

Sandhill Crane

PROGRESS REPORT: CALFED SANDHILL CRANE RESEARCH PROJECT, BANDING AND MIGRATION, OCTOBER 2007-AUGUST 2008.

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ABSTRACT

CALFED, a consortium of state and federal agencies in California, funded Project# ERP 05 S31: Sandhill Crane Use of Agricultural Lands in the Sacramento-San Joaquin Delta Region (U.S. Geological Survey 2005), for the winters of 2007-08 and 2008-09. To satisfy the objectives of the study, 32 greater sandhill cranes (*Grus canadensis tabida*) and 30 lesser sandhill cranes (*G. c. canadensis*) were captured and radio-marked with VHF radios and tracked using radio-telemetry, as well as visual sightings, from October 2007-March 2008. An additional 16 of the lesser subspecies were marked in Oregon (6) and Alaska (10) in the spring and summer of 2008 to increase our sample size for birds to be monitored in the study area in California the following winter. Supplemental surveys were conducted to determine migration and nesting areas in the spring and summer of 2008 in California, Oregon, Washington, and Alaska, with help from agency biologists and private citizens. This report focuses on the capture information of these cranes and their movements after leaving the wintering area. Greater sandhill cranes (greater) were located at presumed nesting sites from Sattley, Sierra County, California, to Seneca, Grant County, Oregon. Lesser sandhill cranes (lessers) were found at nesting areas on the south coast of Alaska, from Homer, on the Kenai Peninsula, to Dillingham, in Bristol Bay.

INTRODUCTION

Greater and lessers winter in the Sacramento-San Joaquin Delta (Delta) for approximately six months, usually from early September to early March. Greater are of the Central Valley Population and breed in southeast Oregon (Ivey and Herziger 2000), northeast California (Ivey and Herziger 2001), Washington (Littlefield and Ivey 2002), Nevada (see Ivey and Herziger 2001), and interior British Columbia, Canada (Pacific Flyway Council 1997). This subspecies is listed as Threatened in California (California Department of Fish and Game 1994) and Sensitive in Oregon (Oregon Department of Fish and Wildlife 1997). Lessers are of the Pacific Flyway Population, and are thought to breed only in Alaska (Pacific Flyway Council 1983), but may also breed in Siberia, Russia. They are a Species of Special Concern in California (Point Reyes Bird Observatory Conservation Science 2008). All sandhill crane subspecies are considered Endangered in Washington (Littlefield and Ivey 2002) and Vulnerable on British Columbia's "Blue List" (Blood and Backhouse 1999).

In conjunction with Gary Ivey's PhD proposal at Oregon State University (OSU), a grant was received from CALFED to the U.S. Geological Survey (USGS) and OSU to capture and monitor both subspecies on their wintering grounds in California to 1) characterize crane foraging habitat use in the agricultural landscape, 2) characterize properties of crane roost sites and correlate

crane use with characteristics, 3) estimate sandhill crane abundance and characterize distribution, 4) document timing of arrival, abundance, and subspecies composition at use areas, and 5) characterize daily movements of lesser and greater sandhill cranes between roosts and foraging fields, and seasonal movements between use areas to define winter home range. This report focuses on the capture information of the cranes and their movements after leaving their wintering area in the Delta. The results for the five objectives will be summarized in the PhD dissertation and subsequent publications.

TRAPPING AREAS

On the wintering grounds of the Delta, trapping efforts were at two sites: the central area of the Cosumnes River Preserve (CRP), Sacramento County, owned primarily by The Nature Conservancy (TNC) and the Bureau of Land Management; and Staten Island (Staten), San Joaquin County, owned by TNC (Figures 1-2). The lesser subspecies is thought to have a larger winter home range (Ivey and Herziger 2003) and were more difficult to locate regularly. Therefore, additional efforts to trap lessers were focused at Ladd Marsh Wildlife Area (WA), near La Grande, Union County, Oregon (a migration site), and near Homer, on the Kenai Peninsula, Alaska (a nesting area) (Figure 1).

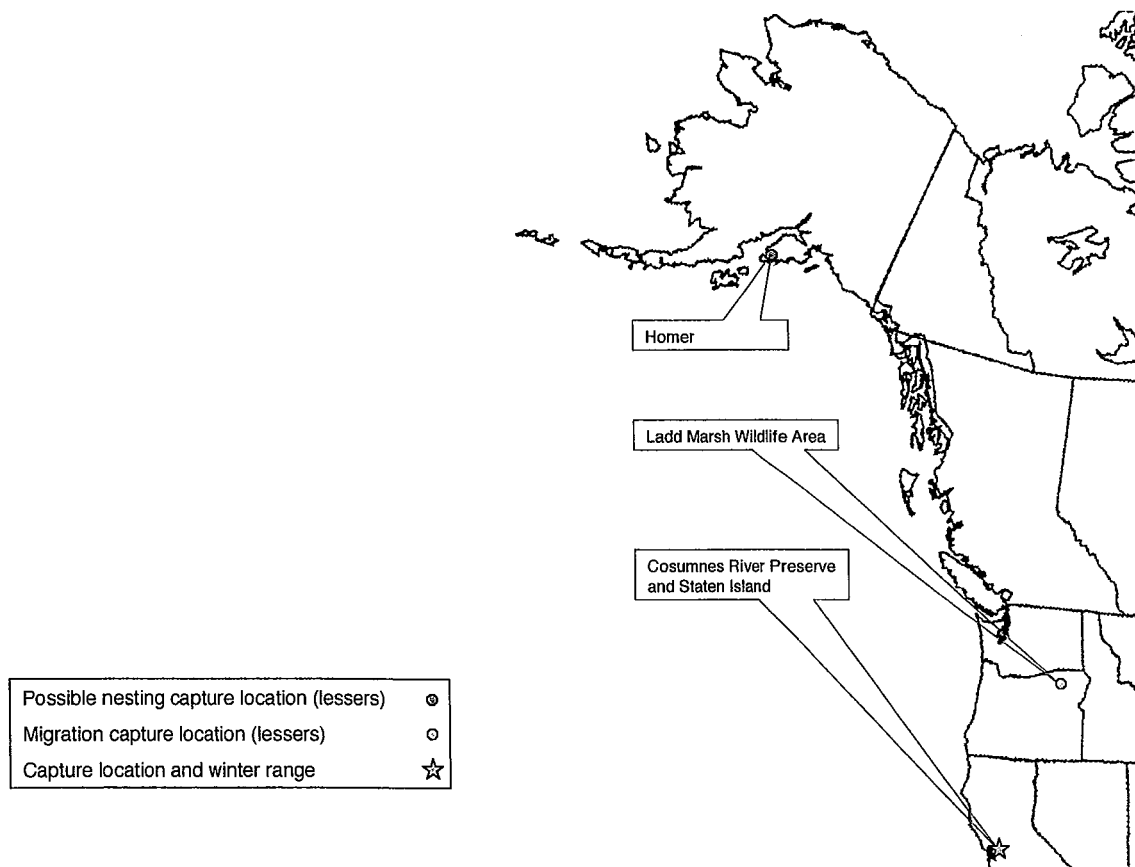


Fig. 1. Sandhill cranes capture locations, CALFED Sandhill Crane Research Project, 2007-08.

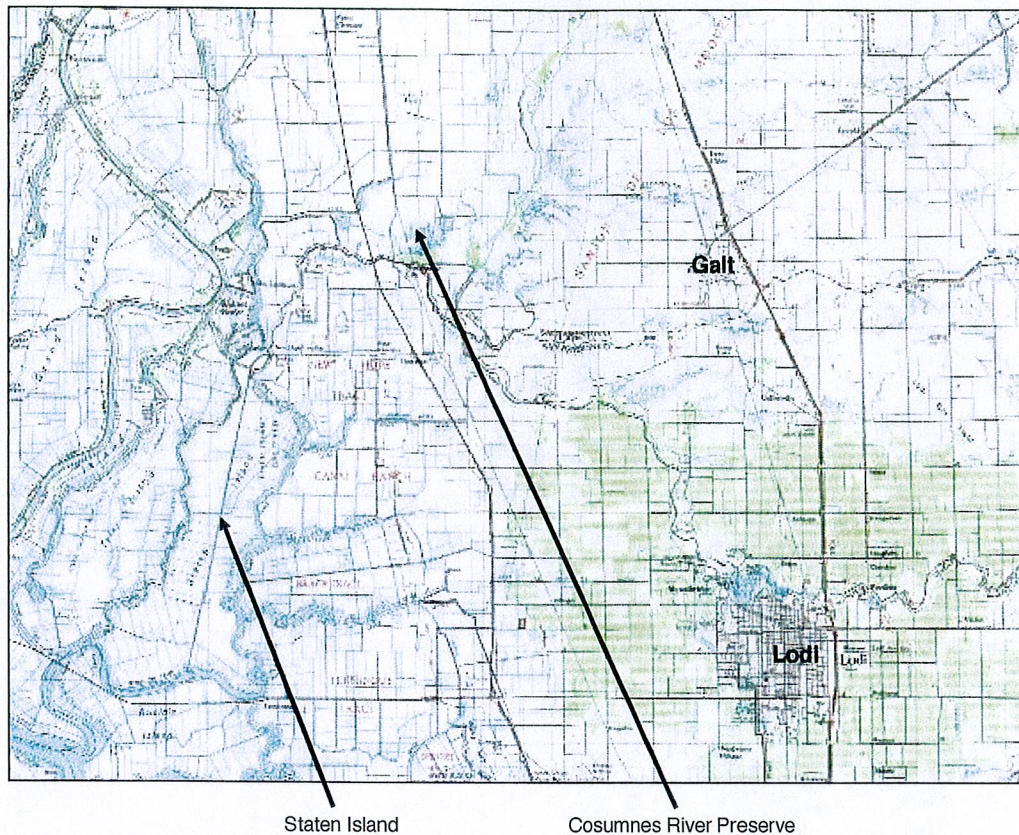


Fig. 2. Sandhill cranes capture locations on wintering grounds, CALFED Sandhill Crane Research Project, 2007-08.

METHODS

At CRP and Staten, both subspecies were captured using standard rocket netting and nooseline techniques. Trapping efforts began in October 2007, and continued through late February 2008. VHF radios weighing 32 grams (SirTrack, New Zealand) and a plastic band with an engraved numeric code (Haggie Engraving, Crumpton, MD) were attached above the tibio-tarsal joint of the leg using rivets. In addition, unique color combinations of shorter plastic and federal bands were added so that individuals could be more readily identified with spotting scopes in the field.

To capture additional lessers, rocket netting was employed at Ladd Marsh WA in April 2008, and nooselines were used at sites near Homer in August 2008. The latter birds were also equipped with Platform Transmission Terminals (SirTrack) to track them via satellites as part of a study for the International Crane Foundation, Baraboo, Wisconsin.

After monitoring the radio-marked cranes through the winter, we conducted several intermittent surveys of many known migration and nesting areas in California and Oregon between April and August 2008. Radio telemetry techniques were employed using roof-mounted dipole antennas

(Cushcraft, Manchester, NH) and Advanced Telemetry Systems receivers (Isanti, MN). Since cranes often use remote locations, finding them was problematic, especially with a radio range of usually 1.5 miles (2.4 km) on the ground. One aerial survey on 16 July located several birds. Agency biologists reported a few marked birds as well. We did not attempt to locate nests, but considered that most birds located in potential breeding habitat during the nesting season were on their nesting territories (some may have been nonbreeders, and some were chicks at capture, and were too young to be nesting).

In central Washington and coastal Alaska, records were provided by biologists using ground and aerial telemetry, as well as visual sightings. No flights were conducted specifically for these cranes in Alaska; however, biologists did scan for them while conducting other surveys.

RESULTS

Captured cranes on the wintering grounds: The number of radio-marked cranes captured and marked at CRP and Staten was 32 greater and 29 lessers for a total of 61 (Table 1). Five were captured in October, seven in November, 21 in December, 13 in January, and 15 in February. Fifty-three (86.9%) of the birds captured were adults.

At CRP, 44 cranes were captured at 14 sites (26 greater and 18 lessers) (Figure 3). Rocket netting captured 25 greater and 17 lessers, and nooselines captured one of each of the subspecies. Four were chicks (one greater, three lessers).

At Staten, 17 cranes were captured at six sites (six greater and 11 lessers) (Figure 4). Rocket netting captured six greater and eight lessers, and nooselines captured three lessers. Four were chicks (all lessers).

Captured cranes at other sites: Six lessers (five adults and one chick) were captured at one site at Ladd Marsh WA on 10 April 2008 (Table 1, Figure 5), and ten adult lessers near Homer at three sites from 5 August – 15 August 2008 (Table 1, Figure 6).

Table 1. Migration and probable nesting locations of radio-marked cranes from CALFED Sandhill Crane Research Project, 2007-08.

GREATERS

Radio # ¹	Date banded	Capture Location ²	Migration location	Migration date	Observer ³	Nesting location? ⁴	Nesting date? ⁵	Observer ³
Z001	11/09/07	CRP				Adel, OR	4/2/08, 4/10/08	CH, MSL
Z002	10/17/07	CRP				Likely, CA	4/1/08	CH
Z003	10/17/07	CRP				Likely, CA	4/1/08	CH
Z004	10/22/07	CRP	Likely, CA	4/1/08, 7/16/08	CH, GI			
Z005	10/24/07	CRP				Alturas, CA	4/22/08, 6/7/08	SC, CH
Z006	11/03/07	CRP	Likely, CA	4/1/08, 7/15/08	CH, GI			
Z007	11/06/07	CRP				Likely, CA	4/1/08, 7/15/08	CH, GI
Z008	11/15/07	CRP				Likely, CA	4/1/08, 6/6/08	CH, CH
C009	12/29/07	CRP				Seneca, OR	6/21/08	CH
Z009	11/30/07	CRP				Burns, OR	3/24/08-4/27/08	GI
C010	12/29/07	CRP						
Z010	12/01/07	CRP	Likely, CA	4/1/08, 7/15/08	CH, GI			
Z011	12/06/07	CRP				Burns, OR	3/24/08-5/1/08	GI, GS, CN
Z012	12/15/07	CRP						
Z013	12/15/07	CRP				Burns, OR	4/5/08	GI
Z014	12/15/07	CRP	N. Sacramento Valley, CA	2/26/08	GI			
Z015	12/15/07	CRP				Sattley, CA	4/11/08, 6/4/2008	EH, CG
Z016	12/21/07	CRP				Alturas, CA	3/14/08, 6/7/08	SC, CH
Z017	12/21/07	CRP				Alturas, CA	3/14/08, 6/7/08	SC, CH
Z018	12/29/07	CRP				Silvies, OR	6/20/08	CH
Z019	12/29/07	CRP						
Z020	01/21/08	Staten (central)	N. Sacramento Valley, CA	2/11/08	GI	Alturas, CA	4/11/08, 7/16/08	EH, GI
Z021	12/31/07	CRP						
Z022	12/31/07	CRP				Burns, OR	3/24/08-5/1/08	GI, CN
Z023	12/31/07	CRP				Paisley, OR	3/31/08-6/6/08	CH
Z024	12/31/07	CRP				Andrews, OR	7/2/08	CH
Z025	12/31/07	CRP				Andrews, OR	7/2/08	CH
Z026	01/29/08	Staten (south)	Lakeview, OR	3/31/08-4/3/08	CH			
Z027	01/29/08	Staten (south)				Andrews, OR	6/30/08, 7/2/08	RG, CH
Z028	01/29/08	Staten (south)				Burns, OR	4/27/08	GI
Z029	01/29/08	Staten (south)				Andrews, OR	6/30/08, 7/2/08	RG, CH
Z030	01/29/08	Staten (south)				Andrews, OR	7/2/08	CH

Table 1 (cont'): Migration and probable nesting locations of radio-marked cranes from CALFED Sandhill Crane Research Project, 2007-08.

LESSERS

Radio # ¹	Date banded	Capture Location ²	Migration location	Migration date	Observer ³	Nesting location? ⁴	Nesting date?	Observer ³
C001	10/23/07	GRP	Adel, OR	4/2/08	CH			
C002	11/24/07	Staten (north)						
C003	11/27/07	Staten (north)				Homer, AK	4/23/08, 8/7/08	EB, GI, CH
C004	12/03/07	GRP						
C005	12/03/07	GRP						
C006	12/03/07	GRP						
C007	12/12/07	Staten (north)						
C011	01/10/08	GRP	Othello, WA	3/14/08-3/18/08	RH			
C013	01/10/08	GRP	Othello, WA	3/14/08	RH			
C014	01/10/08	GRP	Othello, WA	3/14/08-3/18/08	RH			
C015	01/10/08	GRP	Othello, WA	3/14/08	RH			
C016	01/23/08	Staten (south)	Paisley, OR	4/3/08-4/10/08	CH, MSL	Homer, AK	5/6/08-5/13/08	OB, EB
C017	01/23/08	Staten (south)	Cedarville, CA	4/1/08	CH	Dillingham, AK	5/29/08	EM
C018	01/23/08	Staten (south)	Othello, WA	3/20/08-4/10/08	RH			
C019	02/06/08	GRP	Cedarville, CA; Cordova, AK	4/1/08; 4/21/08	CH, ND			
C020	02/06/08	Staten (south)	Burns, OR	3/24/08	GI	Homer, AK	5/7/08	OB
C021	02/06/08	Staten (south)	Burns, OR	3/24/08-4/5/08	GI			
C022	02/09/08	Staten (south)						
C023	02/10/08	Staten (south)						
C024	02/17/08	GRP	Roswell, ID	3/25/08-4/11/08	GI, CM			
C025	02/17/08	GRP	Roswell, ID	3/25/08-4/11/08	GI, CM			
C026	02/17/08	GRP	Roswell, ID	3/25/08-4/11/08	GI, CM	Homer, AK	5/1/08	OB
C027	02/23/08	GRP	Othello, WA; Cordova, AK	3/20/08, 4/21/08	RH, ND			
C028	02/23/08	GRP	Othello, WA	3/21/08-3/26/08	RH			
C029	02/26/08	GRP				Homer, AK	4/21/08, 8/3/08	OB, CH
C030	02/26/08	GRP						
C031	02/27/08	GRP	Ladd Marsh WA, OR	4/21/08-4/22/08	CN			
C032	02/27/08	GRP	Ladd Marsh WA, OR	4/21/08-4/22/08	CN			
C033	02/27/08	GRP	Ladd Marsh WA, OR	4/10/08-5/29/08	CN	Dillingham, AK	5/29/08	EM
C034	04/10/08	Ladd Marsh WA, OR	Ladd Marsh WA, OR	4/10/08-5/29/08	CN			
C035	04/10/08	Ladd Marsh WA, OR	Ladd Marsh WA, OR	4/10/08-4/23/08	CN			
C036	04/10/08	Ladd Marsh WA, OR	Ladd Marsh WA, OR	4/10/08-4/11/08	CN			

Table 1 (cont.). Migration and probable nesting locations of radio-marked cranes from CALFED Sandhill Crane Research Project, 2007-08.

Radio # ¹	Date banded	Capture Location ²	Migration location	Migration date	Observer ³	Nesting location? ⁴	Nesting date?	Observer ³
C037	04/10/08	Ladd Marsh WA, OR	Ladd Marsh WA, OR	4/10/08-4/22/08	CN			
C038	04/10/08	Ladd Marsh WA, OR	Ladd Marsh WA, OR	4/10/08-4/11/08	CN			
C039	04/10/08	Ladd Marsh WA, OR	Ladd Marsh WA, OR	4/10/08-4/23/08	CN			
C040	08/05/08	Homer, AK						
C041	08/05/08	Homer, AK						
C042	08/06/08	Homer, AK						
C043	08/07/08	Homer, AK						
C044	08/07/08	Homer, AK						
C045	08/09/08	Homer, AK						
C046	08/09/08	Homer, AK						
C047	08/09/08	Homer, AK						
C048	08/12/08	Homer, AK						
C049	08/15/08	Homer, AK						

- 1 No C008 or C012
- 2 CRP = Cosumnes River Preserve (central area), Galt, CA
 Staten = Staten Island, Walnut Grove, CA
 Ladd Marsh WA = Ladd Marsh Wildlife Area, La Grande, OR
- 3 EB = E. Bailey, Homer
 OB = O. Badajos, Alaska Department of Fish and Game
 SC = S. Cross, U.S. Fish and Wildlife Service
 ND = N. Dawson, Prince William Sound Science Center
 CG = C. Gallagher, U.S. Forest Service
 RG = Ron Garner, Oregon Department of Fish and Wildlife
 CH = C. Hertziger, Oregon State University
 EH = E. Huggins, U.S. Fish and Wildlife Service
 RH = R. Hill, U.S. Fish and Wildlife Service
 GI = G. Ivey, Oregon State University
 CM = C. Moulton, Idaho Department of Fish and Game
 EM = E. Mallek, U.S. Fish and Wildlife Service
 CN = C. Nowak, Oregon Department of Fish and Wildlife
 GS = G. Sheeter, Burns
 MSL = M. St. Louis, Oregon Department of Fish and Wildlife
- 4 Site may be a nesting location, but there was no effort to locate nests

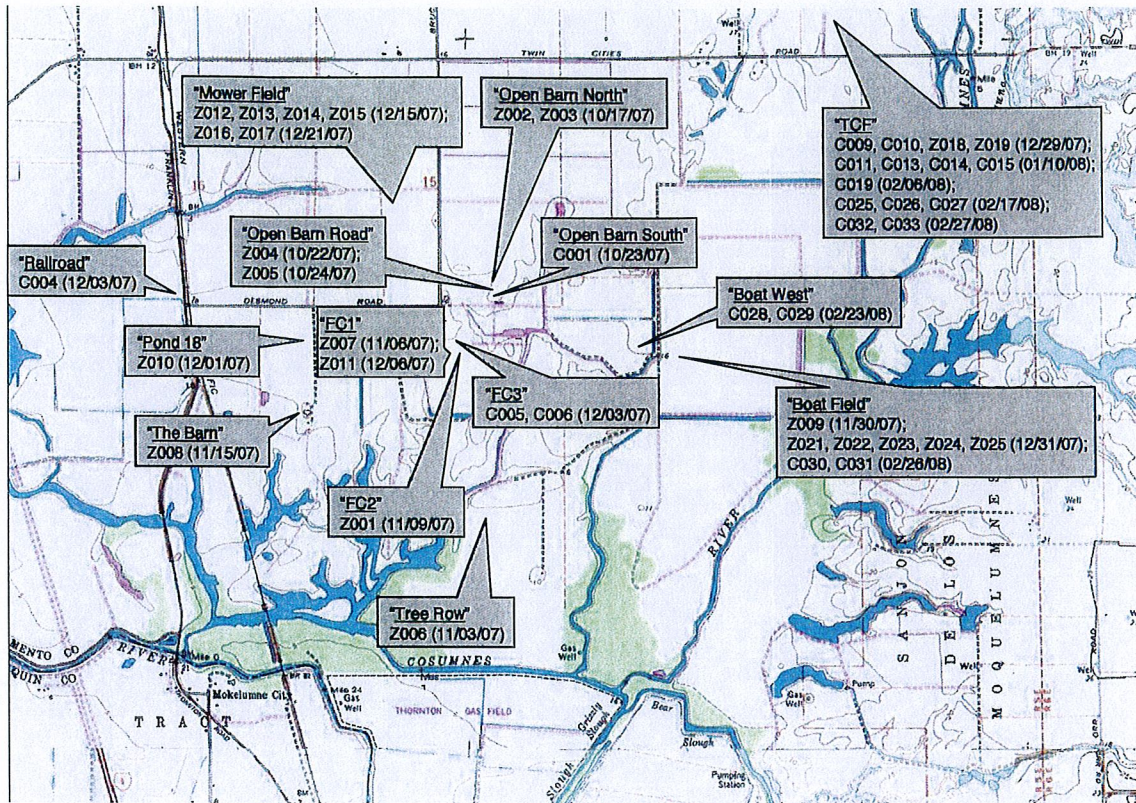


Fig. 3. Sandhill cranes captured at Cosumnes River Preserve, CA, CALFED Sandhill Crane Research Project, 2007-08.

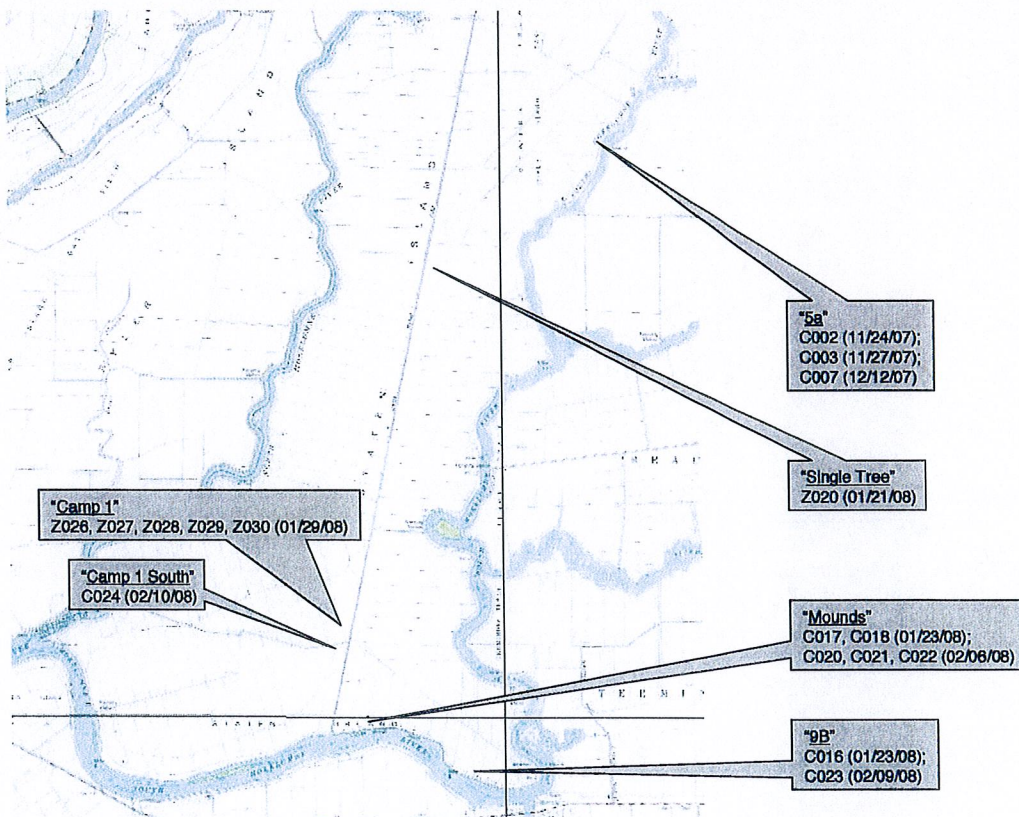


Fig. 4. Sandhill cranes captured at Staten Island, CA, CALFED Sandhill Crane Research Project, 2007-08.

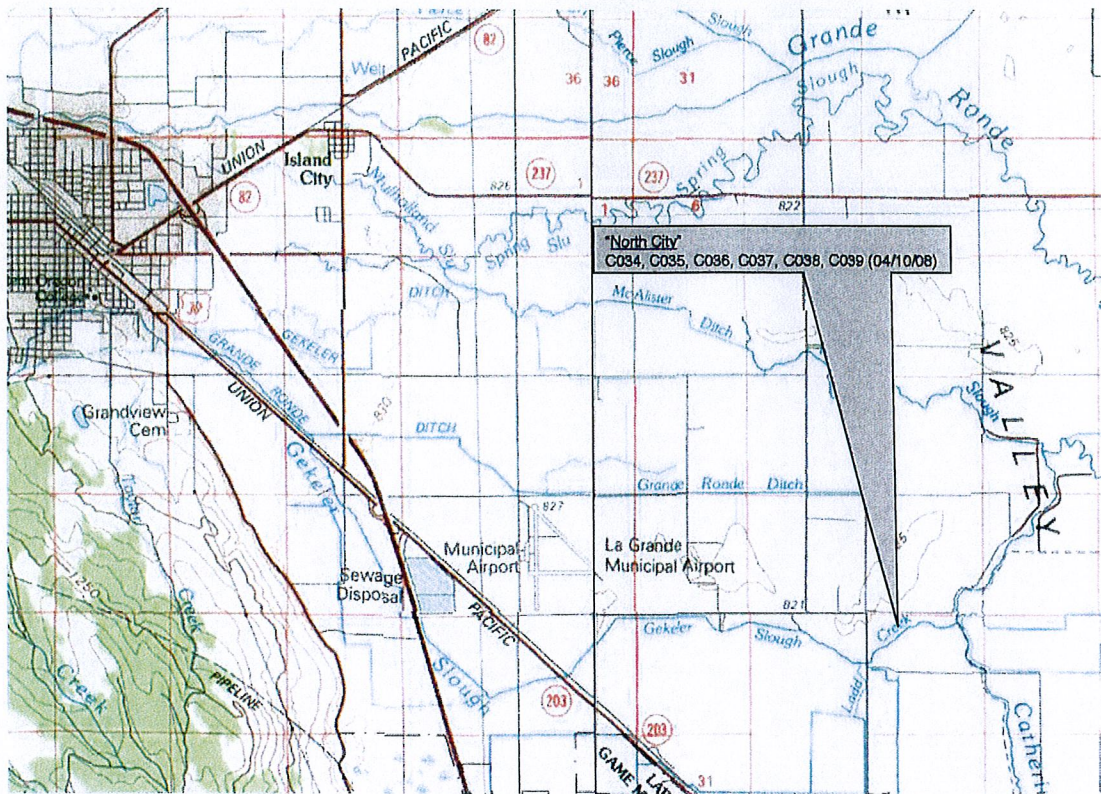


Fig. 5. Lesser sandhill cranes captured at Ladd Marsh Wildlife Area, OR, CALFED Sandhill Crane Research Project, 2007-08.

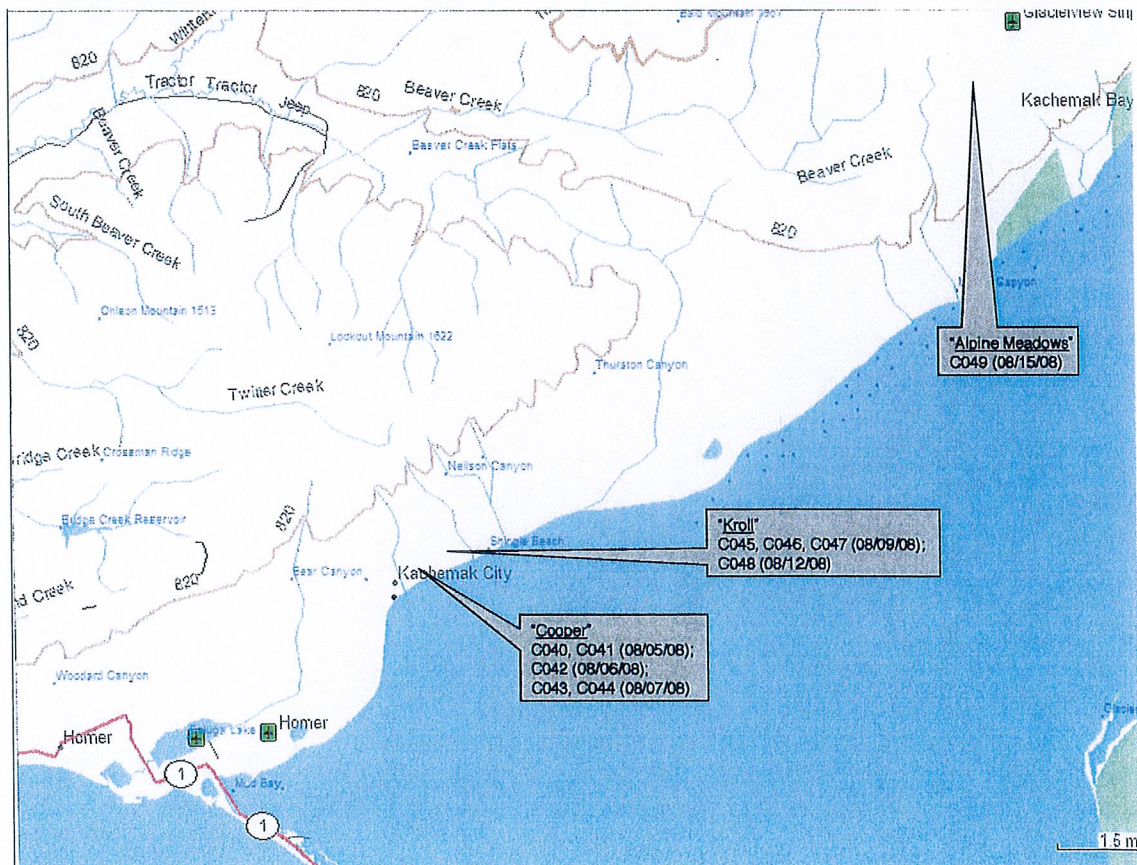


Fig. 6. Lesser sandhill cranes captured near Homer, AK, CALFED Sandhill Crane Research Project, 2007-08.

Spring migration and probable nesting areas:

Greater

Of the 32 greater captured on the wintering grounds, migration locations were noted for six (18.8%) at three sites. Five were recorded in California (two in the north Sacramento Valley, Butte and Colusa counties, and three near Likely, Modoc County), and one in Oregon near Lakeview, Lake County (Table 1, Figure 7).

Potential nesting locations were documented for 23 (71.9%) at nine sites (three in California, and six in Oregon) (Table 1, Figures 7-9). Nine greater were found in California (28.1%) and 14 in Oregon (43.8%). Nesting areas ranged from Sattley, Sierra County, California, to the south, to Seneca, Grant County, Oregon, to the north, spanning a distance of approximately 320 miles (516 km). Two found in the north Sacramento Valley in migration probably nested near Alturas and Burns. Two near Likely in April and July were not located in June, and their nesting locations are unknown. A third noted near Likely was a chick of a marked bird nesting in the area. One found near Lakeview in migration was not located again.

For greater captured at CRP with a probable nesting site (18), eight were found in California (one near Sattley; four near Likely, and three near Alturas, Modoc County) and ten in Oregon (one near Adel, Lake County; two near Andrews, Harney County; one near Paisley, Lake County, four near Burns, Harney County, one near Silvies, Grant County, and one near Seneca. For the five Staten-captured greater, one captured in the middle of the island was located in California (Alturas) and four caught at the south end were found in Oregon (one near Burns and three near Andrews).

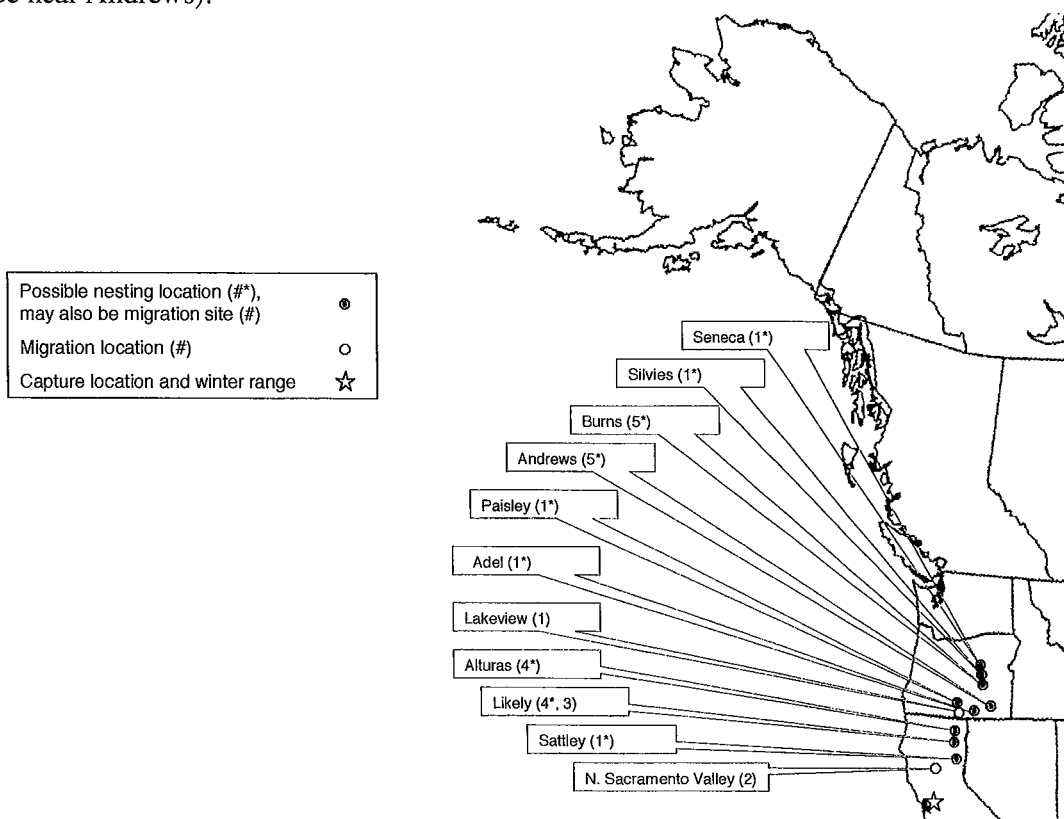


Fig. 7. Migration and probable nesting locations of radio-marked greater sandhill cranes, CALFED Sandhill Crane Research Project, 2007-08.

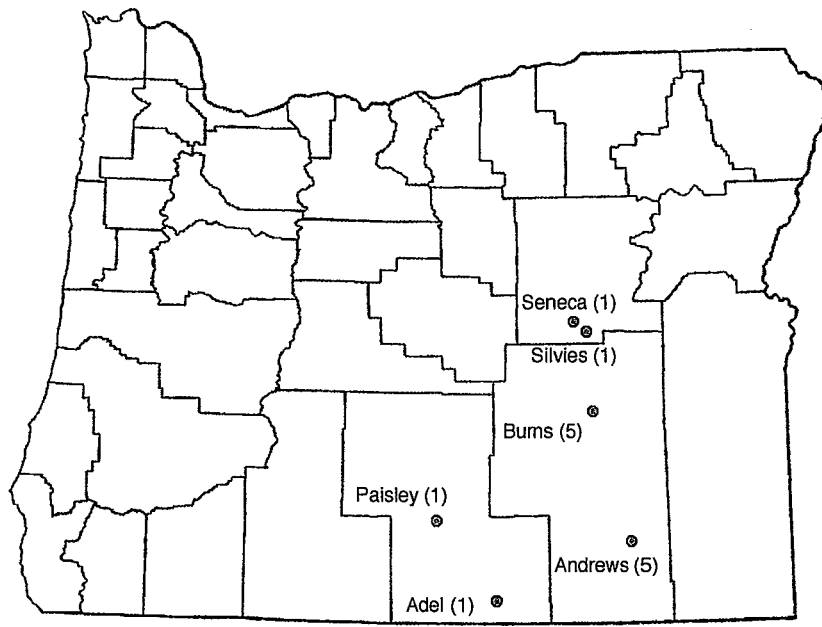


Fig. 8. Probable nesting locations of radio-marked greater sandhill cranes in Oregon, CALFED Sandhill Crane Research Project, 2007-08.



Fig. 9. Probable nesting locations of radio-marked greater sandhill cranes in California, CALFED Sandhill Crane Research Project, 2007-08.

Lessers

Of the 29 lessers captured on the wintering grounds, migration locations were noted for 18 (62.1%) at eight sites, not including the birds captured at Ladd Marsh WA. Two were recorded in California near Cedarville, Modoc County; six in Oregon (one near Adel, one near Paisley, two near Burns, and two near La Grande); three in Idaho near Roswell, Canyon County; seven in Washington near Othello, Franklin and Grant counties; and two in Alaska near Cordova, east of any known breeding areas (Table 1, Figure 10). Two birds had two migration points: one near Cedarville then Cordova, and another near Othello then Cordova.

Potential nesting locations were documented for seven lessers (24.1%) at two sites in Alaska: five were near Homer (17.2%) and two near Dillingham in Bristol Bay (6.9%) (Table 1, Figure 10). However, one of the birds at the latter site was a chick when captured. For the birds likely nesting near Homer, migration points were plotted near Paisley and Roswell. Dillingham birds were recorded in migration near Cedarville and La Grande. None of the birds captured at Ladd Marsh WA in migration were located in Alaska.

For lessers captured at CRP with a likely nesting site (three), two were found near Homer and one near Dillingham. Of the three from the south end of Staten, two went to Homer and one to Dillingham. One captured at the north end of Staten was located near Homer where a local landowner chased off a bald eagle (*Haliaeetus leucocephalus*) that was attacking the crane on 22 June (E. Bailey, personal communication). This bird was noted with a mate and fledged chick during our trapping efforts on 7 August.

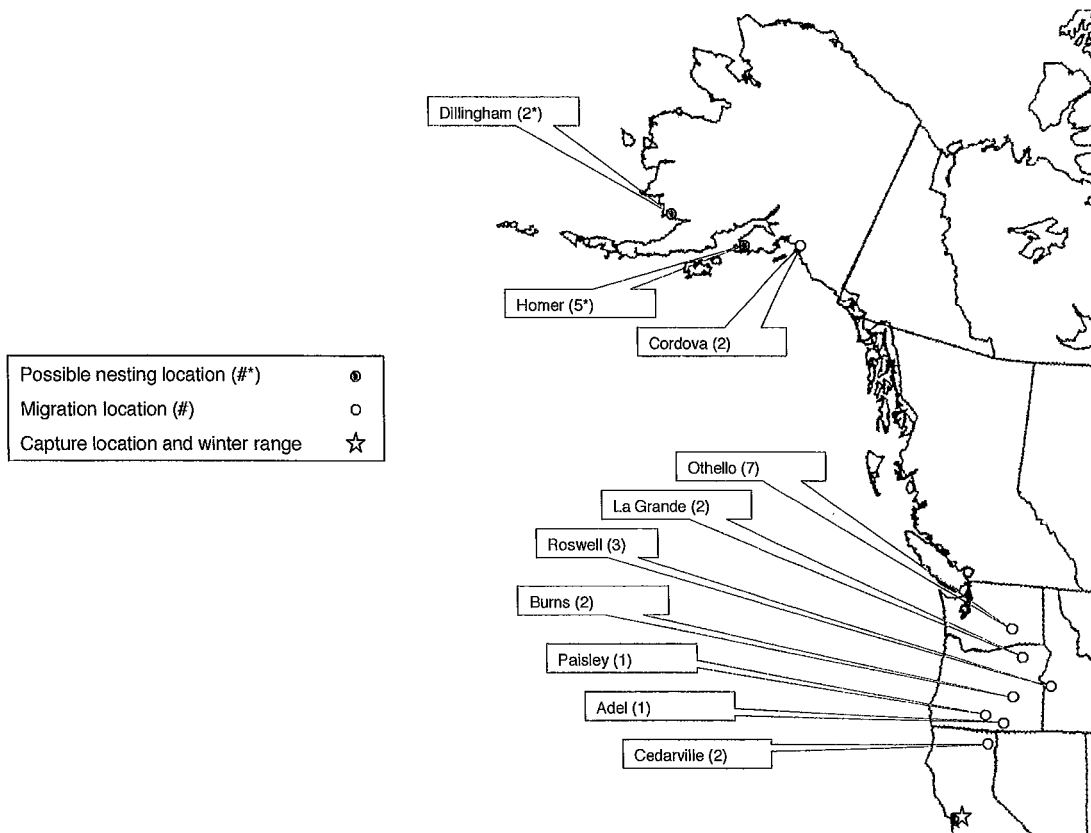


Fig. 10. Migration and probable nesting locations of radio-marked lesser sandhill cranes, CALFED Sandhill Crane Research Project, 2007-08.

ACKNOWLEDGMENTS

R. Schlorff of the California Department of Fish and Game authorized a Memorandum of Understanding and Scientific Collecting Permits. M. Casazza and staff of USGS in Dixon assisted with the funding proposal and trapping, and provided rocket net equipment and technical support. B. Dugger of OSU helped with study design and the funding proposal.

At CRP, H. McQuillen allowed access and use of the facilities, D. McDonnell helped with our arrival and mail delivery, A. Cabrera assisted with the many logistics, and H. Brink and M. Ackerman coordinated the irrigating of the rice and wetlands with us to facilitate trapping. At Staten, we coordinated our activities with B. Tadman. At Stone Lakes National Wildlife Refuge, B. Treiterer permitted access. At Ladd Marsh WA, C. Nowak, D. Larson, and D. Bronson were invaluable with their help in catching cranes at their site. In Homer, E. Bailey and N. Faust provided local contact information, and private landowners granted us permission to trap cranes on their land.

We are grateful to the following biologists who searched for our radio-marked cranes: O. Badajos of Alaska Department of Fish and Game, E. Bailey in Homer, S. Cross of U.S. Fish and Wildlife Service (USFWS), N. Dawson of the Prince William Sound Science Center, C. Gallagher of the U.S. Forest Service, R. Garner of Oregon Department of Fish and Wildlife (ODFW), R. Hill of USFWS, E. Huggins of USFWS, E. Malleck of USFWS, C. Moulton of Idaho Department of Fish and Game, C. Nowak of ODFW, G. Sheeter in Burns, and M. St. Louis of ODFW.

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