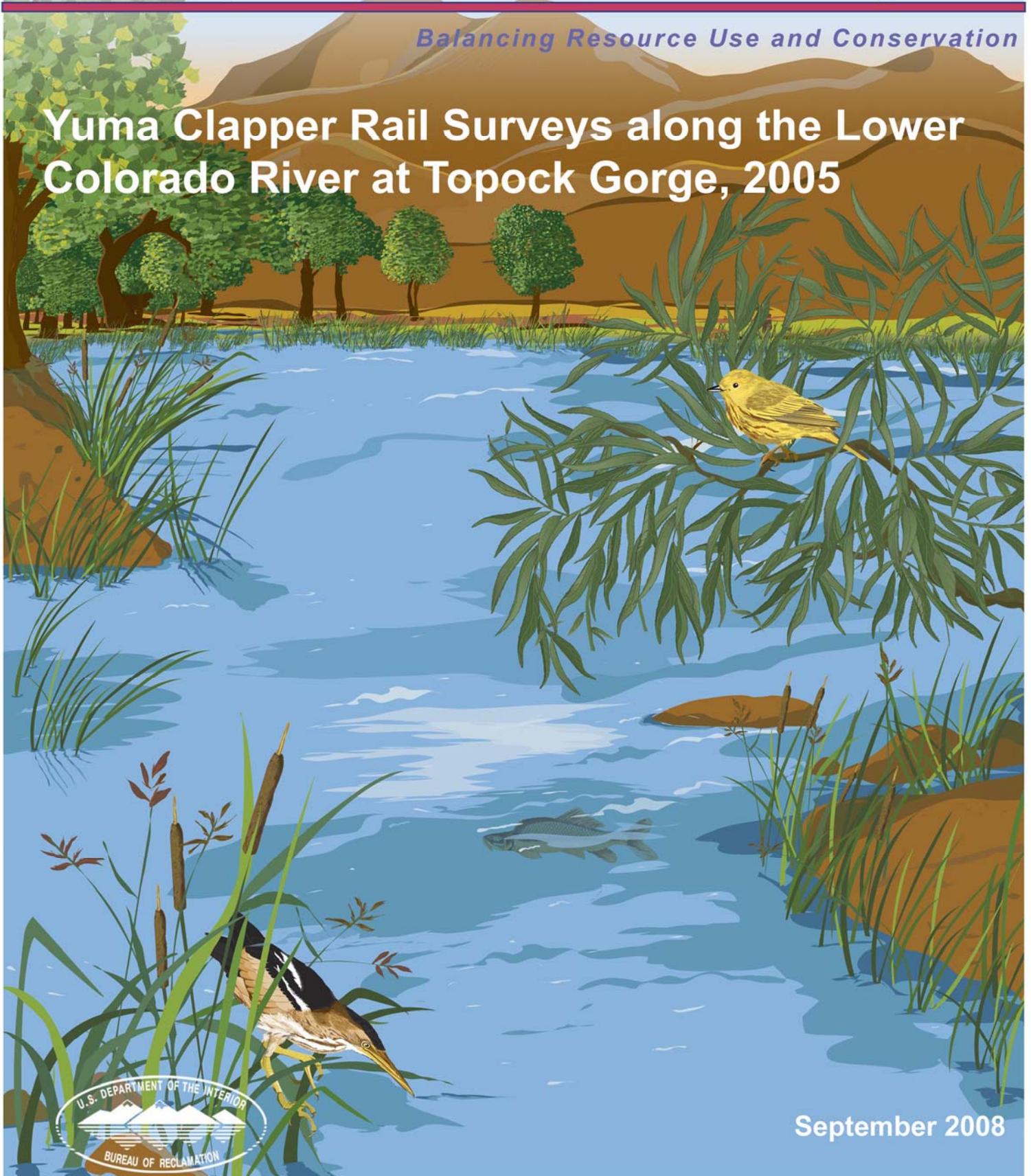




Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Yuma Clapper Rail Surveys along the Lower Colorado River at Topock Gorge, 2005



September 2008

Lower Colorado River Multi-Species Conservation Program Steering Committee Members

Federal Participant Group

Bureau of Reclamation
U.S. Fish and Wildlife Service
National Park Service
Bureau of Land Management
Bureau of Indian Affairs
Western Area Power Administration

Arizona Participant Group

Arizona Department of Water Resources
Arizona Electric Power Cooperative, Inc.
Arizona Game and Fish Department
Arizona Power Authority
Central Arizona Water Conservation District
Cibola Valley Irrigation and Drainage District
City of Bullhead City
City of Lake Havasu City
City of Mesa
City of Somerton
City of Yuma
Electrical District No. 3, Pinal County, Arizona
Golden Shores Water Conservation District
Mohave County Water Authority
Mohave Valley Irrigation and Drainage District
Mohave Water Conservation District
North Gila Valley Irrigation and Drainage District
Town of Fredonia
Town of Thatcher
Town of Wickenburg
Salt River Project Agricultural Improvement and Power District
Unit "B" Irrigation and Drainage District
Wellton-Mohawk Irrigation and Drainage District
Yuma County Water Users' Association
Yuma Irrigation District
Yuma Mesa Irrigation and Drainage District

Other Interested Parties Participant Group

QuadState County Government Coalition
Desert Wildlife Unlimited

California Participant Group

California Department of Fish and Game
City of Needles
Coachella Valley Water District
Colorado River Board of California
Bard Water District
Imperial Irrigation District
Los Angeles Department of Water and Power
Palo Verde Irrigation District
San Diego County Water Authority
Southern California Edison Company
Southern California Public Power Authority
The Metropolitan Water District of Southern California

Nevada Participant Group

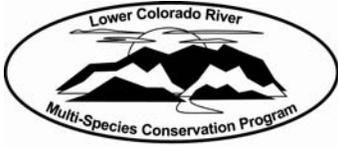
Colorado River Commission of Nevada
Nevada Department of Wildlife
Southern Nevada Water Authority
Colorado River Commission Power Users
Basic Water Company

Native American Participant Group

Hualapai Tribe
Colorado River Indian Tribes
The Cocopah Indian Tribe

Conservation Participant Group

Ducks Unlimited
Lower Colorado River RC&D Area, Inc.



Lower Colorado River Multi-Species Conservation Program

Yuma Clapper Rail Surveys along the Lower Colorado River at Topock Gorge, 2005

Lower Colorado River
Multi-Species Conservation Program
Bureau of Reclamation
Lower Colorado Region
Boulder City, Nevada
<http://www.lcrmscp.gov>

September 2008

Abstract

The Bureau of Reclamation (Reclamation) participated in the annual interagency field surveys for the Yuma clapper rail (*Rallus longirostris yumanensis*) in Topock Gorge on Havasu National Wildlife Refuge (NWR) as part of an interagency effort along the lower Colorado River. Three separate surveys were conducted from late March thru mid-May 2005. Yuma clapper rails detected ranged from 38 to 44 individuals per survey period.

Introduction

The Yuma clapper rail was listed as endangered on 11 March 1967 by the Secretary of Interior pursuant to the Endangered Species Act of 1966 (U.S. Dept. of Interior 1968). California originally listed the Yuma clapper rail as endangered in 1971; it was relisted as rare in 1978 and is presently listed as threatened (California Dept. of Fish and Game 2006). In 1978, Arizona classified the Yuma clapper rail as a species of special concern, similar to the federal status of endangered (Arizona Dept. of Game and Fish Commission 1978). The state of Nevada classifies the Yuma clapper rail as endangered (Nevada Administrative Code 503.050 2003). It is listed as endangered in Mexico (Hinojosa-Huerta et al 2001).

In 1996, Reclamation began conducting surveys for the presence of the Yuma clapper rail in Topock Gorge, within the Havasu NWR along the lower Colorado River. Surveys were conducted at the request of staff at Havasu NWR and were along routes established by them. Reclamation conducted these surveys in accordance with the Biological and Conference Opinion on Lower Colorado River Operations and Maintenance – Lake Mead to Southerly International Border (USFWS 1997), which required that surveys be performed to continually monitor Yuma clapper rail in order to maintain a minimum breeding population of 700-1000 in the United States (USFWS 1983). Reclamation is now operating under the Habitat Conservation Plan (HCP) of the Lower Colorado River Multi-Species Conservation Program (LCR-MSCP) and will conduct surveys under Monitoring and Research Measure 1 (MRM1) (LCR-MSCP 2004).

Background

The Yuma clapper rail is a large gray-brown rail with a slightly decurved bill, very narrow laterally, with long legs and toes relative to the body. This very secretive rail feeds mostly on crustaceans found in marsh habitats (Ohmart and Tomlinson 1977). Unlike other subspecies of the clapper rail, *yumanensis* is not restricted to salt water marshes (Eddleman and Conway 1998). It has been found in fresh water marshes along the Virgin River, Muddy River, and Las Vegas Wash in southern Nevada; the lower Colorado River from Laughlin Bay, Nevada, to the Colorado River Delta in Mexico; and near the Salton Sea in southern California (Rathbun and Braden 2003, SWCA 1998, Eddleman and Conway 1998). Historically, researchers did not believe that the Yuma clapper rail was distributed along the lower Colorado River in the United States prior to dam construction, which led to the creation of marsh habitats (Grinnell 1914, Ohmart and Smith 1973, Rosenberg et al. 1991). Dickey recorded the first Yuma clapper rail in 1921,

near Laguna Dam, north of Yuma, Arizona, 12 years after Reclamation constructed Laguna Dam (Dickey 1923). Naturalists sighted Yuma clapper rails farther north after Parker, Imperial, and Headgate Rock dams were built in 1938, 1939, and 1942, respectively (USFWS 1983). The construction of dams created Yuma clapper rail habitat by blocking the flow of sediments that precipitated outward from the river channel forming sandbars; thus, providing suitable substrate for marsh vegetation such as cattails, bulrush, and sedges (Ohmart and Smith 1973).

Radiotelemetry studies of Yuma clapper rail indicate that greater than 75% of the breeding population overwinters along the lower Colorado River (Eddleman 1989, Conway 1990). Eddleman and Conway believe that the Yuma clapper rails move locally to search for food and are less vocal in the winter months. Yuma clapper rail males start advertising in February, with pair formation beginning shortly afterward (Eddleman and Conway 1998).

Description of Survey Area

Topock Gorge is located along the lower Colorado River between Needles, California, and Lake Havasu City, Arizona, in Havasu NWR (Maps 1 & 2). The predominant vegetation at Topock Gorge consists of bullwhip bulrush (*Juncus californicus*), three-square bulrush (*Scirpus olneyi*), southern cattail (*Typha angustata*), and common reed (*Phragmites communis*). There are also stands of saltcedar (*Tamarix* sp.) and coyote willow (*Salix exigua*) mixed in. There are 52 survey sites with the majority of them located on the eastern side of the Colorado River. A list of other survey areas and the agencies responsible for them (Attachment 1) is included. Although listed as surveyed by Reclamation in Attachment 1, the Mohave Division was not surveyed in 2003.

Methods

We employed survey protocol and data sheets developed by the U.S. Fish and Wildlife Service (USFWS) in 1983 and revised in 2000, 2003, and 2005 (Attachments 2, 3, 4, 5). On the latest data sheets, we recorded date, start time, end time, weather, location, route, observers, background noise level, and comments as well as clapper rails and selected marsh birds encountered, their responses, and direction and distance from the survey point. This version is in accordance with established marsh bird survey protocol (Conway 2005). From 2000 to 2004, surveys were performed three times during the official survey protocol period from March 15 to May 31. Surveys from 1996 through 1999 were done twice during the months of April and May. During each survey period, we attempted to visit all 52 sites. Surveys periods were conducted at approximately the same time each year. Flat-bottomed lightweight power boats provided access to the survey areas. Surveys commenced 30 minutes before sunrise and continued no later than 3 hours after sunrise. Official surveys ceased when winds reached greater than 16 kilometers per hour due to difficulty in hearing the rails over the rustling of the vegetation. We surveyed for the rails using playback recordings of Yuma clapper rail vocalizations provided by the USFWS to elicit responses. Portable CD players with amplified speakers were used to broadcast the calls. The surveyors arrived at the survey site, waited and listened for 1 minute, played

clapper rail “kek” and “clatter” calls for 2 minutes, listened for 2 minutes, played calls for 2 more minutes, and listened for 1 minute for a total of 8 minutes of survey time at each location. All responses and sightings of Yuma clapper rail were recorded as well as those of the western least bittern (*Ixobrychus exilis hesperis*), California black rail (*Laterallus jamaicensis coturniculus*), Virginia rail (*Rallus limicola*), sora (*Porzana carolina*), and pied-billed grebe (*Podilymbus podiceps*). General area maps were also marked with the location of the birds observed. All data forms and maps were sent to the Yuma clapper rail coordinator, USFWS-Arizona Ecological Services Office in Phoenix, Arizona, and the USFWS at Havasu NWR. In 2005, we conducted surveys for western least bittern, California black rail, and Yuma clapper rail using a multi-species protocol in conjunction with our clapper rail surveys.

Results

In 2005, surveys were conducted on March 22-23, April 19-20, and May 17-18. One complete survey was done each month and the average used to obtain a yearly detection number. The number of Yuma clapper rails encountered for the months surveyed was 43, 38, and 44, respectively, with a yearly average of 42. This is down from the 2004 results of 57, 47, and 72 (average = 59) (Fig. 1). No rails were visually identified during 2005 surveys. More clapper rails were detected during the official clapper rail surveys than the expanded species surveys. The results are presented in the 2005 Marsh Bird Survey Report.

Discussion

Conway et al. (1993) used radiotelemetry, in conjunction with playback recordings of Yuma clapper rail, along the lower Colorado River at Mittry Lake, north of Yuma, Arizona, to determine detection rates for the USFWS protocol. They determined marked birds exhibited a year-round response rate of 19.2%. During the breeding season (the same time we performed our surveys), the response rate jumped to 40%. Additionally, the use of recordings on several visits may cause the birds to alter their behavior and may provide a reason for the decrease of responses (Robbins 1978). The birds may become habituated to the recordings and not respond as frequently. Conway et al. and Robbins data suggest that our survey results may show a number less than half the actual number of Yuma Clapper rail that inhabit the gorge.

Although Yuma clapper rail responses at Topock Gorge have fluctuated both during the survey periods and between the years, there has not been a downward trend throughout those years (Fig. 2). In 2005, survey efforts yielded an average of 42 rails, 17 less than the 2004 average of 59. The highest response in 10 years of Reclamation surveys was 72 rails during May 2004. The lowest was in March of 2002 with 17, a difference of 55 rails encountered in a little over 2 years' time. These numbers show that the number of rails encountered can vary greatly over a relatively short period of time. The reasons for these fluctuations are unknown at this time.

Reservoir levels throughout the survey years have remained fairly constant but there are fluctuations of several feet in the water level during the nesting season. One of the principal causes of nest failure is flooding (Eddleman and Conway 1998). Optimum water level in Topock Gorge for Yuma clapper rails is unknown.

Changes in habitat could also account for the differences in the response levels of Yuma clapper rail between years. Habitat analysis of the survey sites, however, was not performed. If there were changes of habitat quality during the surveys, it is not known. Surveyors have noted minor changes, with increases in open water and filling in of open water and channels with vegetation (J. Swett, per. comm.). Increases or decreases of habitat quality may account for the differences in the yearly response rates but shouldn't account for the response rate changes experienced between months.

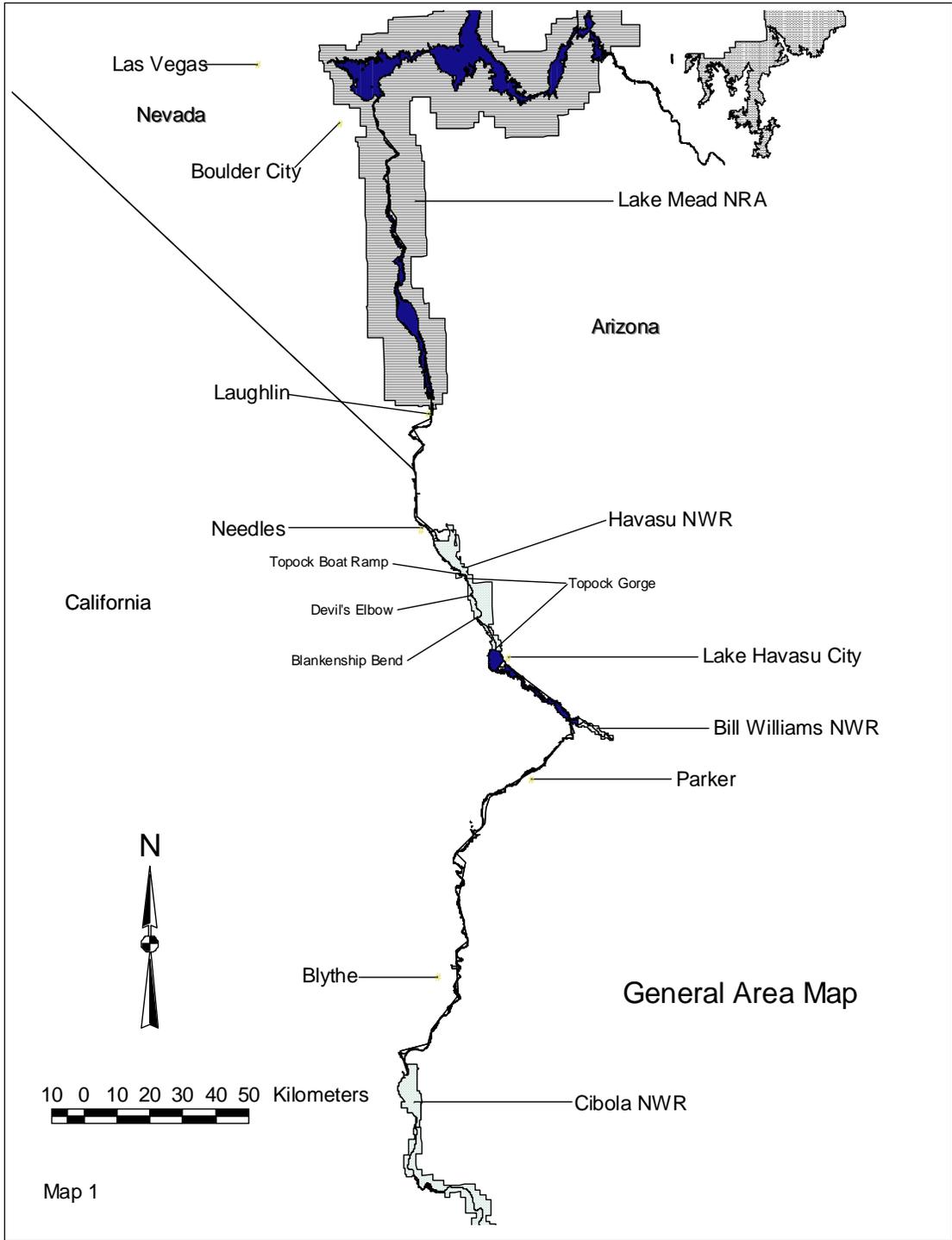
Recommendations

1. Continue survey efforts at Topock Gorge.
2. Look at the significance of water fluctuations and the number of rails encountered.
3. Perform a more thorough analysis of vegetation composition where Yuma clapper rails are encountered on a consistent basis and include species composition, percentage, and distance to shore, and open waters and depth of water.
4. Reevaluate areas in Topock Gorge that may potentially provide Yuma clapper rail habitat and conduct surveys there.

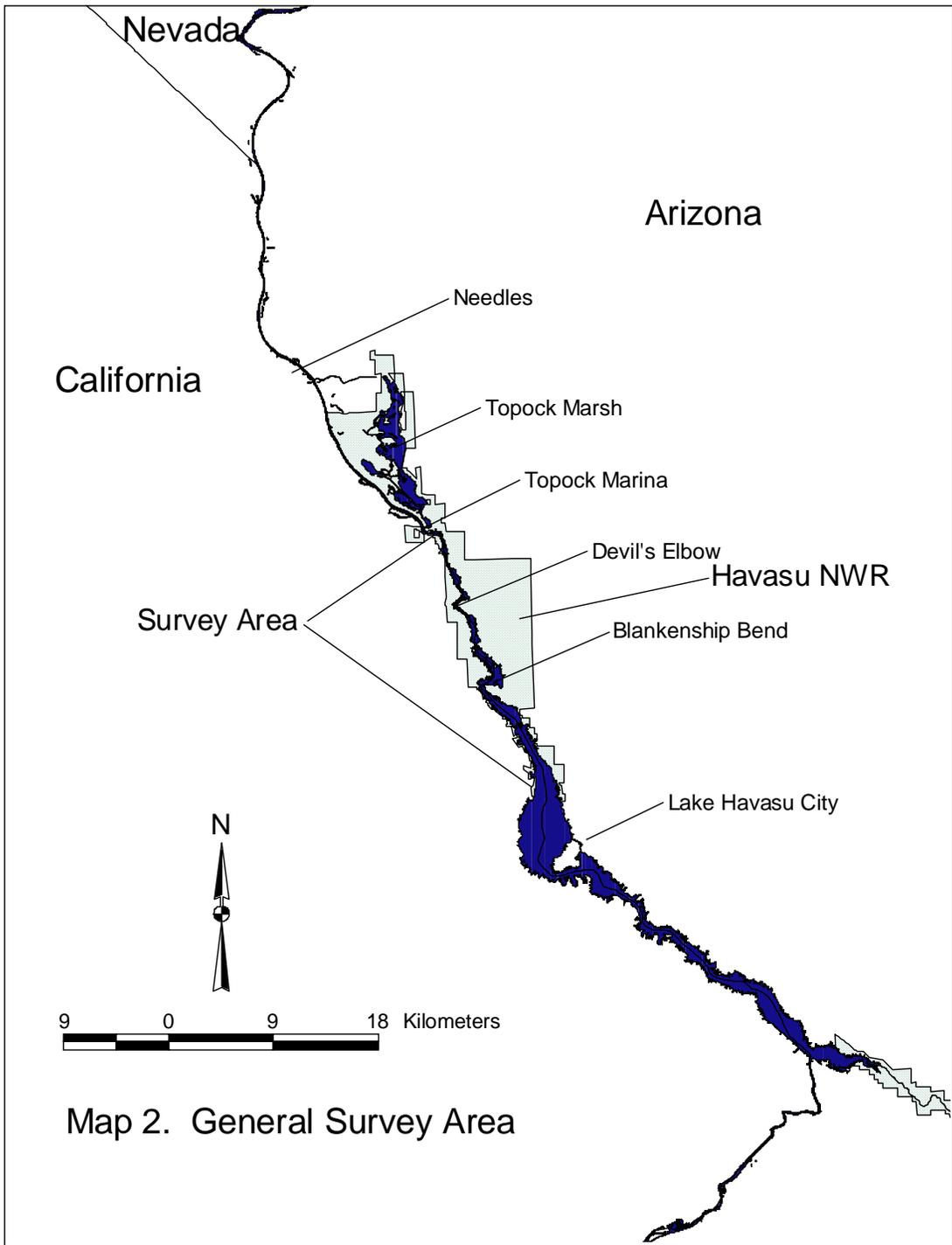
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Map 1



Map 2. General Survey Area

YUMA CLAPPER RAIL OFFICIAL SURVEY LOCATIONS

ANNUAL SURVEY REQUIRED

Topock Marsh	Fish and Wildlife Service (FWS)
Topock Gorge	Bureau of Reclamation (BOR)
Bill Williams Delta	FWS
Cibola NWR	FWS
Imperial Division	Bureau of Land Management (BLM)#
Imperial NWR	FWS
Mittry Lake/Teal Alley/YPG Slough	Arizona Game & Fish Department (AGFD)
Gila River (Buckeye-Arlington)	AGFD, FWS, Dick Todd
Other Internal Arizona Areas	AGFD, FWS
IWA: Wister Unit	California Department of Fish & Game (CDFG)
Sonny Bono-Salton Sea NWR	FWS
Barnacle Beach (Salton Sea)	FWS
Ciénega de Santa Clara	University of Arizona, AGFD, FWS

SURVEY ON 3-YEAR ROTATION*

SURVEY IN 2000 AND 2003

Mohave Division	BOR
Parker Division	CDFG, Colorado River Indian Tribes (CRIT)
Laguna Division	AGFD, BLM
Yuma Valley Drains	BOR

SURVEY IN 2001 AND 2004

Lake Havasu	BLM
Palo Verde Division	CDFG
Yuma Division	AGFD
Lower Gila River/Quigley Pond	AGFD

SURVEY IN 2002

Parker Strip (CRIT)	CRIT
Cibola Division	CDFG, FWS
Limitrophe Division	AGFD

#BLM has requested assistance from other agencies to complete this location.

*Locations in this category can be surveyed more often if the responsible agency wishes.

YUMA CLAPPER RAIL SURVEY
COVER SHEET
(January 2000)

Date: _____

Location Information:

Location Name _____ Route _____

Map Name _____ Township/Range/Section _____

Observer(s) _____

Weather:

Start %Cloud Cover _____ Temp _____ Wind Speed _____

End %Cloud Cover _____ Temp _____ Wind Speed _____

Data Summary:

1) Total individual rails seen or heard while surveying _____

2) Number of other rails seen or heard (incidentals) _____

Total rails per route or location equals #1+#2 _____

For rails/hours, each stop is 7 minutes

Observations:

Events during survey that may have affected results:

Other Observations/Comments

**YUMA CLAPPER RAIL SURVEY
OPTIONAL DATA SHEET
COVER SHEET
MARCH 2003**

Date of survey: _____

Location

Name: _____ Route: _____

Map Name: _____ Township/Range/Section: _____

Observers: _____

Weather:

Start: % Cloud Cover: _____ Temp: _____ Wind Speed: _____ Precipitation: _____

End: % Cloud Cover: _____ Temp: _____ Wind Speed: _____ Precipitation: _____

Instructions:

- Use one line of data sheet for each individual bird detected at each survey point. Where more than one individual encountered, give each individual a number (YCRA 1, YCRA 2 etc.). If a pair is detected, each bird gets a separate line and number. The pair is identified in the "Comments" section.
- If bird is seen but not heard, indicate with an "s" in the data boxes. If seen and heard, indicate with "1s".
- Timed data boxes reflect silent and active call-broadcast periods divided into 8 one-minute intervals. If a bird is seen or heard during any part of each one-minute period, record it. For example, YCRA 1 may be heard during the initial passive minute, the 2nd calling minute, and the 4th calling minute. A notation should be made in each of the three relevant columns.
- In the "calls heard" column, note which types of calls were made by the individual bird during the 8-minute survey period. Please use the following for YCRA calls: kek (k); clatter (c); kekburr (kb); kekhurrah (kh), other (o)
- If other secretive marsh birds are heard during the survey, record them in the same way as the YCRA individuals. A list of species abbreviations and call types is given below:
 - Least Bittern (LEBI: coo, kak, other)
 - Virginia Rail (VIRA: grunt, ticket, kicker, other)
 - Sora Rail (SORA: whinny, perweep, keep, other)
 - Black Rail (BLRA: kickydoo, grr, churt, other)

Data summary:

Number YCRA recorded (seen or heard) during survey: _____

Number YCRA incidentally observed (seen or heard): _____

Comments/Events during survey that may have affected results:

Results of Clapper Rail Surveys at Topock Gorge 1996-2005

CLAPPER RAIL OCCURRENCE AT SURVEY SITES - TOPOCK GORGE -1996 TO 2005																													
SITE #	Apr-96	May-96	Apr-97	May-97	Apr-98	May-98	Apr-99	May-99	Mar-00	Apr-00	May-00	Mar-01	Apr-01	May-01	Mar-02	Apr-02	May-02	Mar-03	Apr-03	May-03	Mar-04	Apr-04	May-04	Mar-05	Apr-05	May-05	Total	Occurrence	SITE #
1	0	0	0	0	0	0	1	2	0	0	0	2	1	2	0	0	0	1	0	2	0	0	1	0	0	0	12	8	1
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	1	2	2	0	2	0	10	6	3
4	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	2	4
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	3	3	7
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	3	0	1	2	11	5	9
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	2	10
11	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	1	0	6	4	11
12	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	2	3	9	6	12
13	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	4	3	13	
14	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	14
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	15
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	16
17	0	0	0	0	3	1	4	3	0	0	0	0	1	1	1	0	2	1	4	1	2	1	1	1	0	0	27	15	17
18	0	2	0	0	0	1	1	0	0	2	1	1	1	1	0	0	1	1	1	0	5		0	7	0	2	27	14	18
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21	3	4	1	2	1	1	1	0	0	1	2	5	4	3	4	0	3	3	4	4	6	4	3	3	6	68	21	21	
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24	3	1	0	1	1	0	0	0	0	1	5	2	2	0	0	0	1	0	1	0	0	0	1	2	1	1	23	14	24
25	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	2	25	
26	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2	0	0	0	1	2	0	0	0	0	0	8	6	26
27	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	2	27
28	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2	2	0	0	1	0	0	0	7	5	28
29	0	0	0	1	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	8	5	29	
30	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	3	3	30
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
32	1	0	0	0	2	1	0	2	0	0	1	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	12	7	32
33	3	2	2	2	0	1	5	3	0	0	1	0	0	0	0	2	1	1	0	0	0	0	3	0	0	0	26	12	33
34	0	2	1	0	1	1	1	1	0	0	0	0	3	3	0	2	0	0	1	0	1	0	0	0	0	1	18	12	34
35	2	0	0	1	3	1	5	1	8	0	0	1	2	1	0	0	2	5	3	2	6	2	5	0	1	0	51	18	35
36	1	1	1	1	0	2	2	6	3	1	1	2	0	0	0	2	0	1	3	0	6	1	4	2	0	4	44	19	36
37	2	2	0	0	2	1	1	4	0	0	0	3	2	2	0	1	0	2	3	3	0	0	0	2	2	1	33	16	37
38	0	0	1	3	2	3	2	3	1	1	0	1	3	3	0	7	4	4	5	5	6	2	1	4	5	2	68	22	38
39	1	0	0	2	1	0	0	4	0	1	0	1	1	0	0	2	0	1	2	2	2	1	4	0	2	0	27	15	39
40	0	0	1	0	0	1	2	1	2	2	2	0	0	1	1	1	3	4	2	2	1	0	6	1	1	0	34	18	40
41	0	2	1	1	0	3	1	0	5	1	1	1	1	4	0	0	5	1	1	0	0	1	8	0	0	0	37	16	41
42	0	0	2	2	3	3	2	0	0	1	2	2	1	3	4	3		2	2	0	2	0	3	2	1	0	40	18	42
43	1	1	1	2	2	3	0	1	0	3		0	0	3	0	0	0	1	1	3	0	5	0	4	1	7	39	16	43
44	0	0	2	2	0	2	1	3	0	0	0	0	0	0	0	0	2	2	3	1	2	2	1	1	2	26	14	44	
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	1	0	3	1	2	13	7	45	
46	0	0	0	1	0	1	0	0	0	2	2	0	0	0	0	2	0	3	1	0	3	0		1	0	16	9	46	
47	0	1	1	1	1	0	0	1	0	0	0	2	0	0	0	1	2	2	0	1	1	0	2	0	0	16	12	47	
48	0	0	1	1	0	0	1	3	1	2	0	4	2	0	1	0	1	0	3	1	1	0	1	0	2	25	15	48	
49	0	1	0	1	0	1	1	2	2	0	0	0	1	0	1	0	4	0	2	1	1	0	1	2	0	21	14	49	
50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0		0	0	0	0	0	1	3	3	50	
51			3	1	1	0	3	1	2	2	2	2	1	3	2	0	1	3	4	2	0	0	5	2	1	0	41	19	51
52			0	0	0	0	0	0	3	2	0	0	0	0	0	0	2	2	2	3	0	5	1	2	0	22	9	52	
TOTAL	20	19	20	28	32	29	41	44	30	34	27	30	36	40	17	27	33	55	59	54	57	47	72	43	38	44	976	481	TOTAL
Avg/Yr		20		24		31		43		30		30		35		26		59		56		59		42				Avg/Yr	

Note: Blank spaces indicate no visit during survey period.

Figure 1

Yuma Clapper Rails - Topock Gorge 1996-2005



Figure 2