Distribution of the Light-footed Clapper Rail in California, 1980–1984

Continuing destruction of habitat has made this one of our most endangered birds

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THE FIRST attempt to determine the number of Light-footed Clapper Rails (*Rallus longirostris levipes*) remaining in southern California resulted in an estimate of 500 to 750 birds (Wilbur 1974). A subsequent estimate put the total at about 300 rails (Wilbur *et al.* 1979). The very small population size of this little-known and endangered bird was alarming, and led to detailed investigations, including a search for a more reliably consistent censusing technique. The original population estimates were the result of various techniques employed by numerous observers over several seasons. Clapper Rails are secretive inhabitants of dense marsh vegetation and are not easily counted. But careful monitoring of such a rare bird was considered essential. Consequently, we investigated the potential of the earlier survey and

Light-footed Clapper Rail, Anaheim Bay, Orange Co., California, November 1972. Photo/Dana Echols.

censusing techniques, beginning in 1979

We compared nest counts and call counts in the spring, and discovered the relative ease and consistency of population estimates derived from mapping the locations of calling rails (Zembal and Massey 1981). All of the marshes in southern California known to have Clapper Rails were censused in this way during the spring seasons of 1980 and 1981, and we detected 203 and 173 pairs of rails, respectively. Subsequently, we have censused all of the marshes in southern California with known or suspected populations, within a three- or four-week period early each spring. Spontaneous vocalizations were mapped where large numbers of birds occur, and playback of recorded calls was used to elicit responses where they occur in low numbers.

In this paper we discuss the distribution and status of this endangered subspecies, following five consecutive years of censusing the known California population, 1980–1984.

SIZE AND DISTRIBUTION OF THE POPULATION

In California, Light-footed Clapper Rails currently inhabit a handful of coastal marshes from Carpinteria, in Santa Barbara County, to Tijuana Marsh on the Mexican border. We have now censused a total of 35 marshes throughout this range and have found Clapper Rails in 21 of them. Between 1980 and 1984, the total number of birds detected in the state has varied from 173 to 277 pairs per year (Table 1). Most of the rails have been concentrated in six marshes—Carpinteria Marsh, Anaheim Bay, Upper Newport Bay, Kendall-Frost Reserve, Sweetwater Marsh, and Tijuana Marsh. The number of birds detected in these six marshes has varied from 85.5% to 94.6%, and averaged 88.1%, of the state's total. Upper Newport Bay has consistently held the largest number of rails of any marsh, with up to 3.7 times the number found in the next largest population. The number of birds in Upper Newport Bay alone has represented up to 48.3% of the entire state's total.

Individuals of this endangered race are also found as far south as San Quintin Bay, Baja California (Bent 1926). A partial census in 1981 (20% to 25% of the habitat was censused) led to an estimate of about 800 pairs of Light-footed Clapper Rails in Mexico (Zembal and Massey 1981). However, the security of the habitat in Mexico is tenuous and the bird's status south of the border still awaits a thorough examination.

Table 1. Census of the Light-footed Clapper Rail in California, 1980–1984.

Location	*Number of Pairs Detected in*				
	1980	*1981*	*1982*	*1983*	*1984*
Santa Barbara County					
Goleta Slough	0	0	—[a]	0	—
Carpinteria Marsh	16	14	20	18	26
Ventura County					
Ventura River Mouth	—	—	0	0	—
Santa Clara River Mouth	—	—	0	—	—
Mugu Lagoon	—	0	—	1	3
Los Angeles County					
Whittier Narrows Marsh	—	—	—	*[b]	0
Orange County					
Anaheim Bay	30	19	28	20	24
Bolsa Chica	0	0	0	0	—
Huntington Beach Strand	—	0	—	—	—
Upper Newport Bay	98	66	103	112	112
San Joaquin Reserve Marsh	—	—	5	4	1
San Joaquin-Carlson Road Marsh	—	—	5	4	2
San Diego County					
San Mateo Creek Mouth	—	—	0	0	—
Las Pulgas Canyon Mouth	—	—	0	0	0
Las Flores Marsh	—	—	0	0	0
French Canyon Mouth	—	—	—	0	0
Cocklebur Canyon Mouth	—	—	1	0	0
Santa Margarita Lagoon	0	0	2	1	2
San Luis Rey River Mouth	—	—	0	0	—
Guajome Lake Marsh	—	—	0	1	2
Buena Vista Lagoon	0	0	0	*	0
Agua Hedionda Lagoon	1	2	1	7	6
Batiquitos Lagoon	0	0	0	0	0
San Elijo Lagoon	—	5[c]	4	4	10
Los Penasquitos Lagoon	—	0	—	0	0
Kendall-Frost Reserve	18	16	6	20	24
San Diego R. Flood Control Channel	—	3	1	2	2
Paradise Creek Marsh	1	2	3	1	1
Sweetwater Marsh	4	5	7	6	14
E Street Marsh	3	1	3	3	2
F Street Marsh	—	1	1	0	1
J Street Marsh	—	1	0	0	—
Otay River Mouth	3	4	5	3	5
South Bay Marine Reserve	3	3	1	1	2
Tijuana Marsh (Oneonta Lagoon)	26	31	25	41	38
Totals: number of pairs	203	173	221	249	277
number of marshes	11	15	18	18	19

[a]The — means no census was taken.
[b]The * means that at least one pair of rails was present in winter at each marsh, but presence during the breeding season was not confirmed.
[c]Data are from Paul Jorgensen's unpublished field notes.

CURRENT STATUS

Fluctuations in the total number of Clapper Rails detected in the state have coincided with changes in weather conditions. The lowest population level observed was documented during Spring, 1981, following unusually heavy winter and early spring storms. Storm-driven tides and runoff disrupt nesting habitat and probably result in reduced food supplies, as well (Massey *et al.* 1984, Zembal and Massey 1983). Since 1981, the winters have been relatively mild, and very mild in 1984, and there has been a concurrent increase in the detected population in the state. The vulnerability of Clapper Rail habitat to storm conditions has alerted us to the potential disaster that could accompany extreme winters. With so few Clapper Rails concentrated in such a small number of marshes, a very extreme winter or several in succession could devastate the remaining habitat and population.

Because of the structure of the coastline of southern California, there never

has been a very large acreage of coastal marsh habitat (Barbour and Major 1977). Past and present land uses have reduced what may at one time have been 26,000 acres of mostly salt marsh along the coast to not more than 8500 acres (Speth 1971). The marshes occupied by Light-footed Clapper Rails currently total only about 3000 acres, and the birds occur mostly in very low densities. In comparison, the newly revised recovery plan for this subspecies sets a goal of 800 pairs of birds in 20 secure marshes, totalling 10,000 acres, just to bring the race up to threatened status (Franzreb 1982). To attain the beginnings of security for this race therefore, the current population and occupied habitat in California would both need to be about tripled. This would require a substantial acreage of marsh in addition to that which currently exists, along with restoration of many existing marshes.

We now have some knowledge of the habitat requirements of the Light-footed Clapper Rail (Massey *et al.* 1984) and have theoretically determined methods for improving marsh habitat for this subspecies. The characteristics of productive rail habitat have been determined through comparisons between habitat that supports large *vs.* small numbers of Clapper Rails, and habitat that is currently unoccupied (Zembal and Massey 1981, 1983). Habitat that is maximally productive for Light-footed Clapper Rails supports thousands of other organisms as well The high wildlife values and the aesthetic, recreational, and educational benefits associated with healthy marshlands are well known and should operate as an additional incentive for marsh creation and restoration projects.

In summary, the actions necessary to achieve a partially secure status for this race must focus on protection, restoration, creation, and management of habitat The necessary measures would include 1) protecting all of the existing habitat; 2) increasing the size of each of the small existing populations by improving the habitat; 3) creating new habitat, partly through restoration projects in currently unoccupied wetlands; 4) stocking newly created and restored marshes, if necessary; 5) securing the population in Mexico through protection and management of its habitat; and 6) continued monitoring and study of the population, aimed at refining the habitat restoration and management techniques to ensure the greatest possible benefit from the recovery efforts.

Considering the small size of the population and the vulnerability of the small area of remaining habitat, the Light-footed Clapper Rail must be considered one of our most endangered birds. Furthermore, continued loss and degradation of habitat have greatly increased the effort necessary to restore this race to safe population levels and non-endangered status. The plight of the Light-footed Clapper Rail should dictate an urgency in using our current knowledge and providing additional suitable habitat.

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