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# Lucy's Warbler Banding in Southeastern Arizona

Donald W. Lamm

6722 E. Nasumpta Drive  
Tucson, AZ 85715

Lucy's Warbler (*Vermivora luciae*) is a common summer resident in southern Arizona, southwest New Mexico and adjacent areas of neighboring states including Sonora, Mexico (AOU 1983). In Arizona, it breeds mainly in mesquite-cottonwood associations of riparian corridors, most commonly in the Lower Sonoran life zone and less commonly in the Upper Sonoran life zone (Phillips et al. 1964). During the ten year period 1979-1988, 352 were banded and 59 were recaptured at Tanque Verde Guest Ranch in Tucson. (See Walters et al. 1984 for description of the study site and banding program.) Additional banding data for the region were provided by S. M. Russell who banded Lucy's Warblers at seven localities in Arizona and Sonora during the years 1967-1975. This paper analyzes seasonal occurrence, timing of molt and sex identification, and comments on an apparent population decline at the site in the later half of the study.

Lucy's Warblers arrive in southeastern Arizona in the second and third weeks of March (Davis and Russell 1990). The earliest one was banded at Tanque Verde on 13 March 1980. It was a male with a 4 mm cloacal protuberance. Young at one nest fledged on 13 April; the earliest a juvenile was netted was on 17 May. Lucy's Warblers begin to disperse from the Tanque Verde area by mid-July. I believe that the very few birds taken after the end of July are transients rather than local breeders; none was a retrap. Apparently a similar situation exists along the Colorado River (R. Ohmart, pers. comm.). Lucy's Warblers continue to be found elsewhere in southeastern Arizona in August but in considerably diminished numbers. Few are recorded in September and the species is unusual in October (Davis and Russell 1990; G. Monson, pers. comm.). It is not known whether birds that leave their breeding area tend to congregate in favorable locations nearby or if most move directly south and are replaced by migrants. S. M. Russell (pers. comm.) has seen flocks of up to a dozen foraging on a profusion of insects in a tree. The latest, a bird was banded at Tanque Verde was 2 October 1986. To date, there have been no recoveries (D. Bystrak, Bird Banding Laboratory, pers.

comm.).

The data show four instances of light body molt prior to mid-July, all in adult birds. This early molt could have been a consequence of nest failure. During the latter half of July, about half of the adults captured showed body molt plus molt of primaries 3-6. However, the majority of Lucy's Warblers left Tanque Verde during this period. There are only four capture records for August, one of which was an adult and another probably so. Both of these presumed adults were molting primaries and rectrices, and one also showed heavy body molt. Of seven captured in September, four were molting and three were not, the latter all captured in the second half of the month. The two October captures were not molting. These data indicate that the principal period of molt is from mid-July through mid-September, and that most individuals disperse while still molting.

Birds with a cloacal protuberance of at least 4 mm were considered males and had wing measurements of 50-59 mm ( $\bar{x}=55.23$ ,  $SD=1.83$ ,  $n=126$ ). Females were identified by the presence of a brood patch and had wing measurements of 48-59 mm ( $\bar{x}=52.06$ ,  $SD=1.5$ ,  $n=33$ ). Pyle et al. (1987) indicate females have wings 49-56 mm, virtually identical with my findings, but report males as 55-61 mm. I found 18 males below 54 mm and conclude that wing measurement is not a reliable indicator of sex. Data were not taken on the extent and intensity of the rufous crown patch, suggested by Pyle et al. (1987) as a useful sexing characteristic.

Of the 59 recaptures, 16 were in years subsequent to their banding, most of these either one or two years later. Bird number 1950-35395 was banded at Tanque Verde as an adult on 28 May 1981 and was retaken four times, the last on 2 May 1985 when it was at least five years old. Of the 16 subsequent year recaptures, only one was of a bird that had been banded as immature.

For unknown reasons the number captured in 1984-1988

was <50% of the 1979-1983 captures. This decline is puzzling as there has been no apparent environmental change during the period nor has there been any major modification of banding effort. During the latter part of the 10-year period, webworms (*Malacosma incurvum*) were completely eliminated from the area but that may be an unrelated event. It was noted that the number of Brown-headed Cowbirds (*Molothrus ater*) showed a very similar pattern, peaking with 52 banded in 1983 but declining thereafter to 22 in 1985 and 12 in 1987.

## ACKNOWLEDGMENTS

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**Table 1.** Lucy's Warblers Captured at Tanque Verde Ranch, Tucson, AZ. 1979-1988

Year	March		April		May		June		July		August		September		October		TOTAL	
	Band	Recp	B	R	B	R	B	R	B	R	B	R	B	R	B	R	B	R
1979	4		4	2	9	2	20	4	5								42	8
1980	1		1		5	2	20	1	21	2			1				49	5
1981	1		3	2	21	3	18	1	5								48	6
1982			3	1	6	1	26	7	11				2				48	9
1983		1	3	3	4		45	2	6		1						59	6
TOT	6	1	14	8	45	8	129	15	48	2	1		3				246	34
1984	3	1	1	1	5		12	1	1								22	3
1985			3	2	8	3	3	1		1	1						15	7
1986			1	1	1	1	14	1	2						1		19	3
1987			3		6	2	5	1	2								16	3
1988			1		9	1	18	8	3								31	9
TOT	3	1	9	4	29	7	52	12	8	1	1				1		103	25