

Lower Colorado River Multi-Species Conservation Program



Balancing Resource Use and Conservation

Marsh Bird Surveys, Conservation Areas

2013 Annual Report



September 2015

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ACRONYMS AND ABBREVIATIONS

BBCA	Big Bend Conservation Area
BLCA	Beal Lake Conservation Area
CD	compact disc
IPCA	Imperial Ponds Conservation Area
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
Reclamation	Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service

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Attachment	
1	Species Lists
2	Survey Data Sheet

ABSTRACT

In 2013, surveys for marsh birds were conducted under the Lower Colorado River Multi-Species Conservation Program (LCR MSCP) at conservation areas along portions of the lower Colorado River (see figures 1 and 2). Surveys were conducted for Yuma clapper rails (*Rallus longirostris yumanensis*), California black rails (*Laterallus jamaicensis coturniculus*), and least bitterns (*Ixobrychus exilis*) during March and April at the Big Bend Conservation Area near Laughlin, Nevada, and the Beal Lake Conservation Area on the Havasu National Wildlife Refuge near Needles, California. None of the LCR MSCP covered marsh bird species were detected at the Big Bend Conservation Area. At the Havasu National Wildlife Refuge, least bitterns were detected at Beal Lake, but no covered marsh birds were detected at the Willow Marsh site within the riparian restoration area. No California black rails were detected.

The U.S. Fish and Wildlife Service conducted additional surveys for marsh birds at Hart Mine Marsh on the Cibola National Wildlife Refuge and at the Imperial Ponds Conservation Area on the Imperial National Wildlife Refuge during March, April, and May. Yuma clapper rails and least bitterns were detected at both Hart Mine Marsh and the Imperial Ponds Conservation Area (see figures 1 and 3).

INTRODUCTION

The Yuma clapper rail (*Rallus longirostris yumanensis*) was listed as an endangered species by the U.S. Department of the Interior in 1967 under the Endangered Species Preservation Act of 1966 (Public Law 89-669) (U.S. Department of the Interior 1967). This protection continued under the Endangered Species Act of 1973, regulated by the U.S. Fish and Wildlife Service (USFWS). In addition, the species is presently listed as threatened in California and is a species of special concern in Arizona (Arizona Game and Fish Department 2006; California Department of Fish and Wildlife 2013). Nevada ranks the Yuma clapper rail as S1: critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats, or other factors (Nevada Natural Heritage Program 2010).

The California black rail (*Laterallus jamaicensis coturniculus*) has been identified by the USFWS as a bird of conservation concern (USFWS 2008). In California, this species is listed as threatened and is also listed as a species of special concern in Arizona (Arizona Game and Fish Department 2002; California Department of Fish and Wildlife 2013).

The least bittern (*Ixobrychus exilis*) has been identified by the USFWS as a bird of conservation concern (USFWS 2008) and a species of special concern in Arizona and California (Arizona Game and Fish Department 2001; Sterling 2008). It is a protected species in Nevada (Nevada Natural Heritage Program 2010).

Conservation measures under the Habitat Conservation Plan of the Lower Colorado River Multi-Species Conservation Program (LCR MSCP) provide for monitoring and research of the Yuma clapper rail, California black rail, and least bittern (Bureau of Reclamation [Reclamation] 2004). Surveys for these three covered species are conducted at sites prior to and after creation of marshland habitat and in existing habitat as part of system-wide monitoring (Reclamation 2004).

SURVEY AREAS

Big Bend Conservation Area

The Big Bend Conservation Area (BBCA) is located along the Colorado River, south of Laughlin, Nevada (see figures 1 and 2). It is a small marsh/backwater (four survey points) that contains approximately 15 acres of backwater and 15 acres of upland. The predominant vegetation of the backwater is southern cattail (*Typha domingensis*). It is at the northern limit of Reach 3 and between River Miles 266 and 267 (see figures 1 and 2). Surveys are conducted by Reclamation.

Beal Lake Conservation Area

There are two survey areas in the Beal Lake Conservation Area (BLCA): Beal Lake and Willow Marsh. The BLCA is in Reach 3 between River Miles 238 and 239 and is located on the Havasu National Wildlife Refuge between Topock Marsh and the Colorado River (figures 1 and 2). There are nine survey points at Beal Lake within roughly 80 acres of emergent vegetation, predominantly cattail and bulrush (*Juncus* sp.) Willow Marsh is located adjacent to the riparian vegetation of the BLCA. It is a 14-acre site, constructed in 2012, which is predominately cattail and bulrush, and there are three survey points. Surveys are conducted by Reclamation.

Hart Mine Marsh

Hart Mine Marsh is located on the Cibola National Wildlife Refuge. It contains 163 acres of a decadent marsh, restored between 2009 and 2011, and is located at the southern limit of Reach 4, adjacent to River Miles 91 and 92 (figures 1 and 3). The vegetation consists of southern cattail, three-square bulrush (*Scirpus olneyi*), California bulrush (*Schoenoplectus californicus*), common spikerush (*Eleocharis palustris*), great bulrush (*S.tabernaemontani*), inland saltgrass (*Distichlis spicata*) with quail bush (*Atriplex lentiformis*), and honey mesquite (*Prosopis glandulosa*). There are nine survey points, with one added in 2013. Surveys are conducted by the USFWS.

Imperial Ponds Conservation Area

The Imperial Ponds Conservation Area (IPCA) is located on the Imperial National Wildlife Refuge. There are six constructed ponds with 80 acres of backwater habitat that contain some marsh habitat along the edges and in hummocks within the ponds. Field 18 is a 12-acre marsh converted from a farm field. It is dominated by bulrush and was constructed primarily for the California black rail. There are four survey points for the ponds (8–11) and two for Field 18 (3 and 12). The IPCA is located in Reach 5 adjacent to River Miles 59 and 58 (figures 1 and 3). Surveys are conducted by the USFWS.

METHODS

Surveys for the California black rail, least bittern, Virginia rail, and Yuma clapper rail were performed between March 15 and May 31 using a standardized protocol

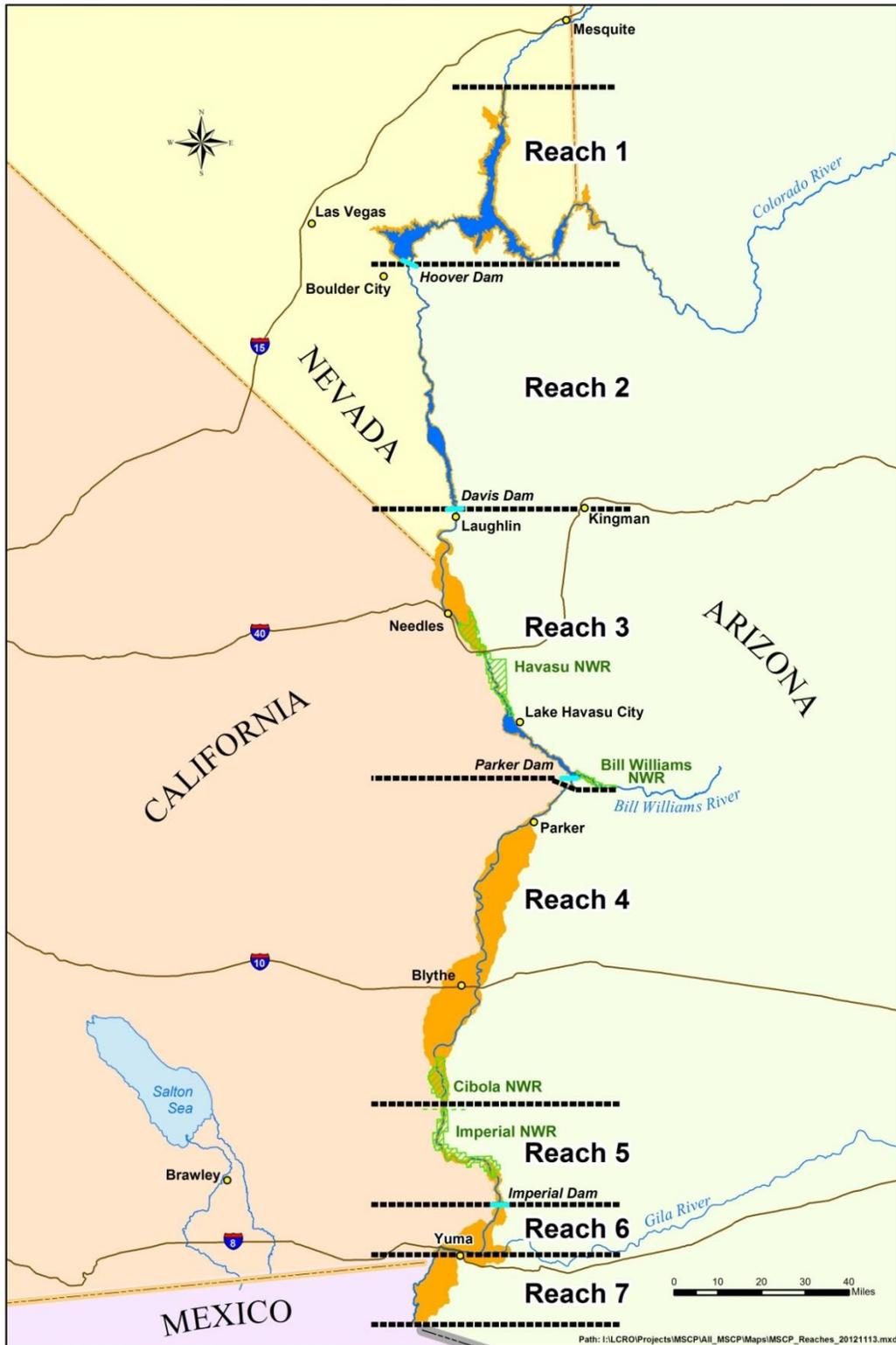


Figure 1.—Lower Colorado River Multi-Species Conservation Program planning area.

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**Figure 2.—Big Bend Conservation Area and Beal Lake Conservation Area sites
Beal Lake and Willow Marsh.**

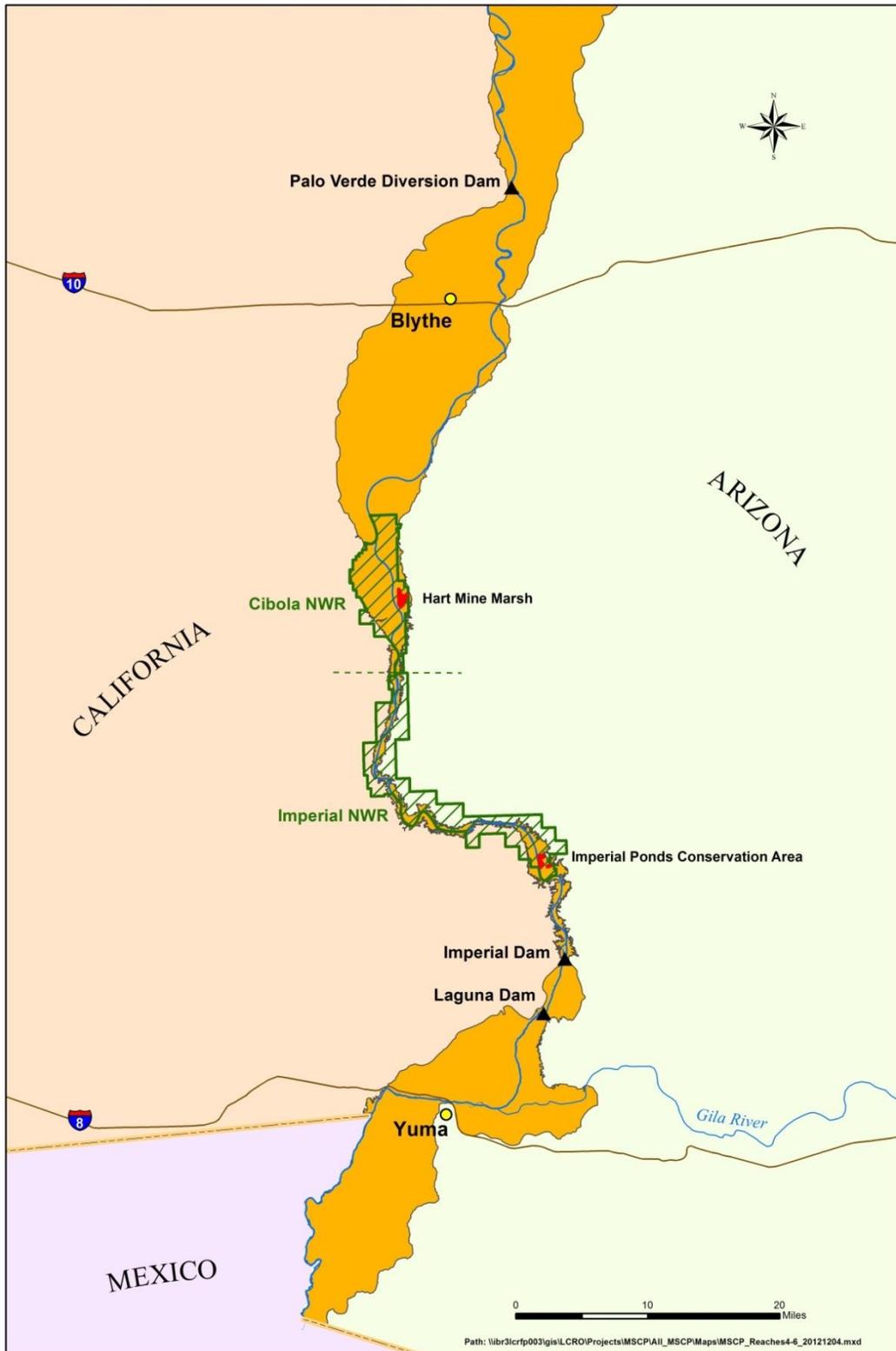


Figure 3.—Hart Mine Marsh and the Imperial Ponds Conservation Area.

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from the National Marsh Bird Monitoring Program (Conway 2009). Up to four surveys were conducted at each survey point. A standardized survey data sheet was used to record the date, start and end time, location, route, observers, environmental data, and other comments as well as selected marsh birds encountered, their responses, and the direction and distance from the survey point (attachment 2). Locations and numbers of pied-billed grebes (*Podilymbus podiceps*), soras (*Porzana carolina*), and common gallinules (*Gallinula galeata*) were also recorded.

Surveys began 30 minutes before sunrise and continued until marsh birds stopped calling, usually by 10:00 a.m. Surveys ceased when wind speeds were greater than 20 kilometers per hour, as the noise from rustling vegetation impaired the detection of birds. Surveys were not conducted during periods of sustained rain or heavy fog (Conway 2009).

Portable compact disc (CD) players with amplified speakers were used to broadcast calls of the California black rail, least bittern, Virginia rail, and Yuma clapper rail. The CD consisted of 5 minutes of silence followed by 30 seconds of selected calls and 30 seconds of silence for each of the species. Specific calls used were “kicky-doo” and “grr” for California black rails, “coo” and “kak” for least bitterns, “grunt,” “ticket,” and “kicker” for Virginia rails, and “clatter,” “kek,” and “kek-burr” for Yuma clapper rails. Calls were played at a volume of 80–90 decibels measured 1 meter from the speakers.

Birds encountered before or after the official 9-minute survey period were also noted on the survey form (attachment 2). Maps of the survey sites were marked with the general location of the birds encountered, and Universal Transverse Mercator coordinates for the survey sites were recorded using a Global Positioning System. Surveys at Beal Lake were conducted using a motorized boat; surveys at the BBCA, Cibola National Wildlife Refuge, and Imperial National Wildlife Refuge were conducted on foot and with vehicles.

Prior to 2006, surveys were conducted primarily for the detection of the Yuma clapper rail. In 2006, the surveys were expanded to include the California black rail, least bittern, and Virginia rail (Conway 2005).

RESULTS

Surveys at the BBCA were conducted on March 18 and April 24 (tables 1 and 2). On March 18, three pied-billed grebes were detected. In April, two Virginia rails, four soras, and three pied-billed grebes were detected. Only two surveys were conducted due to the limited availability of staff.

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Table 1.—Big Bend Conservation Area marsh bird survey results, March 18, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
1	0	0	0	0	0	0	0
2	0	0	0	0	0	2	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	1	0
Total	0	0	0	0	0	3	0

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

Table 2.—Big Bend Conservation Area marsh bird survey results, April 24, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
1	0	0	0	1	0	0	0
2	0	0	0	0	2	2	0
3	0	0	0	1	2	0	0
4	0	0	0	0	0	1	0
Total	0	0	0	2	4	3	0

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

Surveys at Beal Lake were conducted March 15 and April 22 (tables 3 and 4). In March, 6 Virginia rails, 14 soras, 1 pied-billed grebe, and 1 common gallinule were detected. During the April survey, five least bitterns, seven Virginia rails, two soras, two pied-billed grebes, and two common gallinules were detected. Surveys were conducted the same days at Willow Marsh. No covered marsh bird species were detected. One common gallinule was detected during the March survey, and two pied-billed grebes were detected in April. Only two surveys were conducted this year due to the limited availability of staff.

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Table 3.—Beal Lake marsh bird survey results, March 15, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
1	0	0	0	0	3	0	0
2	0	0	0	0	2	1	0
3	0	0	0	2	2	0	0
4	0	0	0	0	0	0	1
5	0	0	0	0	1	0	0
6	0	0	0	1	0	0	0
7	0	0	0	1	3	0	0
8	0	0	0	2	3	0	0
9	0	0	0	0	0	0	0
Total	0	0	0	6	14	1	1

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

Table 4.—Beal Lake marsh bird survey results, April 22, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
1	0	0	0	0	0	0	0
2	0	0	0	0	1	1	0
3	0	0	0	2	0	0	0
4	0	0	0	1	1	0	0
5	0	1	0	1	0	0	0
6	0	0	0	1	0	1	0
7	0	0	0	1	0	0	0
8	0	3	0	0	0	0	1
9	0	1	0	1	0	0	1
Total	0	5	0	7	2	2	2

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

Surveys at Hart Mine Marsh (tables 5–8) were conducted on March 19, April 2 and 18, and May 6. There were one least bittern, five Virginia rails, one pied-billed grebe, and one common gallinule detected during the March survey. The April 2 survey resulted in the detection of four Yuma clapper rails, nine least bitterns, six Virginia rails, one sora, and one common gallinule. Six Yuma clapper rails, five least bitterns, one Virginia rail, two soras, and six pied-billed grebes were detected during the April 18 survey. On May 6, one Yuma clapper rail, two Virginia rails, four pied-billed grebes, and one common gallinule were detected.

Table 5.—Hart Mine Marsh survey results, March 19, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
8	0	0	0	0	0	0	0
10	0	1	0	0	0	0	0
11	0	0	0	0	0	0	1
12	0	0	0	0	0	0	0
13	0	0	0	1	0	0	0
14	0	0	0	0	0	1	0
17	0	0	0	2	0	0	0
19	0	0	0	1	0	0	0
20	0	0	0	1	0	0	0
Total	0	1	0	5	0	1	1

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

Table 6.—Hart Mine Marsh survey results, April 2, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
8	0	0	0	0	0	0	0
10	2	3	0	0	0	0	0
11	0	3	0	2	0	0	0
12	1	2	0	1	0	0	0
13	0	0	0	0	0	0	0
14	0	1	0	1	1	0	0
17	1	0	0	1	0	0	0
19	0	0	0	1	0	0	0
20	0	0	0	0	0	0	1
Total	4	9	0	6	1	0	1

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

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Table 7.—Hart Mine Marsh survey results, April 18, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
8	0	0	0	0	0	0	0
10	2	2	0	0	0	2	0
11	3	1	0	0	1	1	0
12	1	1	0	0	0	0	0
13	0	0	0	0	0	0	0
14	0	0	0	0	0	1	0
17	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0
20	0	1	0	1	1	2	0
Total	6	5	0	1	2	6	0

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

Table 8.—Hart Mine Marsh survey results, May 6, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
8	0	0	0	0	0	0	0
10	0	0	0	0	0	1	0
11	0	0	0	0	0	1	0
12	0	0	0	0	0	0	0
13	0	0	0	0	0	1	0
14	0	0	0	0	0	1	0
17	1	0	0	0	0	0	1
19	0	0	0	2	0	0	0
20	0	0	0	0	0	0	0
Total	1	0	0	2	0	4	1

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

Surveys at the IPCA were conducted on March 20, April 4 and 16, and May 14 (tables 9–12). Points 3 and 12 are located in Field 18, and Points 8–11 are located in the adjacent ponds. During the March 20 survey, one least bittern and one pied-billed grebe were detected. Two pied-billed grebes were detected during the April 4 survey. One Yuma clapper rail, five Virginia rails, two soras, and five pied-billed grebes detected during the April 16 survey. During the May 14 survey, three least bitterns, one Virginia rail, and one pied-billed grebe were detected.

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Table 9.—Imperial Ponds Conservation Area marsh bird survey results, March 20, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
3	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0
9	0	0	0	0	0	1	0
10	0	0	0	0	0	0	0
11	0	1	0	0	0	0	0
12	0	0	0	0	0	0	0
Total	0	1	0	0	0	1	0

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

Table 10.—Imperial Ponds Conservation Area marsh bird survey results, April 4, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
3	0	0	0	0	0	0	0
8	0	0	0	0	0	1	0
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	1	0
12	0	0	0	0	0	0	0
Total	0	0	0	0	0	2	0

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

Table 11.—Imperial Ponds Conservation Area marsh bird survey results, April 16, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
3	0	0	0	4	1	1	0
8	0	0	0	0	0	0	0
9	0	0	0	0	0	2	0
10	0	0	0	0	0	1	0
11	0	0	0	0	1	0	0
12	1	0	0	1	0	1	0
Total	1	0	0	5	2	5	0

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

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Table 12.—Imperial Ponds Conservation Area marsh bird survey results, May 14, 2013

Point	CLRA	LEBI	BLRA	VIRA	SORA	PBGR	COGA
3	0	2	0	0	0	0	0
8	0	0	0	0	0	0	0
9	0	1	0	0	0	1	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
12	0	0	0	1	0	0	0
Total	0	3	0	1	0	1	0

CLRA = Yuma clapper rail, LEBI = least bittern, BLRA = California black rail, VIRA = Virginia rail, SORA = sora, PBGR = pied-billed grebe, and COGA = common gallinule.

DISCUSSION

Big Bend Conservation Area

None of the LCR MSCP covered species were detected during the two surveys at the BBCA in 2013, although two secretive marsh bird species, Virginia rails and soras, were detected during the April survey. Pied-billed grebes were detected during all surveys. The most numerous of the bird species inhabiting the marsh continued to be the yellow-headed blackbird (*Xanthocephalus xanthocephalus*). A list of other bird species observed during the surveys can be found in attachment 1.

Least bitterns and Virginia rails have been detected at the BBCA previously. Annual surveys by Reclamation started in 2009. Least bitterns were detected in 2009 and 2010. Virginia rails were detected in 2009, 2011, and 2012. Reclamation conducted a survey at this site in April 1999 in cooperation with the Nevada Department of Wildlife. None of the targeted species were detected during that particular survey.

Beal Lake

Only one LCR MSCP covered species, the least bittern, was detected during surveys at Beal Lake in 2013. Five were detected during the April 22 survey. One least bittern was detected visually, and the other four responded with the “coo” call. This call is thought to be made by the male (Gibbs et al. 1992). Six Virginia rails were detected in March and seven in April. Detections of sora were highest in March, with 14; there were only 2 detections in April. Pied-billed grebe detections were one in March and two in April. Common gallinule detections were the highest in April, with two detections. A list of all bird species observed during the surveys can be found in attachment 1.

California black rails, least bitterns, and Yuma clapper rails have been detected at Beal Lake previously. Reclamation has conducted marsh bird surveys at Beal Lake since 2012. Marsh bird surveys were conducted previously by Dr. Courtney Conway, U.S. Geological Survey Arizona Cooperative Fish and Wildlife Research Unit, as part of a study of the effects of fire on Yuma clapper rails and California black rails (Conway and Nadeau 2005). Dr. Conway detected Yuma clapper rails and least bitterns as well as American coots (*Fulica americana*), common gallinules, and pied-billed grebes from 2001 to 2005 (Reclamation 2010). Two Yuma clapper rails were detected in March 2012 (Reclamation 2013). One California black rail was detected at Beal Lake in May 2007 (C. Nadeau 2007, personal communication).

Hart Mine Marsh

Yuma clapper rails and least bitterns were encountered during surveys at Hart Mine Marsh in 2013. The California black rail was not encountered. Yuma clapper rails responded with paired “clatters” on April 3 as well as “kek” calls. The “clatter” call is the primary call given by paired clapper rails during the breeding season (Zembal and Massey 1987). The “kek” call is the primary advertising call of the male clapper rail (Meanley 1985; Massey and Zembal 1987; Eddleman 1989). During the April 18 survey, there was one paired “clatter,” three single “clatters,” and one “kek” call recorded. This would indicate three to five pairs of Yuma clapper rails using Hart Mine Marsh during the April 18 survey. There were nine least bitterns encountered during the April 2 marsh bird survey (see table 6). This was the highest amount encountered during 2013. Eleven least bitterns, the highest number, were encountered on the April 8 survey in 2012 (Reclamation 2013). Virginia rails were detected during each survey period in 2013 (see tables 5-8).

Imperial Ponds Conservation Area

The only detection of a Yuma clapper rail in Field 18 (Points 3 and 12) was on the April 16 survey (table 11). Two least bitterns and one Virginia rail were detected in Field 18 during the May survey. A least bittern was detected in Pond 5 during the March and May surveys. Pied-billed grebes were detected in the ponds during all four surveys. The survey conducted on April 4 resulted in the detection of Yuma clapper rails and soras from survey points 3 and 12, but the survey data sheet did not indicate their presence in Field 18. California black rails were not detected in Field 18 or the ponds in 2013.

Surveys in 2012 resulted in the detection of California black rails in Field 18 during each survey period. The highest amount, five, was detected on May 9.

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Only one Yuma clapper rail was found on April 3 – it was in Field 18. Two least bitterns were detected on April 3 – one in Field 18 and the other in a pond (Reclamation 2013).

RECOMMENDATIONS

Reclamation and the USFWS should continue to monitor marsh bird use of created, restored, or current habitat in conservation areas (Reclamation should continue to coordinate with the USFWS in cataloging areas along the lower Colorado River that are being surveyed. Areas that are not currently being surveyed should be identified and potentially surveyed in the future.

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ATTACHMENT 1

Species Lists

Table1-1.—Birds observed or encountered during marsh bird surveys in 2013

Common name	Species	March	April
American coot	<i>Fulica americana</i>	X	X
American pipit	<i>Anthus rubescens</i>	X	
American white pelican	<i>Pelecanus erythrogynchos</i>	X	
Bald eagle	<i>Haliaeetus leucocephalus</i>	X	
Black-crowned night heron	<i>Nycticorax nycticorax</i>	X	
Bufflehead	<i>Bucephala albeola</i>		X
Cinnamon teal	<i>Anas cyanoptera</i>	X	X
Cliff swallow	<i>Petrochelidon pyrrhonota</i>		
Common gallinule	<i>Gallinula galeata</i>	X	X
Common goldeneye	<i>Bucephala clangula</i>		X
Common merganser	<i>Mergus merganser</i>	X	
Common yellowthroat	<i>Geothlypis trichas</i>	X	X
Gadwall	<i>Anas strepera</i>	X	X
Great egret	<i>Ardea alba</i>	X	X
Great-tailed grackle	<i>Quiscalus mexicanus</i>	X	X
Green-winged teal	<i>Anas crecca</i>	X	
Killdeer	<i>Charadrius vociferus</i>	X	X
Least bittern	<i>Ixobrychus exilis</i>		X
Least sandpiper	<i>Calidris minutilla</i>	X	
Lucy's warbler	<i>Oreothlypis luciae</i>		X
Mallard	<i>Anas platyrhynchos</i>	X	X
Marsh wren	<i>Cistothorus palustris</i>	X	X
Northern flicker	<i>Colaptes auritus</i>	X	
Northern harrier	<i>Circus cyaneus</i>	X	
Northern pintail	<i>Anas acuta</i>		X
Northern shrike	<i>Lanius ludovicianus</i>	X	
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>		X
Pied-billed grebe	<i>Podilymbus podiceps</i>	X	X
Redhead	<i>Aythya americana</i>		X
Ruddy duck	<i>Oxyura jamaicensis</i>	X	X
Red-winged blackbird	<i>Agelaius phoeniceus</i>	X	
Say's phoebe	<i>Sayornis saya</i>	X	
Sora	<i>Porzana carolina</i>	X	X
Song sparrow	<i>Melospiza melodia</i>	X	X
Tree swallow	<i>Tachycineta bicolor</i>		X
Turkey vulture	<i>Cathartes aura</i>	X	
Virginia rail	<i>Rallus limicola</i>	X	X
Wilson's phalarope	<i>Phalaropus tricolor</i>		X
Yellow-breasted chat	<i>Icteria virens</i>		X

Table 1-2.—Birds observed or encountered during marsh bird surveys in 2012

Common name	Species	March	April
Abert's towhee	<i>Melospiza aberti</i>	X	
American coot	<i>Fulica americana</i>	X	X
American robin	<i>Turdus migratorius</i>	X	
Anna's hummingbird	<i>Calypte anna</i>	X	
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>	X	
Black-crowned night heron	<i>Nycticorax nycticorax</i>		X
Black phoebe	<i>Sayornis nigricans</i>	X	
Black-tailed gnatcatcher	<i>Polioptila melanura</i>	X	
Canvasback	<i>Aythya valisineria</i>	X	
Common yellowthroat	<i>Geothlypis trichas</i>		X
Gambel's quail	<i>Callipepla gambelii</i>	X	X
Great blue heron	<i>Ardea herodias</i>		X
Great egret	<i>Ardea alba</i>		X
Greater roadrunner	<i>Geococcyx californianus</i>	X	
Great-tailed grackle	<i>Quiscalus mexicanus</i>	X	X
House finch	<i>Haemorhous mexicanus</i>	X	
Killdeer	<i>Charadrius vociferus</i>	X	
Lesser goldfinch	<i>Spinus psaltria</i>	X	
Lincoln's sparrow	<i>Melospiza lincolni</i>	X	
Lucy's warbler	<i>Oreothlypis luciae</i>	X	X
Mallard	<i>Anas platyrhynchos</i>	X	X
Marsh wren	<i>Cistothorus palustris</i>	X	
Mourning dove	<i>Zenaidura macroura</i>	X	
Northern flicker	<i>Colaptes auratus</i>	X	
Northern harrier	<i>Circus cyaneus</i>	X	
Northern mockingbird	<i>Mimus polyglottos</i>	X	
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	X	X
Osprey	<i>Pandion haliaetus</i>		X
Pied-billed grebe	<i>Podilymbus podiceps</i>	X	X
Phainopepla	<i>Phainopepla nitens</i>	X	
Ruby-crowned kinglet	<i>Regulus calendula</i>	X	
Ruddy duck	<i>Oxyura jamaicensis</i>	X	
Say's phoebe	<i>Sayornis saya</i>	X	
Snowy egret	<i>Egretta thula</i>		X

Table 1-2.—Birds observed or encountered during marsh bird surveys in 2012

Common name	Species	March	April
Sora	<i>Porzana carolina</i>		X
Song sparrow	<i>Melospiza melodia</i>	X	X
Spotted sandpiper	<i>Actitus macularius</i>	X	X
Turkey vulture	<i>Cathartes aura</i>	X	X
Verdin	<i>Auriparus flaviceps</i>	X	
Virginia rail	<i>Rallus limicola</i>		X
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	X	X
Yellow-rumped warbler	<i>Setophaga coronate</i>	X	

ATTACHMENT 2

Survey Data Sheet

