitat, primarily Mojave Lowland Riparian. In addition to nesting in native riparian woodlands, tamarisk also provides an important resource (sometimes the only resource) for Lucy's Warbler in many areas, presenting a dilemma to managers wishing to restore native vegetation along southern Nevada riparian corridors. Unlike some of the other Mojave Lowland Riparian priority species, Lucy's Warbler also makes significant use of non-riparian Mesquite-Acacia. Nevada population estimates generated by the Nevada Bird Count and Partners in Flight produced very different results for Lucy's Warbler, with the NBC data suggesting only a 10<sup>th</sup> of the population size estimated by PIF. The NBC estimate is probably more accurate due to better survey coverage, but this issue needs to be further investigated. Honey mesquite is reportedly a particularly suitable species for nesting habitat.

### ABUNDANCE AND OCCUPANCY BY HABITAT

- NBC data

Lucy's Warbler						
	Primary Habitat Type Present at Transect	No. Transects with Sightings	Nevada Bird Count Sightings per 40 ha			
			average	95% confidence interval**	% transects occupied	
<b>Great Basin</b>	Lowland Riparian	4	6.9	-1.4 - 15.3	0.06 (4/66)	
<b>Mojave</b>	Agriculture	1	0.6	n/a	0.6 (3/5)	
	Lowland Riparian	27	7.3	5.0 - 9.5	0.86 (31/36)	
	Mesquite-Catclaw	6	6.4	-4.1 - 16.9	0.43 (6/14)	
	Montane Riparian	1			0.11 (1/9)	

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- Densities up to 12.5 pairs / ha have been reported in optimum habitat [p1]

### NEVADA-SPECIFIC STUDIES AND ANALYSES

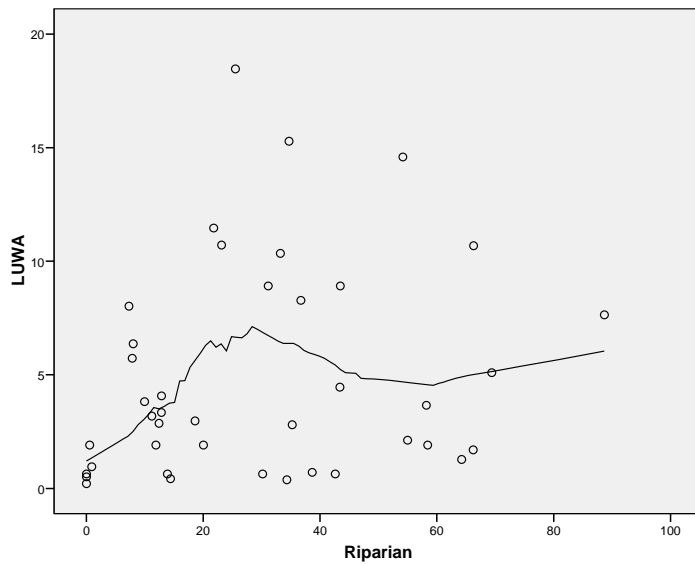
#### Landscape Associations (NBC data)

- Logistic regression p-values for the South region (176 transects):

Veg Type (Proportion)	Coef	S+4 only (logit)	Controlling for LR
Mojave Scrub	-	0.134	0.271
Mesquite-Catclaw	+	<b>0.013</b>	0.001
Salt Desert	-	0.489	
Sagebrush	-	<b>0.117</b>	0.023
Pinyon-Juniper	-	0.376	
Montane Sage	-	0.203	
Montane Riparian	-	0.184	
Coniferous Forest	-	0.486	
Lowland Riparian	+	<b>&lt;0.001</b>	
Agricultural	+	<b>0.003</b>	0.003
Barren/disturbed	+	0.266	0.112
DISTANCE TO WATER	-	<b>0.003</b>	0.006

- Significant positive association with nearby surface water
- Nearly all transects with significant numbers of Lucy's Warblers had at least some Mojave Lowland Riparian habitat present, and this factor also was positively associated with Lucy's Warbler in the logistic regression model.
- A plot of Lucy's Warbler density as a function of percent Lowland Riparian habitat within the transect show an apparent positive relationship (Figure below). It should be noted that Lowland Riparian habitat within southern Nevada is somewhat overclassified by the LandFire EVT layer, which complicates the interpretation of this relationship.

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- Mesquite-catclaw was the second most important predictive variable after controlling for Lowland Riparian, although the raw data suggest that presence of Mesquite-Catclaw is not a requirement. In fact, the five transects showing the highest Lucy's Warbler density had no Mesquite-Catclaw present according to our vegetation map.
- Only two of the transects with Lucy's Warblers present had very high cover of Mesquite-Catclaw and very low cover of Lowland Riparian woodland. A more common pattern was presence of significant Lowland Riparian cover and lesser amounts of Mesquite-Catclaw.

### MAIN THREATS AND CHALLENGES

- Although restoration of native riparian woodland is beneficial in the long-run, removal of large amounts of tamarisk as part of biocontrol or other radical restoration efforts may leave Lucy's Warblers without any suitable nesting habitat in the restoration area
- Fires that cause loss of nesting habitat
- Flood control projects or firewood cutting that eliminate suitable habitat

### CONSERVATION STRATEGIES

#### Habitat Strategies

- General Mojave Desert Lowland Riparian and Mesquite-Acacia conservation strategies

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- Protect mature mesquite stands and Lowland Riparian woodlands within Lucy's Warblers geographical range; manage toward late seral stages
- Restore or create riparian woodland and mesquite stands, BUT
  - For restoration projects involving large-scale tamarisk removal, stagger restoration activity spatially and temporally to avoid removing too much potential habitat in the short-term. Allow establishment of replacement vegetation (and ideally, confirm use by Lucy's Warbler) before expanding restoration

### Research, Planning, and Monitoring

- Continue monitoring to better determine Nevada population size and trends
- Collect additional data on preferred overstory and understory cover
- Develop fire management plans and suppression priorities to favor mature, intact, riparian woodland and mesquite

### OTHER PRIORITY SPECIES WITH SIMILAR CONSERVATION STRATEGIES

- Bell's Vireo

### FURTHER READING

- TBD

#### Temporary codes for standard references

[p1] Birds of N. America account for this species  
[p2] NV Bird Conservation Plan ver. 1 (Neel 1999)  
[p3] NV Wildlife Action Plan  
[p4] Nevada Breeding Bird Atlas  
[p5] PIF N. American Landbird Conservation Plan (Rich et al 2004) (NOTE:  
[p6] Intermountain West Regional Shorebird Plan (Oring et al 2003)  
[p7] Pacific Flyway reports  
[p8] Shrubsteppe Landscapes in Jeopardy (Dobkin and Sauder 2004)  
[p9] Birds in a Sagebrush Sea (Paige and Ritter 1999)  
[s1] NBC-based population size estimates  
[s2, s3] NBC-based habitat relationship analysis  
[s4] Breeding Bird Atlas breeding phenology data  
[i1] BBS trends analysis (Sauer et al 2005)  
[i2] NV Upland Game Management Plan (Espinosa et al in prep.)  
[i3] Western Quail Management Plan (Zornes et al 2008)  
[i4] NDOW Shorebird and Waterbird monitoring data (Neel)  
[i5] Brad Andres IMJV Shorebird / Waterbird data set  
[i6] GBBO Technical Report 08-01 (2008)  
[EO] Expert opinion from NVPIF group members  
[IWWCP] Intermountain West Waterbird Conservation Plan  
[NAWCP] North American Waterbird Conservation Plan

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[LBCUSACP] Long-billed Curlew Status Assessment and Conservation Plan  
[USSCP] U.S. Shorebird Conservation Plan  
[WHSRN] Western Hemispheric Shorebird Regional Network