Lower Colorado River
Multi-Species Conservation Program

Balancing Resource Use and Conservation

Black Rail Habitat Use and Marsh Bird Update

BUREAU OF RECLAMATION

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Introduction

- As part of the LCR MSCP management of marsh habitats, the program is attempting to understand how marsh birds utilize marsh habitat.
- Previously, we conducted an occupancy modeling analysis of Ridgway's rail water depths.
- The next step was to look at California black rail habitat use.
- We started with a literature search for black rail habitat use to provide information that will help guide our management and monitoring of California black rail habitat.

California Black Rail
(*Laterallus jamaicensis coturniculus*)

- The western sub-species of the smallest rail in North America.
- Found in tidal and freshwater marshes.
- The bird is very secretive and difficult to detect.
- Surveys for the species are conducted using call/playback and the Standardized North American Marsh Bird Monitoring Protocols
- Almost all detections of this bird are auditory

California Black Rail

- Much remains to be learned about the life history of the entire species.
- Adult survival appears to be high in stable habitats
- The species is considered endangered in Arizona and threatened in California

LCR MSCP HCP Requirements

- The LCR MSCP is tasked with creating 512 acres of marsh, of which 130 acres are to be for the California Black Rail

  "Design of created habitat will be directed towards establishing most-soil marshes that support a predominance of three-square bulrush with suitable water depths to replicate conditions present at Mittry Lake and Bill Williams Delta that support the species. Habitat will be designed, and managed to provide an integrated mosaic of patches of cattail, bulrush, and mudflat, interspersed with small patches of open water with varying water depths."

Current Management

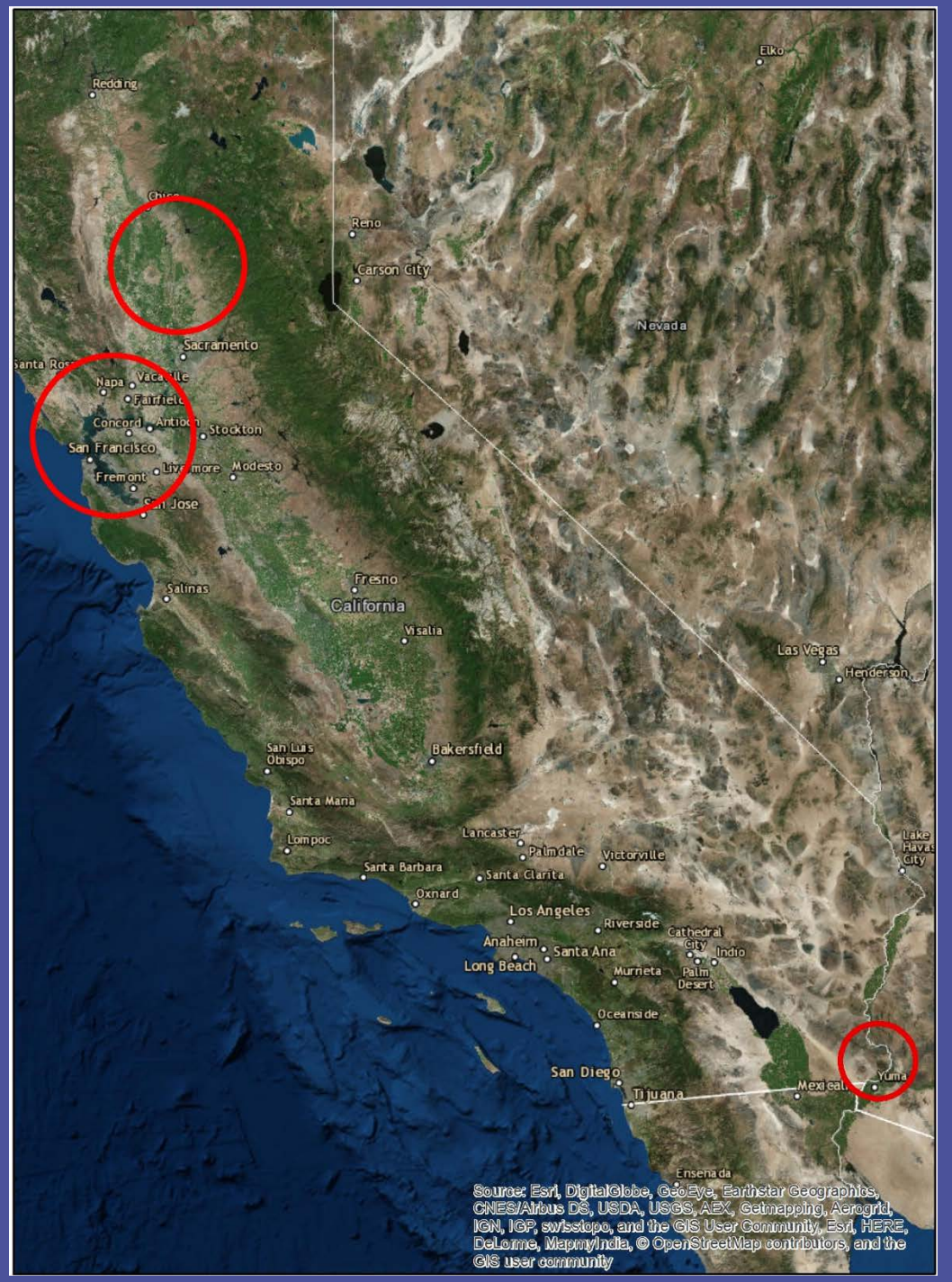
- The LCR MSCP currently manages several Conservation Areas with a marsh habitat component.
- Portions of Hart Mine Marsh, Field 18 at IPCA, and Laguna Division Conservation Area could provide BLRA habitat.
- The created marshes at Hart Mine Marsh and Field 18 and Imperial Ponds Conservation Area are managed for California black rail.

Current Management

- Areas within the Laguna Division Conservation Area containing marsh vegetation within the cottonwood-willow habitat could provide California black rail habitat but are not currently managed for marsh birds.
- Area that are managed for California black rail are currently managed to have as stable water levels as possible, and with depths under an inch.

California Black Rail Populations

- There are three main populations of this sub-species and almost all the published literature comes from these three areas.
- The largest population is in the San Francisco area with estimates between 8,000 and 19,000 birds
- The area northeast of Sacramento has a population estimated at 1226 to 1711 (Richmond et al 2008)



LCR Population

- The largest population in the LCR is located at the Mittry Lake Wildlife Area near Yuma, and the population has been estimated to be around a 100 birds (Conway and Sulzman 2007).
- There is also a population in the Ciénaga de Santa Clara on the LCR in Mexico
- Much of the information that has led to the existing habitat management standards comes from research on the LCR.
- However, the studied population is relatively small and confined to one highly regulated site.

San Francisco Bay

- Rail numbers are much higher in areas of tidal marsh as compared to areas with restricted tidal flow (Evens et al. 1991).
- Birds are able to persist in areas that are inundated periodically, for short time periods and where adjacent upland refugia is available (Tsao et al. 2009)
- Birds moved an average of 27.6±1.8 m daily and 38.4±5.5 m during extreme high tides

Yuba County, CA

- Researchers conducted surveys for seven years in areas of some natural marsh but mostly irrigated, created marsh.
- Water depth averaged 0.83± 0.15 inches.
- The abundance of water sources and gently sloped landscape in the area facilitated the formation of wetlands suitable for California black rail
- A management strategy that maintains wetlands with variable water levels, that includes shallow water zones with less than 1.2 inches of depth was recommended. (Richmond et al. 2008, 2010).

Imperial NWR

- Nadeau et al (2011) conducted research at Field 16 and 18 at Imperial National Wildlife Refuge
- Their research suggested that created marshes can be managed for both Ridgway's rail and California black rail
- They recommend:
  - Area with shallow and stable water depths (-10 to 30 mm) planted with chairmaker's bulrush (Schoenoplectus americanus)
  - Gradual slope planted with chairmaker's bulrush and cattail (Typha domingensis)
  - Area with deep water (250 to 350 mm) planted with southern cattail

Survey Methodology

- Caution has been advised when attempting to make abundance estimates from call playback data of California black rail. (Legare et al. 1999, Spear et al. 1999, Conway et al. 2004)
- Previous survey efforts have used circular plots and Distance Sampling to estimate abundance and density.
- However, using telemetry it has been shown that black rail will move towards surveyors using call playback before vocalizing. (Flores and Eddleman 1995).

Ciénega de Santa Clara

- LCR MSCP personnel worked with personnel from ProNatura Noroeste to analyze California black rail from the Ciénega de Santa Clara.
- We determined that the population was not large enough to allow reliable estimates of occupancy and detection probability.

Management of BLRA Habitat

- CBLRA do require shallow water and chairmaker's bulrush (and other species of bulrush)
- Stable water levels may not be required, but areas of shallow water for the birds to move into are. Gently sloping habitat may provide this.
- Management of CBLRA habitat may allow for varying water depths for management purposes.

Literature Cited

Eddleman, W. R. 1989. Biology of the Yuma Clapper Rail in the Southwestern U. S. and Northwestern Mexico. Final Report July 1989. Fish and Wildlife Service Contract 4-AA-30-02060.

Evens, J.G., Page, G.W., Laymon, S.A. and Stallcup, R.W., 1991. Distribution, relative abundance and status of the California black rail in western North America. Condor, 93(4), pp.952-966.

Evens, J.G. and Nur, Nadav., 2002. California Black Rails in the San Francisco Bay region: spatial and temporal variation in distribution and abundance. Bird Populations, 6, pp.1-12.

Flores, R.E. and Eddleman, W.R., 1993. Nesting biology of the California black rail in southwestern Arizona. Western Birds, *24*(2), pp.81-8.

Flores, R.E. and Eddleman, W.R., 1995. California black rail use of habitat in southwestern Arizona. The Journal of wildlife management, pp.357-363.

Legare, M.L., Eddleman, W.R., Buckley, P.A. and Kelly, C., 1999. The effectiveness of tape playback in estimating Black Rail density. The Journal of wildlife management, pp.116-125.

Nadeau, C.P., C.J. Conway, M.A. Conway, and M. Ogonowski. 2011. Restoration of Managed Marsh Units to Benefit California Black Rails and Other Marsh Birds: An Adaptive Management Approach, Final Report. Wildlife Research Report #2011-01, U.S. Geological Survey Arizona Cooperative Fish and Wildlife Research Unit, Tucson, Arizona, USA.

Repking, C. F., and Ohmart, R. D. 1977. Distribution and density of black rail populations along the lower Colorado River. Condor, 79(4), 486-489.

Richmond, O.M., Tecklin, J. and Beissinger, S.R., 2008. Distribution of California black rails in the Sierra Nevada foothills. Journal of Field Ornithology, *79*(4), pp.381-390.

Richmond, O., Chen, S., Risk, B., Tecklin, J. and Beissinger, S., 2010. California black rails depend on irrigation-fed wetlands in the Sierra Nevada foothills. California Agriculture, 64(2), pp.85-93.

Spautz, H., Nur, N. and Stralberg, D., 2005. California Black Rail (Laterallus jamaicensis coturniculus) distribution and abundance in relation to habitat and landscape features in the San Francisco Bay Estuary. USDA Forest Service General Technical Report PSW-GTR-191.

Tsao, D.C., Takekawa, J.Y., Woo, I., Yee, J.L. and Evens, J.G., 2009. Home range, habitat selection, and movements of California black rails at tidal marshes at San Francisco Bay, California. The Condor, 111(4), pp.599-610.