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SIGHTINGS OF LESSER SANDHILL CRANES COLOR-MARKED IN CALIFORNIA

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Abstract.—Lesser Sandhill Cranes (*Grus canadensis canadensis* L.) color-marked in California's Central Valley were observed in southcoastal Alaska, British Columbia, Oregon, and California, and belong to the Pacific flyway population. Sightings and band recoveries of marked Sandhill Cranes from the mid-continent population were not sighted or recovered west of the continental divide or south of the Alaska Range. This confirms that the Pacific flyway population is distinct from the mid-continent population. Marked cranes were observed repeatedly at the same locations during the same season and in subsequent years, suggesting that they have seasonal and annual site-fidelity.

INFORMES DE GRULLAS (*GRUS CANADENSIS CANADENSIS*) MARCADAS EN CALIFORNIA

Resumen.—Grullas (*Grus canadensis canadensis*) capturadas en California y que fueron marcadas en las patas y el pescuezo con anillas plásticas rojas, fueron luego observadas en Alaska, Columbia Británica, Oregón y California. Grullas de la población centro-continental no fueron observadas o recobradas al oeste o al sur de las Montañas de Alaska. Esto confirma que la población del Pacífico es distinta a la centro-continental. Las grullas anilladas fueron observadas posteriormente en las mismas localidades y en las mismas épocas en años subsiguientes, lo que sugiere fidelidad a las áreas que estas visitan.

There are two recognized populations of Lesser Sandhill Crane (*Grus canadensis canadensis* L.). Approximately 400,000 birds winter in Texas, New Mexico, Arizona, Oklahoma, and northern Mexico (Iverson et al. 1985) and belong to the mid-continent population (Central Flyway Council 1981). These cranes migrate through the great plains, east of the continental divide, and north of the Alaska Range to summering grounds in northern Canada, Alaska, and northeast Siberia (Boise 1979, Kessel 1984, Tacha et al. 1984). The Pacific flyway population of approximately 25,000 cranes winters in California (Littlefield and Thompson 1982) and is presumed to nest in the lowlands surrounding Cook Inlet and Bristol Bay in southcoastal Alaska (Herter 1982, Pogson 1987). Walkinshaw (1949) suggested Lesser Sandhill Cranes wintering in California migrated west of the Rocky Mountains. To determine the geographic distribution

of the Pacific flyway population, a color-marking study was undertaken in 1980. Our objective is to describe the geographic distribution of the Pacific flyway population of Lesser Sandhill Cranes. This information is necessary to establish the geographic area within which conservation measures can be undertaken to protect and enhance this population of cranes (Pacific Flyway Council 1983).

METHODS

Fifty cranes were captured with a recoilless rocket-net (Ramakka 1979, Wheeler and Lewis 1972) at Merced National Wildlife Refuge in California's Central Valley during February and March 1980 (n = 45) and 1983 (n = 5). The birds were marked with 63 mm high red plastic leg and neck bands with white alpha-numeric codes for individual identification.

All sightings consist of a unique record of an individual marked crane at a different geographic location per season. To assess annual and seasonal site fidelity, we measured distances between successive sightings of individuals at the same geographic location in different years (annual) and individuals seen in more than one month during the same season (seasonal). The number of Pacific flyway population cranes counted during age-ratio counts, flock-activity scans, and censuses represent an estimate of the effort expended in locating marked cranes.

RESULTS AND DISCUSSION

Fifty-nine sightings of Lesser Sandhill Cranes marked in California's Central Valley were obtained from California, Oregon, British Columbia, and Alaska (Table 1, Fig. 1). The sightings confirm that these cranes migrate west of the continental divide and through British Columbia and continue to southeastern and southcoastal Alaska. There have been no observations or band recoveries from California, Oregon, Washington, British Columbia or southcoastal Alaska of more than 3000 cranes marked in the mid-continent population (Kessel 1984, Tacha et al. 1984), providing additional evidence for the distinctness of the Pacific flyway population from the mid-continent population.

We neither made nor received sightings of marked cranes from nesting areas where the population is widely dispersed over large inaccessible areas. The only sightings in Alaska occurred at migratory stopover areas. One juvenile crane color-marked on the north shore of Bristol Bay in Alaska was observed in Oregon and California, suggesting a portion of the Pacific flyway population nests in the lowlands surrounding Bristol Bay (Pogson 1987). Absence of sightings from Washington is puzzling, however few Washington observers were aware of the marking program and they did little searching for marked birds at traditional stopover areas (R. Friesz, pers. comm.). Few Lesser Sandhill Cranes stop in eastern Oregon during fall migration (Littlefield and Thompson 1982), explaining the absence of fall sightings there. Sightings of marked individuals

TABLE 1. Sightings of Lesser Sandhill Cranes color-marked at Merced National Wildlife Refuge in the Central Valley, California, 1980 and 1983. Spring and fall seasons denote migration periods.

State/Province	Season	Year	No. of cranes viewed[a]	No. of sightings of marked cranes
Alaska	Spring	1980	1200	2
	Fall	1980	6500	2
	Fall	1981	11,854	3
	Spring	1985	—[b]	1
	Sub-total		19,554	8
British Columbia	Fall	1984	—	1
Oregon	Spring	1980	4000	5
		1981	2000	2
		1982	6100	7
		1983	—	1
		1985	4305	3
	Sub-total		16,405	18
California	Winter	1980–1981	2000	4
		1981–1982	6357	9
		1982–1983	4447	4
		1983–1984	7154	7
		1984–1985	6124	6
		1985–1986	6800	2
	Sub-total		32,882	32
Total			68,841	59

[a] Number of cranes viewed well enough to detect the presence of marked birds.
[b] — = no data available.

are on file with Merced National Wildlife Refuge, Los Banos, California, and the U.S. Fish and Wildlife Service, Portland, Oregon.

Seven marked cranes were observed in the same locations in different years, four at winter areas, and three at spring stopover areas. When resighted, these cranes were an average of 2.1 ± 1.1 (SD) km from where they were first observed (range = 0.6–4.3 km, n = 11). Four individuals were observed in the same geographic location during more than one month in the same season, all during winter. These cranes were an average of 2.7 ± 2.5 km from where they were first observed (range = 0.0–8.2 km, n = 10). Six individuals were observed at more than one geographic location in different seasons, but none was observed at different locations during any given season. These results are similar to those reported by Drewien and Bizeau (1974) in New Mexico during winter and Tacha et al. (1984) in the Platte River Valley during spring migration. To some degree, our data on site fidelity reflect the accessibility of locations to observe cranes. However, resightings of marked cranes were not obtained at many locations that were accessible. Radio-telemetry studies would

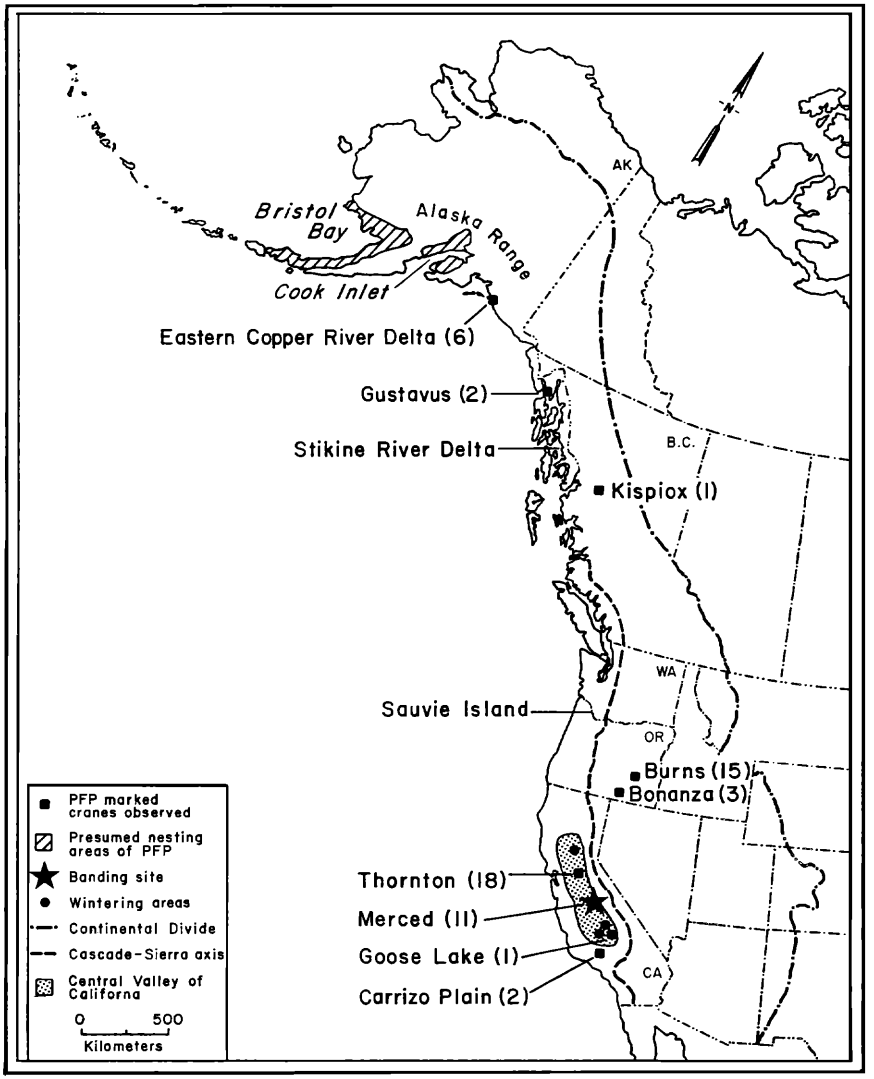

FIGURE 1. Distribution of sightings of Lesser Sandhill Cranes color-marked in California.

greatly improve our understanding of site fidelity in sandhill cranes (see Drewien et al. 1987).

All marked cranes observed were members of flocks and appeared to be accepted members of their groups. After the initial capture, however, they exhibited some abnormal behavior for several days, including roosting alone or at the edge of a flock, and reluctance to feed or fly. In a few months marked cranes exhibited normal behavior, were observed winning

agonistic encounters and feeding normally. Several were observed to feed juveniles, presumably their own progeny.

Although the Pacific flyway and mid-continent populations are distinct, the precise boundary between their breeding ranges, if it exists, is unknown. Only color-marking or radio-tagging cranes on breeding areas in southwestern Alaska (see Fig. 1), followed by observations during migration and winter could define the geographic boundary between these two populations of Lesser Sandhill Cranes.

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