

2011 Wister Marsh Bird Survey

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Introduction

The Wister Unit (Wister) of the Imperial Wildlife Area is located along the southeastern shore of the Salton Sea in Niland, CA, and covers approximately 5,000 acres (Appendix A). Wister was established in 1954 for the protection of waterfowl, the alleviation of crop damage to adjacent farms, hunting, and for recreation, although in the 1970's Wister was recognized for its importance as habitat for other species (Gelfand and Blankenship 1977).

Water for Wister is purchased from the Imperial Irrigation District. The water reaches Wister via delivery ditches that are fed by the East Highline Canal, which transfers Colorado River water. The water level is managed with cement water control structures where wooden boards are altered to adjust inflow and outflow. There are approximately 189 miles of levees and 27 miles of canals that form terraces between about 40 fields and reservoirs. Water is released from the ponds into a drain that reaches the Salton Sea. Grants acquired and carried out by groups such as the California Waterfowl Association (CWA) and Ducks Unlimited (DU) help fund management and restoration projects within Wister.

Purpose

The California Endangered Species Act (Fish and Game Code sections 2091 and 2092) requires the California Department of Fish and Game (CDFG) "to determine and specify reasonable and prudent alternatives consistent with conserving the species, which would prevent jeopardy to the continued existence of the species." The state-threatened and federally-endangered Yuma clapper rail (*Rallus longirostris yumenensis*), and the state-threatened California black rail (*Laterrallus jamaicensis cortiurniculus*) utilize the marsh habitat at Wister. Both of the species are designated as fully protected birds (Fish and Game Code section 3511). Wister has been recognized as one of five Areas of Utmost Importance, out of the 24 areas determined as Important Areas for Clapper Rails (Gould 1975). Under the Yuma Clapper Rail Recovery Plan (U.S. FWS 1983), it was determined that the protection of habitat at the Imperial Wildlife Management Area is in part necessary to keep the Yuma clapper rail population stable. The purpose of the survey at Wister is to document marsh bird occurrence within areas managed for rails in order to monitor the population and evaluate the effectiveness of the management for rails.

According to the Biological Opinion that supports the Imperial Wildlife Area Wister Unit Management Plan (Thompson and Nicol 1989), CDFG is required to manage 100 acres of every 800 acres of wetlands on Wister as "rail priority management areas." Within Wister's property, approximately 4,800 acres are actively managed wetland fields, which results in about 600 acres that require management for rails. Wister management aims for 600-1,000 acres of managed rail habitat each year. The Management Plan states that management practices for rails would occur on a 3-5 year schedule, and would be monitored annually. The plan also specifically states that fields S22, T14, U12, U14, W11C and W11D would be managed primarily for rails. Although

S22 and W11C have consistently been managed for rails, the other listed fields are managed for waterfowl. Besides S22 and W11C, fields Y16D and 312D have been managed long-term for rails. The remainder of the required acreage has altered throughout the years due to variations in ability to disk and burn the fields.

Methods

Survey methodology followed the Standard North American Marsh Bird Monitoring Protocols (Conway 2005). The order in which the stations were surveyed was determined based on access between points, and remained the same for each round of surveys. The distance at which birds were recorded depended on the distance between points to prevent double-counting, which was the same methodology used in the past surveys. Although drains were not managed for rails, rails detected in drains adjacent to call stations were recorded and noted in the datasheet comment column as “behind in drain” (pers. comm. Lesley Fitzpatrick, 2010). Rails that were detected behind the call station that were thought to have been missed in previous fields were recorded in the datasheet comment column as “behind,” and were later evaluated as to whether they were already recorded at a previous point.

The National Marsh Bird Survey compact disk was provided in March 2010 at the National Marsh Bird Training in Yuma, AZ, conducted by Professor Courtney Conway of the Cooperative Fish and Wildlife Research Unit at the University of Arizona, which contained five minutes of silence followed by four minutes of calls from black rail (*Laterallus jamaicensis*), least bittern (*Ixobrychus exilis*), Virginia rail (*Rallus limicola*) and clapper rail (*Rallus longirostris*). This was the same 9-minute sequence used in previous surveys at Wister. Besides those species, common moorhen (*Gallinula chloropus*), American bittern (*Botaurus lentiginosus*), pied-billed grebe (*Podilymbus podiceps*) and sora (*Porzana carolina*) were also recorded on the datasheets. American coots (*Fulica americana*) are abundant at Wister but were not recorded in the survey because they are not a target for this project.

The marsh bird disk was transferred onto a Macintosh iPod 7.0 and broadcast with a 9V Radio Shack mini amplifier speaker. The speaker was placed on top of the vehicle in order to project the sound into the fields.

Site Selection

One hundred and seventy call stations were originally established in 2001 at 200m intervals at the perimeter of all of the Wister fields. In 2008, five new possible call stations were added at 200m intervals. For the 2010 survey, seven new possible call stations were established at 400m intervals as required by the survey protocol, although one was later removed because it proved too difficult to access. As a result of these changes, 181 possible survey points were available for the 2011 survey, although not all points were surveyed.

Three survey rounds were completed. They occurred from March 21-March 24, April 18-21, and May 10-13. To determine the 2011 survey points, Wister management provided the locations of the current managed fields and ponds, which resulted in 45 survey points (Appendix B). The same 45 points were employed for each round of surveys. The managed areas were provided to a CDFG geographic information systems (GIS) specialist for mapping and calculating acreage.

It was determined that 801.99 acres were managed for Yuma clapper rail in 2011 (Table 1, Appendix C). This was 112.15 acres less than the year before, due to planned management activities at Wister, which removed fields W11A and 312C from the 2011 survey. Field W11A was disked prior to the breeding season, and field 312C was dried prior to the breeding season and then burned in the first week of May.

Table 1. 2011 Managed Yuma Clapper Rail (CLRA) Habitat on Wister

Field	Water Delivery	Approx. Area Managed for CLRA (ac)	Date of Last Management Activity (month, year)	Management Activity (disking, burning, draining, etc.)
S22	Delivery ditch	144.32	June 1997	Drain, burn, disk
W11A ^a	Delivery ditch	63.81	2010/2011	Drain (February 2010), disk (March 2010), re-disk (March 2011)
W11C	Delivery ditch	58.84	June 2005, September 2011	Drain, burn
Y16A	Delivery ditch	45.37	June 2009	Drain, burn, disk
Y16D	Delivery ditch	158.29	June 2009	Burn
114C	Delivery ditch	38.74	June 2008	Drain, burn, disk
115B	Delivery ditch	66.47	2008/2011	Drain, burn, disk (June 2008), burn and disk (August 2011)
115C	Delivery ditch	71.94	June 2009	Drain, burn, disk
312B	Delivery ditch	32.81	2007/2011	Drain, burn, disk (June 2007), burn and disk (August 2011)
312C ^a	Delivery ditch	48.34	2011	Drain (February), burn (May), disk (June, July, August)
312D	Mix of delivery ditch and drain water	73.04	June 2008	Burn
413B	Delivery ditch	57.82	June 2009	Drain, burn, disk
515C	Mix of delivery ditch and drain water	54.35	2010/2011	Drain, burn, disk (June 2010), burn (August 2011)

^a Rail-managed fields that were not available for rails in 2011 because of management activities.

Results

The most detections for Yuma clapper rail occurred in the first round of surveys (Table 2). These results contrast with the last two years of surveys in which the most detections occurred in the second round of surveys. Also, the most clapper rails detected in 2011 were 111 rails, which are nineteen clapper rails less than the previous year.

Two California black rails were detected in the second round of surveys. One was observed at field W11C and one was heard making the “tch” sound in field 114C. No black rails were detected the previous year. Conway and Sulzman (2007) found that black rails in the southwestern United States were most often found in areas that had common threesquare (*Schoenoplectus pungens*), which is not present at Wister. A lesser known species associated

with black rail is California bulrush (*Scirpus [Schoenoplectus] californicus*), which is present in very small patches at Wister.

Table 2. Survey Results for Yuma Clapper Rail (CLRA), Least Bittern (LEBI), and Virginia Rail (VIRA).

SPECIES	SURVEY REPLICATE	TOTAL BIRDS DETECTED
CLRA	1	111
	2	80
	3	88
LEBI	1	6
	2	8
	3	11
VIRA	1	13
	2	2
	3	0
BLRA	1	0
	2	2
	3	0

Most marsh bird managed fields resulted in Yuma clapper rail detections, although not all points resulted in detections (Appendix D). When the fields that are actively managed for rails are compared by number of rail detections per acre, it appears that the most productive field for rails is W11C, followed closely by S22 (Table 3). Field W11C was drained and burned in 2005 while S22 was drained, burned, and disked back in 1997. Field S22 was periodically dry prior to the 2011 survey season, although not for long intervals of time. In 2010, field S22 was the most productive field for clapper rails.

Fields 115 B/C and 312 B/D had more Yuma clapper rail detections than the remaining fields. Field 115 B/C had ponds burned and disked in 2008 and 2009, while field 312 B/D had ponds burned in 2007 and 2008. There was only one field, 515C, that didn't have any clapper rail detections. This field is very small and has only one survey point.

Table 3. Survey Results by Field for CLRA for the Managed Rail Habitat

Field	Replicate	Detection	Number of Survey Points	Mean Number Birds/Point	Number Birds/Acre
S22	1	39	11	3.5	0.27
	2	35	11	3.2	0.24
	3	34	11	3.1	0.24
W11C	1	19	5	3.8	0.32
	2	17	5	3.4	0.29
	3	17	5	3.4	0.29
Y16A	1	6	5	1.2	0.13
	2	2	5	0.4	0.04
	3	2	5	0.4	0.04

Y16D	1	7	5	1.4	0.04
	2	6	5	1.2	0.04
	3	6	5	1.2	0.04
114C	1	0	1	0.0	0.00
	2	1	1	1.0	0.03
	3	2	1	2.0	0.05
115 B/C	1	21	9	2.3	0.15
	2	13	9	1.4	0.09
	3	21	9	2.3	0.15
312 B/D	1	18	7	2.6	0.17
	2	6	7	0.9	0.06
	3	6	7	0.9	0.06
413B	1	1	1	1.0	0.02
	2	0	1	0.0	0.00
	3	0	1	0.0	0.00
515C	1	0	1	0.0	0.00
	2	0	1	0.0	0.00
	3	0	1	0.0	0.00



Field S22 (by Karen A. Riesz on 3/1/11)



Field W11C (by Karen A. Riesz on 3/1/11)

Some birds were detected only immediately before and/or after the nine-minute survey. They included two clapper rails and one least bittern. These birds might have been disturbed by the presence of the surveyor or by the survey, itself. They were included in all of the calculations in this report.

This year, there were ten marsh birds detected in adjacent unmanaged drains, all detected at 312 B/D, including clapper rail (7), sora (1), and common moorhen (2). Nine of them were located from points along the same drain that runs south of the fields. One was detected from the drain that runs north of the fields. These birds were not included in the calculations for this report, but are interesting to note because it shows that rails do use the drains at Wister, which was suggested in an early analysis of Imperial Wildlife Area habitat (Gelfand and Blankinship 1977).

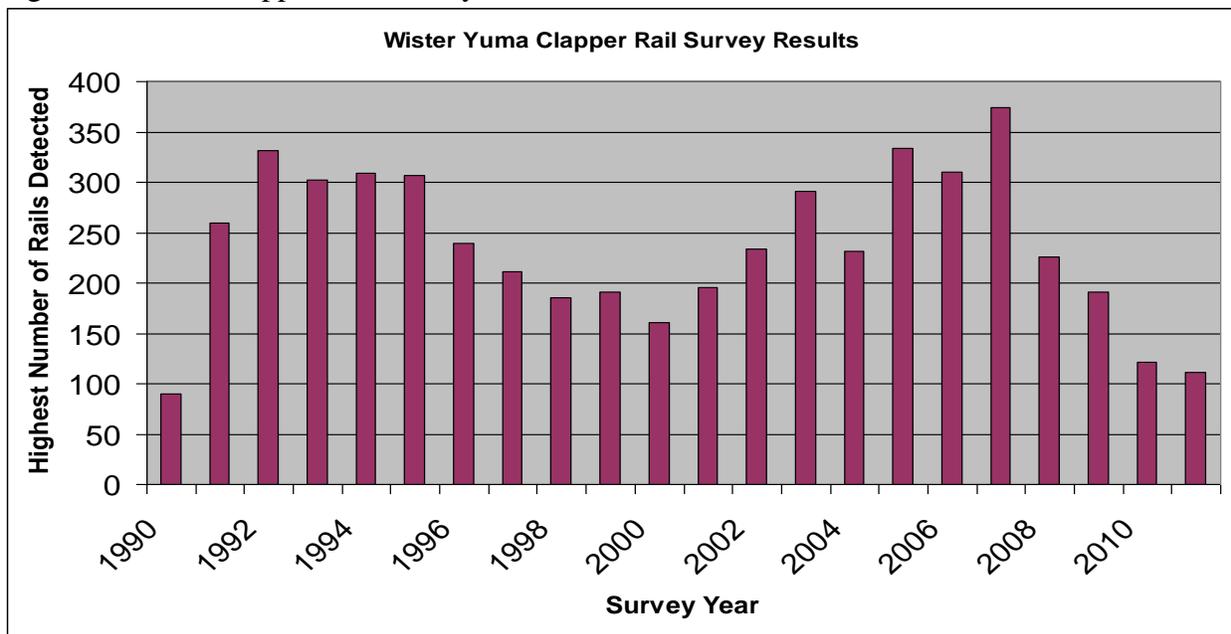
Discussion

Overall, the number of detections of Yuma clapper rail has decreased since 2007 (Figure 1). Although it is still unknown whether or not this population might be experiencing a downward trend in a naturally fluctuating population, the decrease from 2010 to 2011 is possibly due to the decrease in acreage managed for the rails in 2011 because of restoration activities at Wister.

Some management activities performed during the summer might have indirectly affected the success of the rails that were nesting in adjacent managed fields, which might further decrease the rail population, although it might be only temporary. This year, for example, as part of a North American Wetlands Conservation Act (NAWCA) grant, DU installed an underground water pipeline for all ponds in waterfowl-managed fields S20, T12, U10, U12, 115A, 312A, and 513A, as well as the W11A reservoir. The underground pipeline will allow Wister management to have much greater control over the water distribution in each pond in those fields. To perform this work, water was turned off for W11A, 115A, and 312A in the first week of May, which affected the amount of water normally moving to adjacent rail ponds W11C, 115B/C, 312B/C/D. Field 115B was found completely dry in the third round of surveys, although one clapper rail was detected. Fields W11C and 312D were still completely dry as of a visit on August 24, 2011. This work might have negatively affected the rail population this year; however, the underground pipeline will allow Wister management to have much greater control over the water distribution in those fields for future activities, which will definitely make managing the rail habitat there easier and could reduce fluctuations known to be adverse to clapper rails (Gould 1975).

Also, CWA had to stop water from entering all of the Y16 fields in June in order to clean a clogged drain for the closed zone just west of field 114A. As a result, rail fields Y16 A and D did not have water on them throughout most of June. The water was put back the first full week of July, although the reservoir had to fill up before Y16A could be full again. Dry ponds could negatively affect any rails nesting there.

Figure 1. Yuma Clapper Rail Survey Results at Wister



Changes in water level could contribute to a decline in rail numbers. Gould (1975) noted that constant fluctuations in water level were unfavorable to Yuma clapper rails. Fields once beneficial to rails and then drained within their breeding season could result in lost clutches. It is suggested that water levels remain in clapper rail habitat from February 15 through July 31 (Eddleman 1989) to avoid causing nest failures and habitat abandonment.

In addition, there is still the issue of only four permanently managed clapper rail fields (S22, W11C, Y16D, and 312D); the rest of the clapper rail habitat is shuffled with waterfowl habitat. Also, some habitat is fed partly by drain water, which can't be actively managed. Furthermore, areas designated as being managed that include drainage ditches and reservoirs should probably be excluded from the surveys. The reservoirs were originally created to hold 12 feet of water, but siltation over the years has resulted in decreased water levels. The reservoirs at Wister currently range between 20 and 48 inches deep; therefore much greater than the six inches found effective for clapper rails at Wister in the Imperial Valley Clapper Rail Survey (Smith 1974). Crayfish, assumed a major diet base for clapper rails, have been mostly found in water that was 3-6 inches deep (Gould 1973), which could explain why clapper rails prefer more shallow areas.

A study by Eddleman (1989) found that the leading cause of death for Yuma clapper rails was predation, and that half of these incidents were caused by mammalian predators, namely raccoons and coyotes. Because there was strong evidence that raccoons have been in and around the areas managed for Yuma clapper rail within Wister, a raccoon trapping and eradication project was begun on October 11, 2010 and is planned to continue. It was paused as of February 24, 2011, to avoid trapping during the bird nesting season. There were 14 trapping days total, which resulted in only one raccoon (dispatched) and one skunk (released), although raccoon tracks are still evident in the managed rail areas and observations have been made of large raccoons roaming the area. This has led to the assumption that the traps could be too small for the raccoons in the area and larger traps are currently being pursued, as well as possible assistance from the USDA Animal and Plant Health Inspection Service (APHIS).

Surveys for 2012

Surveys in 2012 will be refined to exclude all drainage ditches and reservoirs, and focus only on managed habitat that occurs within the fields at Wister.

Future Management Activities

Overall, there are plans to remove tamarisk and rank vegetation throughout Wister. Also, the raccoon trapping program, which began in 2010, will continue in the fall after bird nesting season. Yuma clapper rails appear more vulnerable to predation during post-breeding (Eddleman 1989), so fall is probably a more appropriate time. If time permits, a crayfish trapping survey will be performed in the areas identified as managed rail habitat.

IID currently oversees the Managed Marsh Complex, a 949-ac marsh created as mitigation for IID activities that impact drain-covered species within IID jurisdiction. The Managed Marsh is being managed to target Yuma clapper rail and black rail. Planting began in 2009, and the vegetation will possibly be mature enough for occupancy of rails in 2012. Surveys are anticipated for the 2012 marsh bird survey season. Surveys conducted by IID staff in spring 2010 for crayfish abundance were negative, suggesting that the main food source for Yuma

clapper rails is not yet established there. A crayfish survey at Wister could assist with management of the Managed Marsh Complex.

Currently, CWA is waiting on funding from the NAWCA II grant to perform restoration on the clapper rail managed areas within the 312 B/C delivery ditches. This work, if funded, would most likely occur in 2012. Duck Stamp funding is expected to be used in 2012 toward restoration (restoring levees and replacing water control structures) within the rail managed ponds of field Y16D.

In late May, recommendations for future management of the rail habitat were submitted to the Wister management by Karen A. Riesz, Associate Biologist, and Randy VonNordheim, Fish and Wildlife Technician. This effort included a chart showing the general habitat needs of Yuma clapper rails and California black rails, a chart showing a proposed management schedule for the rail-managed fields, and some suggestions, such as managing more habitat as permanent and locations where that habitat could possibly exist. More correspondence is expected to continue, which should ultimately result in greater success of the habitat available for the Yuma clapper rail and California black rail.

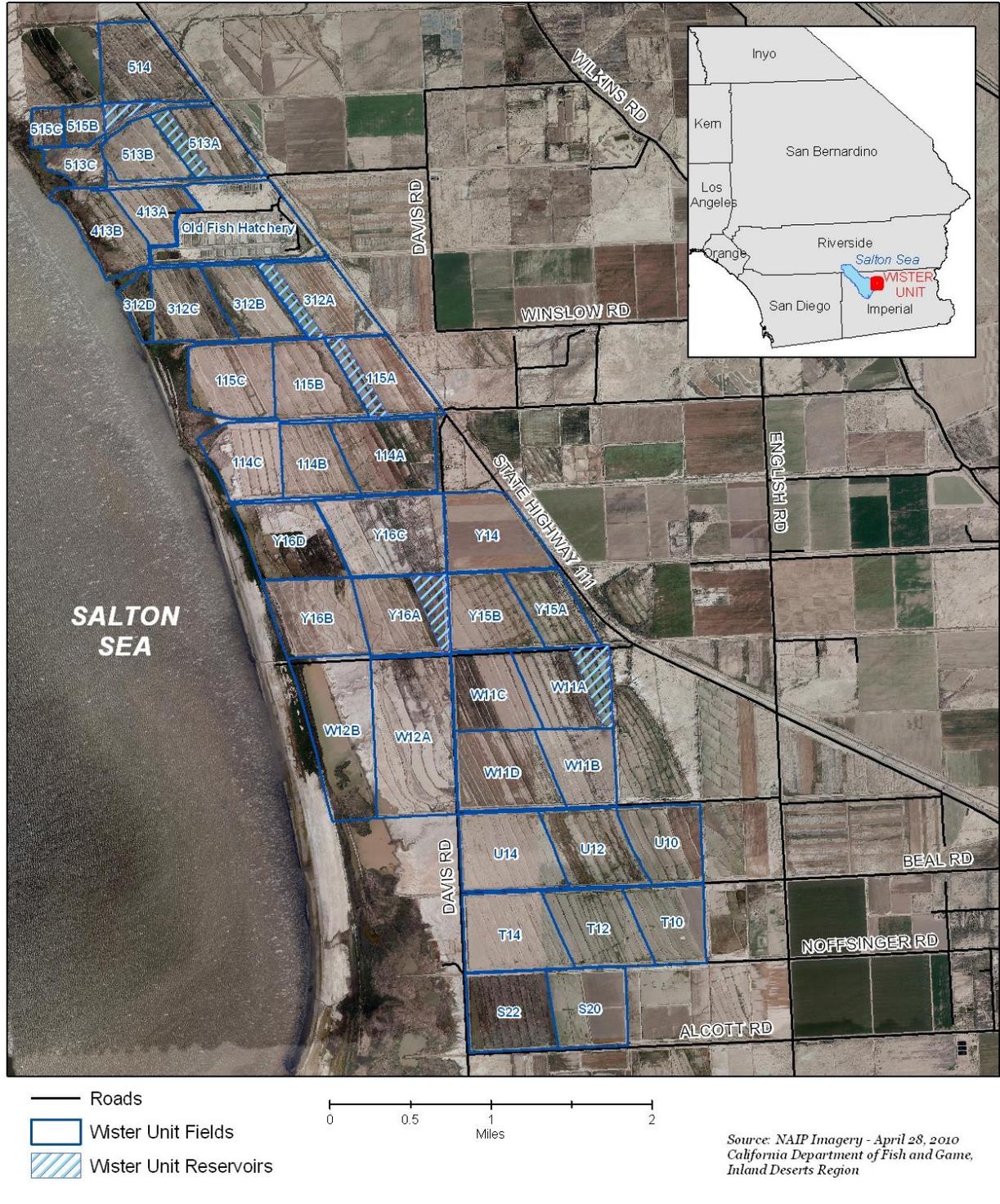
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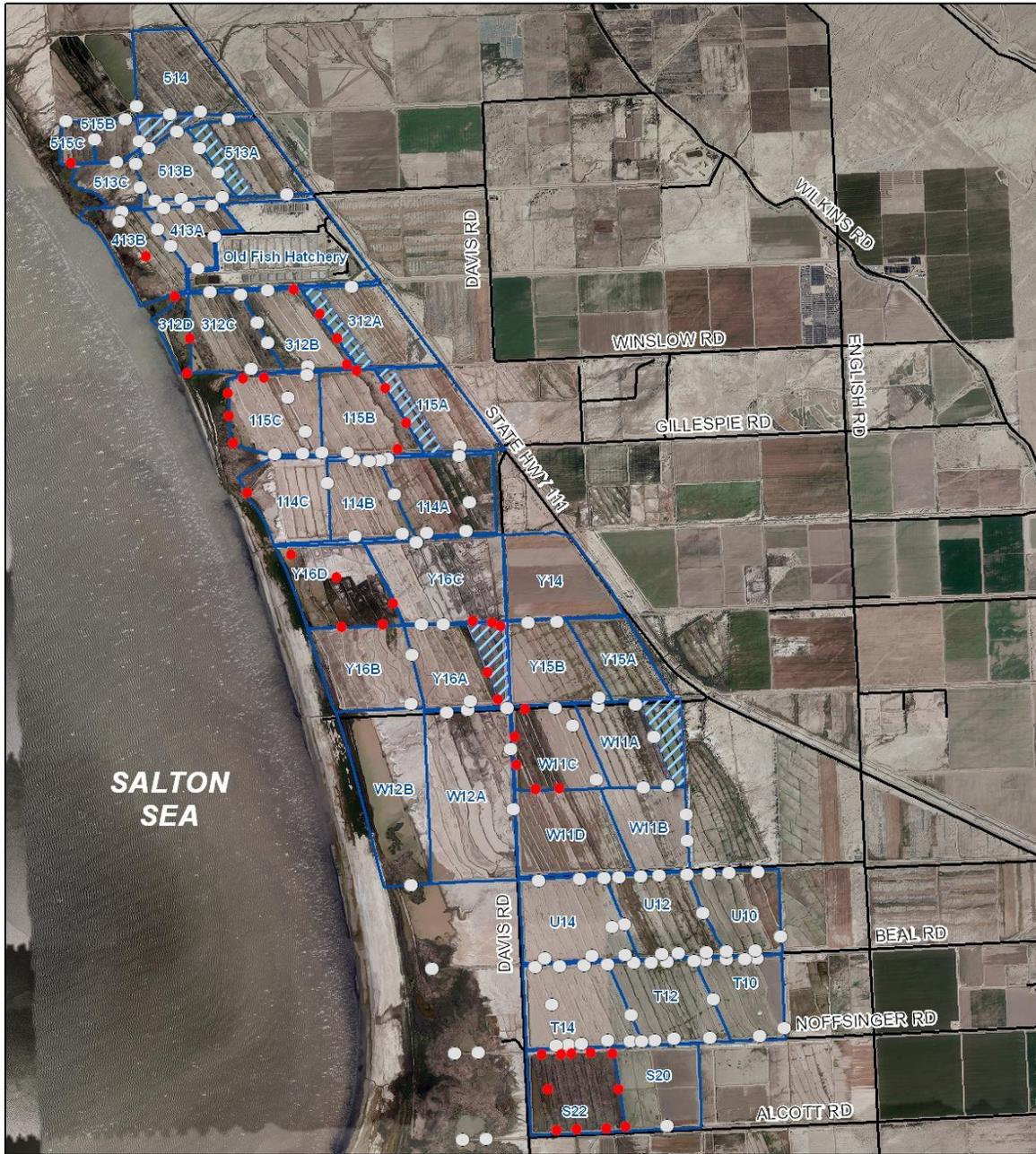
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Appendix A. Wister Unit of the Imperial Wildlife Area

Wister Unit of the Imperial Wildlife Area California

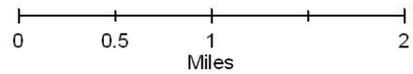


Survey Points for 2011 Wister Unit Marsh Bird Surveys



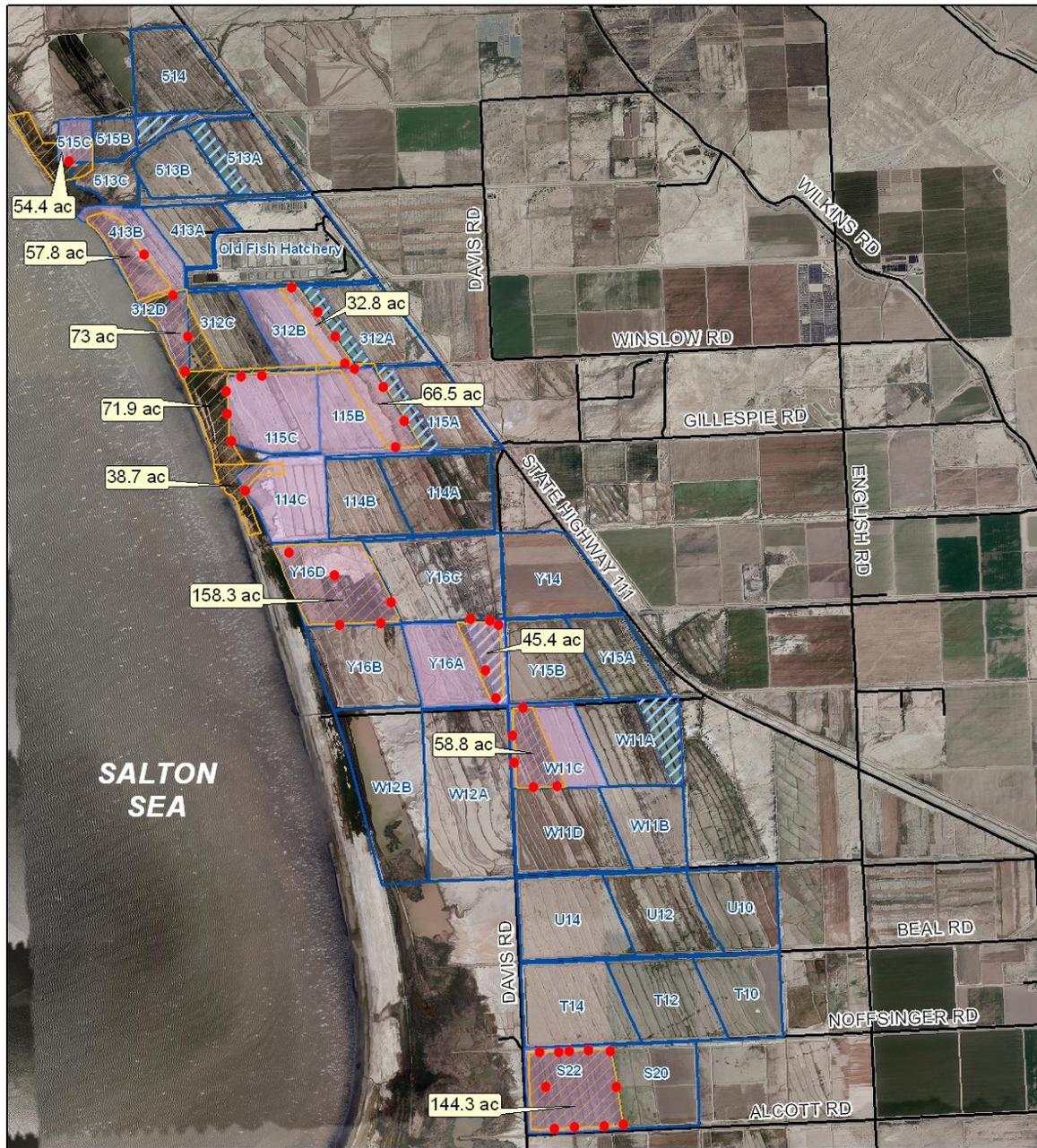
Surveys

- 2011
- All Other Years
- Roads
- ▭ Wister Unit Fields
- ▨ Wister Unit Reservoirs

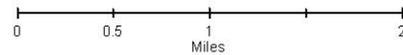


Source: NAIP Imagery - April 28, 2010
 California Department of Fish and Game,
 Inland Deserts Region

Pond Acres for 2011 Wister Unit Marsh Bird Surveys



- 2011 Marsh Bird Surveys
- Roads
- ▨ Rail Managed Ponds
- ▨ Rail Managed Fields
- ▨ Wister Unit Fields
- ▨ Wister Unit Reservoirs



Source: NAIP Imagery - April 28, 2010
 California Department of Fish and Game,
 Inland Deserts Region

Yuma Clapper Rail Results for 2011 Wister Unit Marsh Bird Surveys



- Survey Points**
- Positive Detection
 - Negative Detection
 - Roads
 - Wister Unit Fields
 - ▨ Wister Unit Reservoirs



Source: NAIP Imagery - April 28, 2010
 California Department of Fish and Game,
 Inland Deserts Region