

2008 Wister Marsh Bird Survey Summary

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Introduction

The Wister Unit (Wister) of the Imperial Wildlife Area (IWA) consists of 5,243 acres of upland and managed marsh habitat owned and managed by California Department of Fish and Game. It is located in the southeast end of the Salton Sea in northwestern Imperial County. Situated between 200 and 230 feet below sea level in the Colorado Desert, Wister receives an average rainfall of less than three inches per year and has temperature ranges from below freezing in mid-winter months to more than 120 degrees in the summer. Established in 1954 for the development of waterfowl habitat, to alleviate crop depredations and provide public shooting opportunities, Wister today supports a variety of waterfowl and other wetland species. Currently one of the management goals is providing permanent habitat for the Yuma clapper rail (*Rallus longirostris yumaensis*). Yuma clapper rail is fully protected under California Department of Fish and Game Code section 3511 (b), listed as threatened under the California Endangered Species Act, and Federally Endangered. The development consists of a series of reservoirs and shallow field/pond areas separated by levee and canal systems. Wister also provides multiple public recreation opportunities including; hunting, fishing, camping, sightseeing, bird watching, and nature studies.

Roughly 4000 acres of Wister are managed marsh wetland habitat. This habitat is divided into cells ranging from a few acres to hundreds of acres. They are enclosed by earthen berm levees with O & M roads on top of them and check dam inlets and outlets that control water levels within the cells. There is a total of 36 miles of roads, 189 miles of levees, and 27 miles of canals that facilitate the necessary water delivery for management of the cells. Most of the cells are drained seasonally and tilled to create open water habitat for over wintering waterfowl. Approximately 1/5 of the habitat remains flooded year round to maintain emergent vegetation for nesting habitat and a constant crayfish food supply for the Yuma clapper rail. Management of these units entails a 3-5 year cycle of maintenance rather than the one year cycle that is used for waterfowl habitat. Careful maintenance with regard to timing (avoiding breeding season), location and technique, such as



limited tilling to retain crayfish resource, and emphasis on quick recovery of habitats following maintenance procedures are included in this maintenance cycle. The result is mature cattail stands with some open water.

Salt Cedar (*Tamarisk spp.*) grows around the edges of the managed marsh cells, in the water delivery structures, and within the cells when water levels are low. Salt cedar management requires excavating and burning trees as they grow and clog delivery canals and drains or choke out marsh habitat. Yuma clapper rails are known to forage in the water delivery facilities and/or use them as corridors to move between marsh cells.

Methods

The 2008 marsh bird surveys of Wister were conducted by California Department of Fish and Game (DFG) Associate Wildlife Biologist Steve Gibson (myself). This is the third consecutive year I have performed the Standardized North American Marsh Bird Protocol (SNAMBP) at Wister. This year the survey was conducted in the morning and the evening for the second time. This schedule replaced the morning only schedule in 2007. The morning/evening schedule increases the potential for completing three independent replicate surveys within the survey time period. In 2008 two complete survey replicates in the Wister unit were achieved and one survey replicate in the backwaters of the drains that run through the Wister unit and create brackish pools between Wister and the Salton Sea. This extra area was added as a result of low detection numbers on the Wister Unit.

The call stations established in 2001 at the Wister Unit were used to conduct this survey. The points are set at 200 M intervals as per the Yuma Clapper Rail Survey Protocol (January, 2000). The SNAMBP suggests new stations be placed at 400 M intervals and no change to previously established sites. No new stations were added.

If a section of managed marsh was not completed before thresholds for heat, wind, or end time of the survey protocol were exceeded, the section was revisited and surveyed entirely the following day. The first survey started on March 17 and ended on March 20. The second survey began May 13 and ended May 16. There was an extra survey completed on the evening of May 31 in the Wister drain backwaters. This included 6 new call stations.

The call stations were located using Geographical Positioning System (GPS) points with the Garmin GPS 12XL (Datum NAD 83 UTM). This is the same unit that has been used for several years.

The broadcast system used for the survey was the factory stereo in a 2006 Ford F250 truck. An MP3 recording of the CD provided by USFWS was made and broadcast from an iPod™ through the truck stereo. The volume was kept at the same level for each station. The layout of the managed marsh and the uniform construction of the berms made it easy to broadcast from the same height and distance from the edge of the marsh for all stations. By opening the truck door nearest the section of marsh being surveyed, a high quality broadcast was performed. The observations were made from the edge of the truck nearest the marsh. I estimated I could effectively hear for 200 meters from the call broadcast point. Only the calls from within the marsh cell surveyed were recorded. This resulted in a survey area for each point as a half circle with a radius of 200M. The area outside the surveyed marsh cell, but within 200 meter radius from each call point, was mostly dirt road (berm) or drain. Birds calling from a marsh cell adjacent to the marsh cell being surveyed could often be heard but were not recorded until that particular cell was surveyed. Also some call stations were positioned at the corner of a cell, which would only cover one quarter of the area of a circle with a 200 M radius. Time spent traveling from station to station was minimized with the use of the vehicle and set up time for broadcast was completed while in route to the next site.

At the time of the survey (March 17 – May 31) an estimated 527 acres were managed for Yuma clapper rail habitat. This is a reduction of 748 ac. down from 1, 275 in 2007. The target range of area of habitat managed for Yuma clapper rails at IWA is between 744 and 1469 acres. Approximately 10% of the total available habitat at IWA was suitable for Yuma clapper rails throughout their 2008 breeding season. Figure 1 shows all call stations located at Wister overlaid on an orthophoto map created with 2007 imagery. Figure 2 shows the call stations surveyed this year on the same orthophoto map with a 200 M radius circle overlaid on them to indicate affective broadcast area for a visual aspect of broadcast coverage in the marsh cells with suitable habitat.

Some of the call stations are in long term non-habitat areas while others are being rotated in and out as necessary. Due to the changing conditions of water flow and habitat types related to the management practices at the IWA, no call stations were deleted. Call stations not surveyed this year may become call sites in the future and will remain part of the IWA database. New call stations were added where rail habitat had become available due to water flow changes. These call stations will cover existing habitat as well as areas designated for rails in future years.

Results

Table 1 compares the peak number of Yuma clapper rails for the 2008 marsh bird survey to the past 17 years of survey data. The peak number for 2008 (highest number of detections per complete survey) of Yuma clapper rails

detected at IWA (226) occurred during the first of two surveys. This is a 43% decrease in the number of detections from 2007.

The total number of call stations in the first replicate survey was 58. This amounted to 3,642,400 M² or 900.1 ac. The total number of call stations surveyed was reduced to 34 in the second survey since breeding habitat was reduced by draining target cells U14 and T14 for upgrades to their flow through design and levee repairs. Survey replicate two surveyed approximately 2,135,200 m² or 527.6 ac. The third and final survey was an extra area not replicated adjacent to sections U14 and T14 after those cells were completely drained and no longer provided suitable breeding habitat for rails. This included 5 new stations with a full circle area surveyed since the call stations were located in a flooded area rather than a marsh cell surrounded by levees, roads and drains. The area is owned by the Imperial Irrigation district and portions of it are leased by DFG, but not actively managed at this time. The total area surveyed was 628,000 m² or 155.2 ac. This effort resulted in many Yuma Clapper Rail detections including sightings of foraging chicks with adults and vocal responses of adults.

Table 2 shows comparative results for each species between each replicate survey. Pied-billed grebes, common moorhen, American coot, and sora were detected but were not documented during this survey. The Yuma clapper rail had the highest mean number of detections per station during both the passive and broadcast portions of the first survey. When compared to 2007, there was a slight increase in mean number of birds per station in the first survey, and a slight decrease in the second survey. During the first survey the call broadcasting portions recorded 19% more responses than the passive for Yuma clapper rails. This is the same performance margin of the survey as 2007. The call broadcast portions of the second survey detected 33% more responses than the passive, which is almost double the 18% recorded in the second survey in 2007.

Discussion

The peak number of detections of Yuma clapper rails decreased by 43% between 2007 and 2008. These results reflect a reduction of 42% of call stations between 2007 and 2008.

Change in habitat conditions at Wister is a result of management activities in cells 513B, 413A, 413B, 115C, Y16A, Y16B, U14, and T14. These marsh cells were drained before the Yuma clapper rail breeding season to facilitate repairs of levees and water distribution systems. Draining of the cells commenced in January 2008. The cells that were drained were marginal habitat through March with standing water and some soil moisture remaining until the hot days of spring dried them out. A survey was completed on these areas in mid March and Yuma clapper rails were detected in many of them. By late May, when a follow up survey occurred, no rails were detected.

There is a possibility that human management of Yuma clapper rail habitat in the Salton sink since 2007 have affected the rail numbers at Wister. One major operation that started in the spring 2007 and continues to go on is the lining of the All American Canal on the California Mexico border. This removal of habitat and major disturbance may be responsible for the inflow of YCRA to Wister resulting in higher than normal numbers in the 2007 surveys and seasonal movement of individuals is unknown.

The design of the flow through system at Wister is such that the easternmost cells are first to fill and the westernmost cell is the last to fill. Treatment of cell levees is difficult to achieve without draining the entire string of cells from west to east. Funding was achieved in a cooperative effort with DFG, WCB, CWA and DU to improve the drainage in the system so individual cells can be drained or filled without having to effect other cells in the series. Other cells not currently in marsh bird habitat condition (flooded and filled with emergent vegetation) will be flooded and revegetated to provide more suitable Yuma clapper rail habitat in 2008 and 2009. The result is a reduction by roughly half of the available suitable breeding habitat for Yuma clapper rails at Wister between 2007 and 2008.

The difference in peak number of detections between 2007 and 2008 may be a result of the reduction in suitable YCRA habitat, using both morning and evening sessions to survey, and/or other environmental factors. The morning and evening survey timeline was not effective in allowing for a third replicate this season because heavy downpours of rain during thundershowers saturated the soils at Wister and limited access by vehicle and foot. Significant damage to berms in the marsh cells can occur when the area is wet therefore access is restricted by management. This timeline did allow for two successful replicates which is consistent with historical surveys for Yuma clapper rails at Wister.

I conducted the extra site survey at the end of May in response to reports from the Wister crew stating Yuma clapper rails could be heard in the flooded area west of the drained U14 and T14 cells. This new area has been backfilling over the past few years because the drains that once flowed to the Salton Sea from Wister and surrounding areas, is blocked at the confluence by a sand bar created from wind wave action on the sea. This area has been surveyed for several years by me and the previous Yuma clapper rail survey efforts at Wister as a reconnaissance effort to determine if the rails were utilizing it for breeding. No detections were made in 2005, 2006, or 2007. In 2008, one evening survey produced 22 detections in 5 stations. The survey was the last day of the protocol survey period and adults with chicks were seen foraging while surveying. These detections could be post breeding detections of Yuma clapper rails as well as breeding birds. There is no management activity committed to these sites and subsequently no guarantee this habitat will remain flooded and vegetated year round. These sites will be added to the survey in 2009 to determine if breeding efforts are occurring in these areas.



Figure 1. All Wister survey points for 2008. Green dots indicate surveyed points. Red dots represent points not surveyed



Figure 2. Area Surveyed for Yuma clapper rails during 2008 breeding season with 200 M call area radius indicated by beige circles.

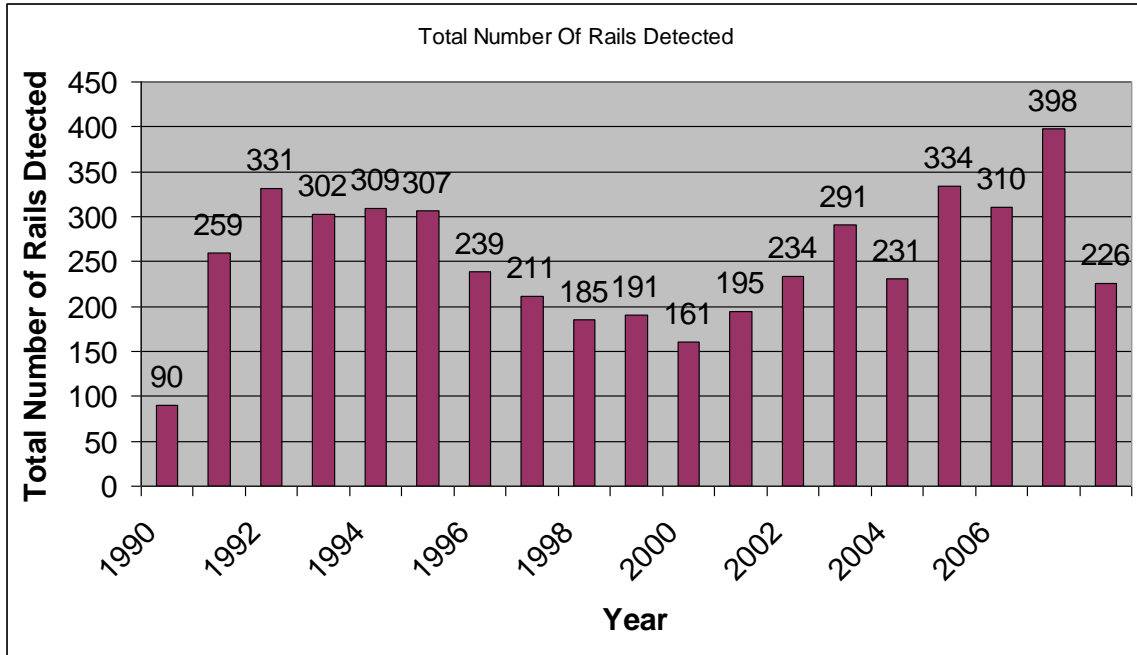


Table 1. Annual Yuma clapper rail peak number of detections at the Imperial Wildlife Area.

species		passive	broadcast	Mean # birds/station Passive	Mean # birds/station Active
AMBI	survey 1	17	17	0.3	0.3
	survey 2	1	1	NA	NA
CLRA	survey 1	172	213	3.0	3.7
	survey 2	91	136	1.6	2.3
LEBI	survey 1	5	4	0.1	0.1
	survey 2	7	6	0.1	0.1
VIRA	survey 1	2	10	NA	0.2
	survey 2	0	2	NA	NA

Table 2. Mean number of detections per station for each species during passive and broadcast portions of 2008 survey.