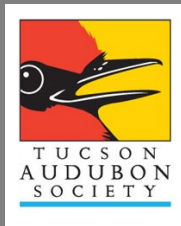
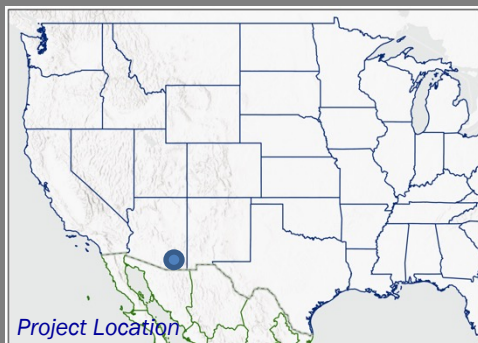


## COMMUNITY ENGAGEMENT AND EDUCATION

# Grassland Habitat Monitoring for Wintering Chestnut- collared Longspur



The Chestnut-collared Longspurs' (*Calcarius ornatus*; CCLO) population is steeply declining due to loss of wintering habitat in Southwest United States and Chihuahuan Grasslands of North Central Mexico. This loss occurs from degrading land use practices and invasive grasses, e.g., Lehmann's lovegrass (*Eragrostis lehmanniana*). In response, the Tucson Audubon Society collaborated with Audubon Southwest through the Important Bird Areas (IBA) program to develop a survey protocol for Arizona IBAs. The protocol uses volunteers and audio recorders to survey CCLO presence, preferred cattle water tank conditions, and presence of invasive species to inform management decisions that support CCLO population.



Project Location



Flock of CCLO in the air.

## KEY ISSUES ADDRESSED

The steep population decline of CCLO is a result of habitat loss due to land conversion, as well as biodiversity loss of native calorie-dense native grasses to invasive grasses such as Lehmann's Lovegrass. CCLO utilizes cattle tanks as a primary source of water; however, tank design and seasonal water-level management impact CCLO's ability to utilize the tanks. Further, vegetation surrounding the tanks can serve as perching for CCLO predators. This species is also extremely skittish, making them difficult to identify and survey while in the field. Prior to this project, resource managers lacked a species and region-specific protocol to effectively monitor CCLO.

## PROJECT GOALS

- Monitor CCLO in their wintering habitat in IBA's through volunteer-led in person surveys and audio recordings
- Analyze and record characteristics of cattle tanks and the percentage of Lehmann's lovegrass in areas the CCLO frequented
- Define a CCLO survey protocol for volunteers that is cohesive with the species' behavioral patterns

## PRIVATE LAND ACCESS

Surveys completed within IBAs provided a strong sense of the wintering species' occupancy and habitat preference; additional surveys on adjacent lands would enhance the collected data.



CALO Favored Cattle Tank

## PROJECT HIGHLIGHTS

**Tank Assessments:** A total of 59 tanks were surveyed in Las Cienegas IBA and the San Rafael Valley. Survey teams would spend between ten minutes and an hour at every tank along their routes. This time was spent observing CCLO and assessing the tank's qualities. Specific characteristics recorded included tank edge information, water quality, and surrounding vegetation.

**Implementation of the Survey Protocol:** Volunteers recorded data on an assigned route, that included multiple 200-meter transects to follow. They were required to record any occurrences of the CCLO with coordinates and estimated distance and direction.

**Invasive Grass Data Collection:** Volunteers made note of the percentage of Lehmann's lovegrass in the location of a CCLO occurrence. Survey data suggests CCLOs favor areas where the percentage of Lehmann's lovegrass, of total grass cover, is between 0% and 20%.

**Audio Recording to Increase Surveying Efficacy:** To reduce time in the field, project teams deployed recorders at the 33 tanks for up to a few months and spent a day managing them at these sites. They were able to analyze the downloaded recordings to detect the frequency of the CCLO using the tanks.

## Collaborators

- Tucson Audubon Society
- Audubon Southwest
- See online for full list of collaborators

CART Author: Haylee Kraker, University of Oklahoma, November 2023.

Photos courtesy of Jennie MacFarland & Richard Fray

For more information on CART, contact Genevieve Johnson ([gjohnson@usbr.gov](mailto:gjohnson@usbr.gov)) or Karlee Jewell ([karlee\\_jewell@fws.gov](mailto:karlee_jewell@fws.gov)).

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## LESSONS LEARNED

During the project, the use of audio recorders was the most effective way to detect CCLO presence without disrupting them. This methodology reduced the pressure of accurately recording the hard-to-identify CCLO. Surveyors used software to analyze the audio recordings and detect the distinctive CCLO call at different tanks. If the call was present at a tank more often than others, the tank's characteristics were considered desirable.

The conditions of the preferable tanks and the areas surrounding them varied, but data suggests a pattern in characteristics. The tank edge slope must be gentle to allow birds to stand while drinking, with sparse short grasses around the edge, and there cannot be tree cover within 50 feet. CCLO presence was found when Lehmann's lovegrass accounted for 0% to 20% of total vegetation.

Survey effort data suggests occupancy of the CCLO is influenced by access to water. 2020 lacked winter precipitation and monsoon events. With an average annual precipitation of 6.56 inches causing dry cattle tanks, during this year, less than ten CCLO were recorded in Las Cienegas and San Rafael IBAs.

## NEXT STEPS

- Continue surveying CCLO in IBAs and other areas of their wintering habitats
- Collaborate with landowners on effective management decisions that will increase the number of CCLO favorable tanks
- Determine efficient ways of managing invasive grass species, such as Lehmann's lovegrass

For more information on this project, contact Jennie MacFarland: [jmacfarland@tucsonaudubon.org](mailto:jmacfarland@tucsonaudubon.org)



Native Grama Grasses in Arizona