

Project Background and Summary

Small numbers of greater sandhill cranes (*Grus canadensis tabida*; 25-30 pairs) nest at the ODFW Ladd Marsh Wildlife Area (LMWA) in northeast Oregon. No documentation existed on the overwintering locations of these cranes; resource managers assumed the cranes nesting in northeast Oregon were affiliated with the Central Valley Population (CVP) wintering in California. The geographic location of the LMWA is northeast of most known CVP nesting areas and northwest of known nesting areas for cranes in the Lower Colorado River Valley Population (LCRVP) wintering in SW Arizona and SE California. Therefore, the LMWA cranes could be affiliated with either population and winter with either the CVP or the LCRVP. Moreover, it is unclear how these cranes fit into the larger picture of crane population delineation and management in western North America.

The 3 western crane populations, CVP, LCRVP, and the Rocky Mountain Population (RMP) are managed as distinct entities by state and federal wildlife managers. In response to uncertainty regarding the population affiliation of LMWA cranes, LMWA staff began marking pre-fledging crane colts with color bands in 2007. Our objectives were to identify the population affiliation as well as migration routes and stopover sites of cranes nesting on LMWA. As of 2015, we had received no re-sighting reports of banded cranes observed in winter and we began attaching Platform Transmitter Terminals (PTTs) to leg bands on select captured cranes. Due to generous donations by Friends of Ladd Marsh (FOLM) as well as several small grants, we were able to purchase and place PTTs on 14 adult cranes and 2 pre-fledging colts from 2015 to 2020. In 2021, we began to use Global System for Mobile technology (GSM) transmitters due to their significantly reduced cost compared with PTTs as well as their superior flexibility regarding programming and data accessibility.

Since the first colt capture in 2007, we have caught and banded 74 greater sandhill cranes on LMWA. To date, that number includes 43 adult cranes, with PTTs on 14 and GSMs on 8. We have captured and color banded 31 pre-fledging colts with PTTs on 3 and a GSM on 1. These captures include 3 recaptures, one of which was a crane color banded as a pre-fledging colt and recaptured as a breeding adult. At recapture, it was fitted with a PTT. Of all the cranes so far marked with color bands, 13 are known to have died; the carcasses were seen or recovered. Four banded as pre-fledging colts are presumed to have failed to fledge since they were never observed post fledging. Forty-three cranes are known to be alive as they were either observed in fall 2022 or have active transmitters, or both. The fates of the remaining cranes are unknown as they have not been observed on Ladd Marsh for 2 or more seasons and have not been reported from elsewhere. Most of those cranes were captured as colts and seen in subsequent seasons then not observed again. They might have been females that, upon maturity, paired with a male from another breeding area to which they return each summer. One crane was captured and banded with its mate as an adult. Its mate died and we saw the survivor the following season but then not again after that. This bird may have re-paired with a bird with an established territory elsewhere.

Of 18 cranes tracked to their wintering areas, 16 spent winters in the Central Valley, indicating an affiliation with that population. Two spent winters in association with cranes of the LCRVP. One of those spent just one winter in a LCRVP area and subsequent winters with the CVP. It is unknown whether the change was due to loss of a mate and re-pairing with a CVP crane or some other reason. As of fall 2022, data acquired from GPS telemetry on cranes captured at LMWA has resulted in the second documented case of population mixing, cranes from more than one wintering area breeding in the same location, and the second documentation of a crane switching wintering area from one winter to the next.

To learn how common population mixing is, and whether it occurs across all 3 western crane populations or just between adjacent wintering populations, it will be necessary to track more cranes captured in NEO to their wintering area(s). Results from this research may affect how cranes in the West are managed and aid in future population modeling. Continued tracking during spring and fall migration will further illuminate important migration stopover sites and help to ensure protection of such areas as a warmer, drier climate reduces wetland and water availability.

Breeding season data from GPS-marked cranes has led to the discovery of several previously unknown nesting sites at or above 4,000 feet in elevation in the Blue Mountains of NEO. Identification of such nesting areas on both public and private land may lead to an understanding of habitat preferences and requirements and will help with future habitat suitability studies in the Intermountain West. Further, identification of nesting areas on privately held forest and rangeland may engage landowners in conservation of needed wetland/wet meadow areas for these large, charismatic birds.

Personal Observations (Cool Stuff!)

Since the beginning of this work, we have made hundreds of direct observations of cranes on Ladd Marsh Wildlife Area and elsewhere. During those observations, we have witnessed behavior of various types among the cranes and between cranes and other species. Just a few examples are included here.

- Some defended territories are relatively easy to observe. Among those, 3 have changed “ownership” over the years and 2 have expanded in size, resulting in a contraction in size of 2 others. Cranes are often seen calling at the boundary of their territories while the neighboring crane remains on their side calling. They use threat postures and vigorous calling while walking the boundary, which is almost always invisible to us, conveying the message, “do not step over here, this is mine”! They rarely step over the line.
- In one case, we observed the hostile takeover of a long-held territory by another pair. In spring one year, only one of the territorial adults returned with their colt from the previous summer, identifiable by its color bands. The other adult likely died during migration or over winter. A neighboring pair with a less “desirable” territory drove the single adult and its colt out with threats and even physical attacks and promptly began patrolling and defending their new territory.
- Subadult cranes often form small groups, traveling together. Occasionally, these groups are seen within defended territories of breeding adults. This creates minor mayhem as the breeding birds, 1 or both depending on nesting stage, attempt to eject the young troublemakers from their territory. In cases like this, the adults are outnumbered and expend a high amount of energy to expel the trespassers
- While cranes are thought of as “mates for life,” changes in pairings do occur. In addition to new pairings in cases of the death of one of the adults, we recorded one “divorce” where a banded, mated pair nested the first summer after capture and marking but split up sometime over the winter. The male of the pair was seen the following spring with a different, unmarked female. The marked female was seen alone on Ladd Marsh numerous times that summer. In 2022, she was seen with a marked male whose mate had apparently died. Whether this new pairing holds remains to be seen.
- Coyotes are a major predator of pre-fledging (flightless) sandhill crane chicks. Adult cranes do their best to defend against this but are frequently unsuccessful. We have witnessed adult

cranes successfully chase coyotes out of their territory and away from their colts. However, we also watched a coyote that had learned how to defeat the cranes' defenses and managed to kill at least 4 colts in one breeding season. Coyote predation seems to be more of a problem in years with low numbers of more traditional prey such as mice and voles.

Project Future Plans

The Ladd Marsh Greater Sandhill Crane Project is ongoing. We plan to attempt capture, banding, and transmitter attachment of both adult and pre-fledging cranes through at least 2024. The International Crane Foundation (ICF) is expanding its work on cranes in the west and is interested in the Ladd Marsh project. Their support, including grant writing and data management, will be a welcome addition to what has been a mostly local effort.

Project Partners and Sponsors

- Oregon Department of Fish and Wildlife
- Friends of Ladd Marsh
- Grisham Climate Response Lab, Texas Tech University
- US Fish and Wildlife Service
- International Crane Foundation
- Oregon Wildlife
- The Wildhorse Foundation
- The Norcross Wildlife Foundation, Inc
- The Oregon Chapter of the Wildlife Society
- Oregon Birding Association

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