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memorandum

date	April 10, 2019
to	Paul Detjens, Contra Costa County Flood Control District; Ave Brown, Contra Costa County Flood Control District
cc	
from	Leonard Liu, ESA Biologist
subject	Results of California Ridgway's Rail and California Black Rail Surveys for the Lower Walnut Creek Restoration Project

Dear Mr. Detjens and Ms. Brown,

Environmental Science Associates (ESA) recently completed surveys for federal and state endangered California Ridgway's rail (CRR; *Rallus obsoletus obsoletus*), formerly known as California clapper rail, and state threatened California black rail (CBR; *Laterallus jamaicensis coturniculus*) in tidal brackish marsh at the Lower Walnut Creek Restoration Project (Project). Surveys were conducted at the North Reach and South Reach restoration areas, and included surrounding tidal marsh habitat (Figure 1). This survey effort was undertaken to determine the presence of breeding rails in support of Interim Vegetation Management (IVM) activities in 2019 and construction activities in 2020, as activities within the Project area could adversely affect rails during the nesting season, if present, through direct and indirect impacts. ESA did not detect any listed rail species in the Project area, though California black rails were detected in the surrounding tidal marsh habitat at the North Reach. ESA is submitting these survey results for your review, and also will notify U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) of the survey results.

Project Location

The Project site is located along the south shore of Suisun Bay, at the mouth of Walnut Creek east of Martinez, Contra Costa County, California (Figure 1). Most of the site is diked former tidal marsh, with portions historically used by past property owners for industrial purposes, including utility right-of-ways, landfills, industrial yards, and sand dredging operations. The site is currently tidal brackish marsh, open water, seasonal wetlands, and ruderal upland habitats. Access to the site is on unpaved roads along tops of levees.

The tidal brackish marsh is of moderate quality, with low channel density and sinuosity, and close proximity to industrial sources of disturbance. The tidal marsh is populated by large tracts of cattails (*Typha* spp.), southern bulrush (*Schoenoplectus californicus*), alkali bulrush (*Bolboschoenus maritimus*), pickleweed (*Salicornia pacifica*), and non-native common reed (*Phragmites australis*).

These dominant plants are interspersed with smaller patches of perennial pepperweed (*Lepidium latifolium*) and Olney's three-square bulrush (*Schoenoplectus americanus*).

The seasonal wetlands were mostly populated be pickleweed with some open water and ruderal vegetation, including annual grasses, perennial pepperweed, and black mustard (*Brassica nigra*). The seasonal wetlands are of marginal quality as it does not appear to support a diversity of vegetation nor was it heavily used by waterbirds.

The tidal marsh is bordered by levees, covered primarily with ruderal vegetation, predominantly annual grasses, coyote brush (*Baccharis pilularis*), wild radish (*Raphanus sativus*), poison hemlock (*Conium maculatum*), black mustard, Himalayan blackberry (*Rubus armeniacus*), and smaller patches of toyon (*Heteromeles arbutifolia*), giant reed (*Arundo donax*), and thistles (*Carduus pycnocephalus*, *Cirsium* spp.).

Project Description

The Contra Costa County Flood Control and Water Conservation District (District) is proposing the Project to restore and enhance wetlands and associated habitats in Lower Walnut Creek and to provide sustainable flood management, while allowing opportunities for public access and recreation (Figure 1).

The District seeks to implement the IVM program for managing vegetation on the Project site prior to Project construction to create conditions likely to enhance the success of the Project. The IVM is composed of low-intensity vegetation management actions to build up an on-site population of native plant propagules and seed bank for revegetation phases of the Project and to reduce invasive non-native weed populations prior to construction phases of the Project. Design of the project is currently in progress, with construction anticipated to start in 2020. Earthwork expected to occur during Project construction includes excavation and grading to create new tidal channels, tidal marsh, adjacent terrestrial lowlands, and upland habitats; excavation to lower the existing levees in the South Reach and berms in the North Reach; and creation of new setback levees in the South Reach using material excavated from the existing levees along Lower Walnut and Pacheco Creeks.

Methods

ESA established 15 avian survey stations approximately 200 meters (656 feet) apart around the North Reach and South Reach, which covered all potential CRR and CBR nesting habitat within 656 feet of project work areas (Figure 1, Table 1). The stations covered approximately 326 acres with 200-meter (656-foot) radii around each station. Approximately 39% of the total survey area was coastal brackish marsh habitat suitable for rail use; there was significantly more suitable habitat, approximately 45%, in the North Reach than in the South Reach, approximately 26% (San Francisco Estuary Institute 2011). ESA used the Site-specific Protocol for Monitoring Marsh Birds: Don Edwards San Francisco Bay and San Pablo Bay National Wildlife Refuges (Wood et al. 2017), which is compatible with the Standardized North American Marsh Bird Monitoring Protocol (Conway and Seamans 2016). Surveys were conducted by Leonard Liu (USFWS Permit #TE94998A-1).

The survey stations were grouped into North Reach and South Reach transects, and each transect was surveyed within a two (2) hour time period three (3) times (rounds) during the survey season, with each round separated by at least 14 days. Each survey station was surveyed with a 10-minute point count: a five (5) minute passive listening period followed by call-broadcast of CRR and CBR.

Locally recorded CRR and CBR calls were used to create the call-broadcast sequence MP3 file. The MP3 file includes 30 seconds of calls for each of the focal marsh birds interspersed with 30 seconds of silence between each species' calls. The 30 seconds of calls consist of a series of the most common calls for that species interspersed with approximately 5 seconds of silence. The entire survey sequence is:

- 5 minutes of silence (a verbal statement at the end of each minute is given to alert surveyors);
- 30 seconds of CBR calls;
- 30 seconds of silence;
- 30 seconds of CRR calls;
- 3 minutes 30 seconds of silence; and
- Verbal "stop" at end of the final 30 seconds of silence so that surveyors know when to stop playback and the survey at that point.

Surveys were conducted during the periods immediately before and after sunset and sunrise, which are peak calling times for CRR. All surveys were conducted within a two hour (120-minute) period surrounding sunrise or sunset, starting no more than 60 minutes before sunrise or sunset and terminating within 60 minutes of sunrise and sunset. The transect directions were reversed once in order to increase coverage at each point under different amounts of sunlight.

All rail vocalizations were noted, including the types, locations and times, on a detailed map of the survey area. The biologist used a compass and distance estimation to locate detected listed rails on a map. Weather conditions were recorded at the beginning and end of each survey. Noise level at the site was qualitatively assessed on a zero (0) to four (4) scale: 0, no noise; 1, faint noise; 2, moderate noise (probably can't hear some birds beyond 100m); 3, loud noise (probably can't hear some birds beyond 50m); 4, intense noise (probably can't hear some birds beyond 25m).

Active call-broadcast was utilized at each station every round, and the following standard measures were used to reduce possibility of exposure of rails to predators:

- Surveys were conducted when tides were less than +4.5 feet as measured at the nearest tide station or are not higher than the marsh plain (i.e., not higher than bank full) at the study area.
- Surveys were not conducted on the day of a full moon.
- Call-broadcast would have been halted in the presence of a potential rail predator within 200 m of the survey point and not resumed until the predator left the area. If the predator did not leave the area within 10 minutes, the survey would have continued without employing the broadcast.
- Additionally, surveys were not conducted when winds are over 10 miles per hour or gusts over 12 miles per hour, or during moderate to heavy rain, in order to increase detectability of vocalizations.

ESA conducted the surveys within the windows recommended in the Site-specific Protocol (round 1: January 15 to February 6; round 2: February 7 to February 28; and round 3: March 1 to March 25).

Results

ESA conducted the surveys on January 26 and 27, February 11 and 12, and March 3 and 11, 2019 (Table 2). Listening conditions during the surveys at the North Reach were excellent, with low ambient noise and wind. While weather conditions during South Reach surveys were adequate, noise from the

natural gas power plant to the east limited detectability of birds beyond 100 meters (328 feet). ESA did not detect any California Ridgway's rails during surveys. ESA did not detect any California black rails during surveys at the South Reach. ESA detected California black rails during every survey at the North Reach: on January 27 from stations 5 and 6; on February 12 from station 6; and on March 11 from station 5. Both of the detections near station 6 on February 12 were in close proximity to detections from January 27 and likely represent the same individual or a pair of individuals at that location. ESA detected a total of six (6) to eight (8) individual CBR. Observations of CBR made during the surveys will be submitted to the California Natural Diversity Database.

Virginia rails (*Rallus limicola*) also was detected in the tidal marsh area, as well as saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*) and Suisun song sparrow (*Melospiza melodia maxillaris*). Potential predators detected during surveys included great horned owl (*Bubo virginianus*), short-eared owl (*Asio flammeus*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), norther harrier (*Circus hudsonius*), great egret (*Ardea alba*), coyote (*Canis latrans*) and gopher snake (*Pituophis catenifer*). All bird species encountered during surveys are presented in Table 3.

Conclusions

California Ridgway's rails generally occur in very low densities in tidal brackish marshes in Suisun Bay. Surveys by CDFW in 2006 found CRR in Point Edith Marsh approximately 0.8 mile to the east, and there is a 2008 record of CRR 1.5 miles to the west, in the marsh west of Interstate 680 (CDFW 2018). Surveys from 2011 to 2017 in Point Edith Marsh east of Walnut Creek did not detect any CRR (Yakich 2017), and CRR was not detected in the study area during the current survey. Based on the absence of detections and the relatively low habitat quality and brackish conditions present in the tidal marsh around the Project area, and the relatively low intensity of IVM work, ESA concludes that the IVM is not likely to directly or indirectly affect California Ridgway's rail breeding, foraging, and other aspects of its life cycle. The South Reach is especially poorly suited for CRR, where a relatively narrow strip of tidal marsh borders the Project area. In comparison, the North Reach provides incrementally better habitat quality; however, CRR were not detected at that location. The Project, along with other tidal restoration projects in the regional area, will help to provide the resilient landscape that CRR will need this century to meet the challenges of sea level rise and meet delisting criteria.

Conversely, the tidal brackish marshes in Suisun Bay are populated with relatively high densities of California black rail (Evens and Nur 2002; Spautz et al. 2005). ESA detected CBR only outside of the Project area, in the North Reach tidal marsh where tidal influence is greater than in the South Reach and the proportion of tidal marsh proximate to the Project area is greater. The CBR detections were in the outboard portion of the tidal marsh, though there is a CNDDB record from 2016 near station 10 by Waterfront Road (CDFW 2018). ESA's detections were clustered around a ditch or old channel near stations 5 and 6, which warrants further examination to determine if there is a feature in this location that should be preserved during restoration activities or can be duplicated in other areas. ESA recommends prudent measures to avoid disruptions to CBR breeding from restoration activities in the North Reach, including but not limited to: restricting use of heavy equipment in close proximity to known CBR locations during the breeding season (approximately February 1 through August 31); restricting activities in close proximity to suitable habitat during extreme high tides when CBR may be forced onto levees or seasonal wetlands; implementing worker education training to help workers recognize CBR and understand the importance of avoiding harm to CBR; and monitoring of work activities by a qualified biologist. With the implementation of prudent mitigation measures that avoid

direct and indirect effect to this species during the breeding season, this restoration project should result in a net benefit for California black rail.

I, Leonard Liu (TE-94998A-1) certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Signature

April 10, 2019
Date

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Yakich, J., 2017. 2017 California Ridgway's (Clapper) Rail Survey Results, WMUs 10/11/14, 31 and 32, Tesoro Martinez Refinery, Martinez, Contra Costa County, California (USFWS file number 08ESMF00-2012-TA-0213-1). Report to U.S. Fish and Wildlife Service by WRA, Inc. June 8, 2017.

Table 1. California Ridgway's rail survey points at Lower Walnut Creek. Coordinates are in WGS 84.

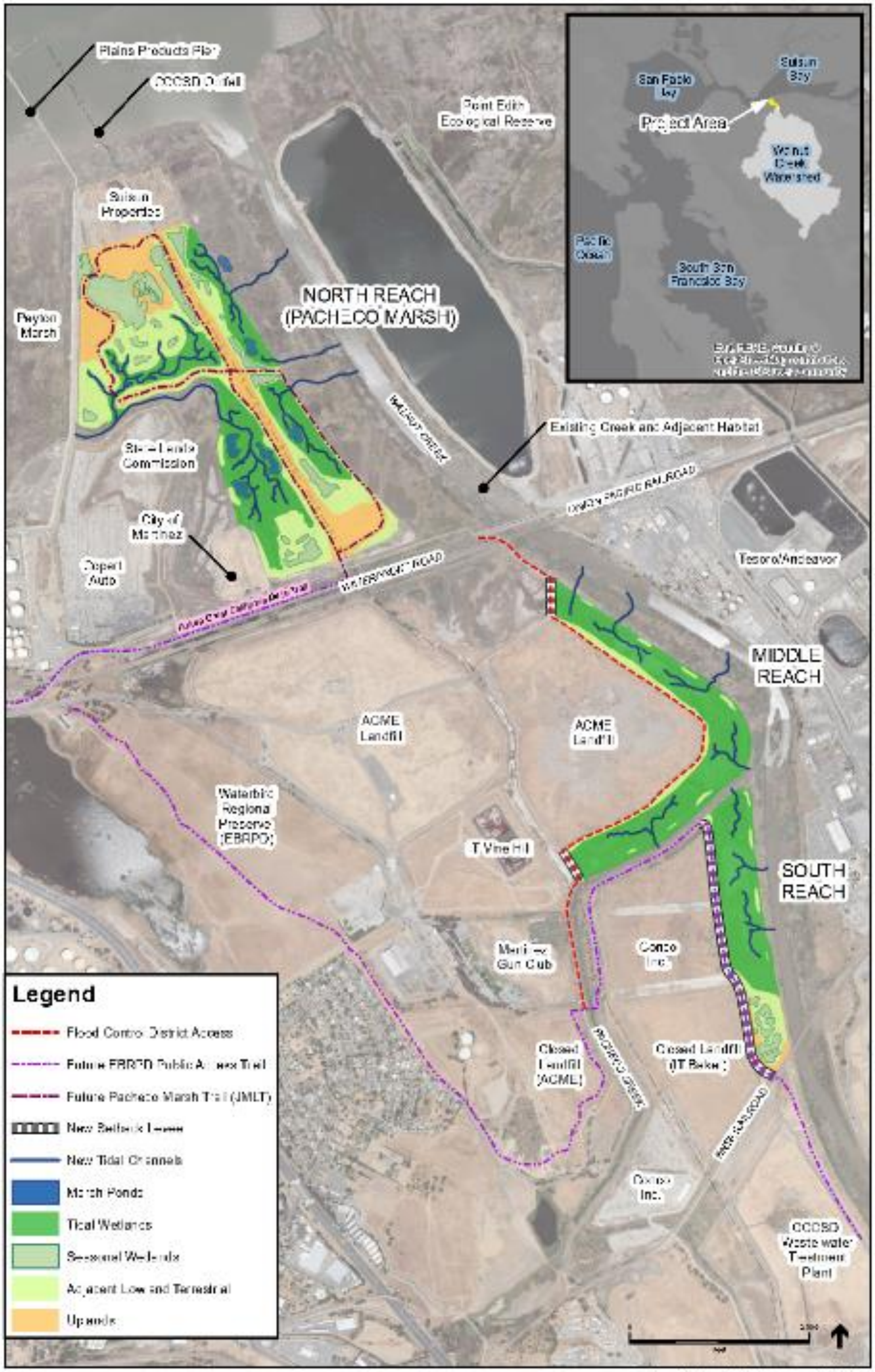
Point	Longitude	Latitude
1	-122.097823	38.034865
2	-122.097799	38.036853
3	-122.097806	38.038919
4	-122.093607	38.040539
5	-122.092386	38.038981
6	-122.091065	38.037499
7	-122.089829	38.035930
8	-122.088498	38.034458
9	-122.087093	38.033049
10	-122.085489	38.031749
11	-122.071579	38.023237
12	-122.071355	38.021411
13	-122.071019	38.019576
14	-122.070504	38.017782
15	-122.070051	38.016013

Table 2. Results of 2019 rail surveys. Noise code: 0, no noise; 1, faint noise; 2, moderate noise; 3, loud noise; 4, intense noise.

Round	Date	Route	Acres surveyed	Rails Detected	Temp. start (°F)	Temp. end (°F)	Sky start	Sky end	Wind speed start (mph)	Wind speed end (mph)	Noise code
1	26-Jan	South	108	0	57	51	Cloudy	Cloudy	1-4	1-4	3
1	27-Jan	North	219	4 CBR	64	55	Partly cloudy	Partly cloudy	1-4	1-4	1
2	11-Feb	South	108	0	51	46	Partly cloudy	Partly cloudy	5-7	5-7	2
2	12-Feb	North	219	2 CBR	50	45	Cloudy	Cloudy	5-7	5-7	1
3	3-Mar	South	108	0	50	50	Drizzle	Drizzle	1-4	1-4	3
3	11-Mar	North	219	2 CBR	38	43	Clear	Clear	1-4	5-7	1

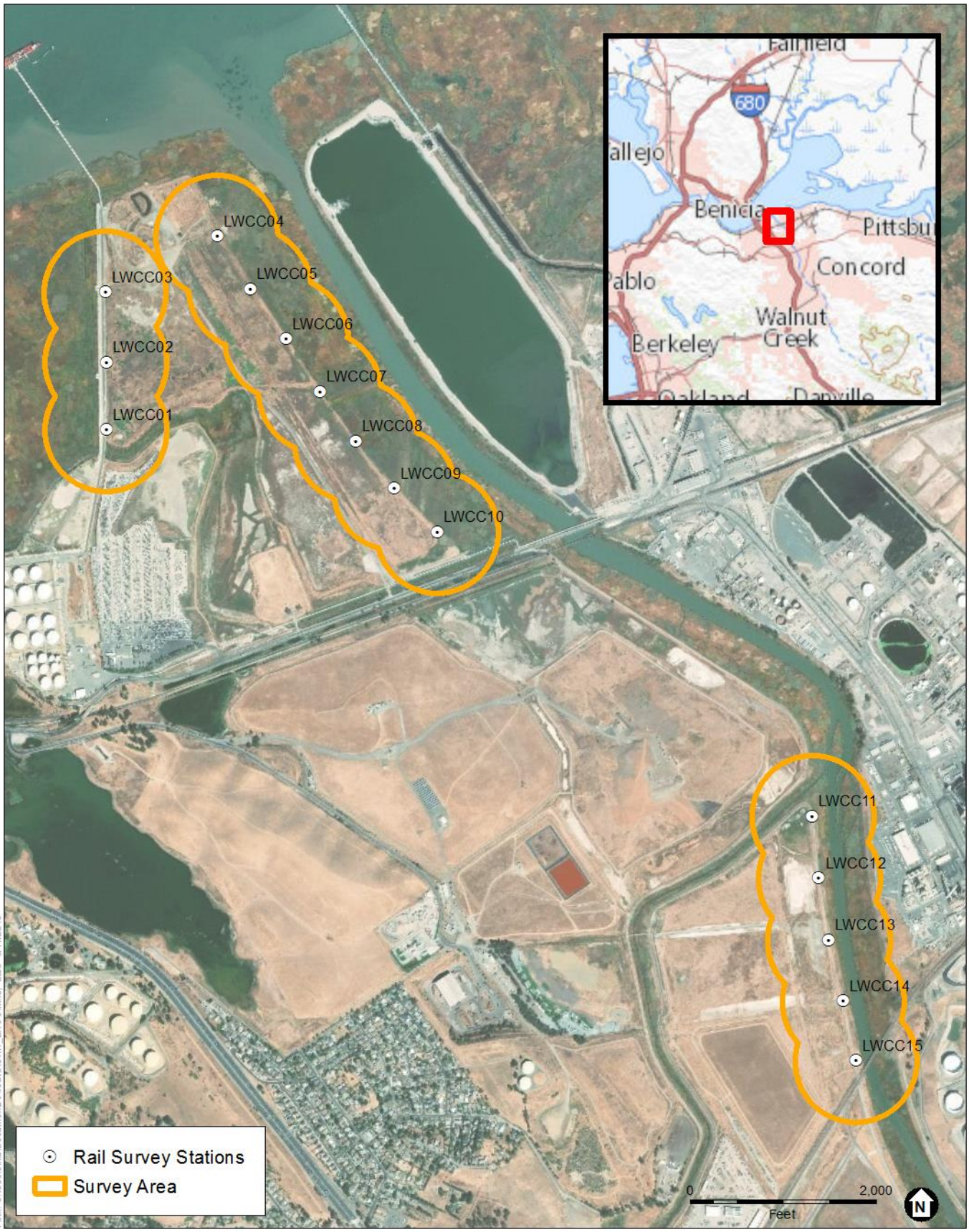
Table 3. Birds detected during 2019 rail surveys.

Common name	Scientific name		Common name	Scientific name
American green-winged teal	*Anas crecca carolinensis*		Northern harrier	*Circus hudsonius*
American wigeon	*Mareca americana*		White-tailed kite	*Elanus leucurus*
Bufflehead	*Bucephala albeola*		Short-eared owl	*Asio flammeus*
Mallard	*Anas platyrhynchos*		Great horned owl	*Bubo virginianus*
Gadwall	*Mareca strepera*		Northern flicker	*Colaptes auratus*
Northern shoveler	*Spatula clypeata*		Say's phoebe	*Sayornis saya*
Canada goose	*Branta canadensis*		Black phoebe	*Sayornis nigricans*
Black rail	*Laterallus jamaicencis coturniculus*		Common raven	*Corvus corax*
Virginia rail	*Rallus limicola*		Bushtit	*Psaltriparus minimus*
American coot	*Fulica americana*		Marsh wren	*Cistothorus palustris*
Least sandpiper	*Calidris minutilla*		Cliff swallow	*Petrochelidon pyrrhonota*
Killdeer	*Charadrius vociferus*		Northern mockingbird	*Mimus polyglottos*
American avocet	*Recurvirostra americana*		House finch	*Haemorhous mexicanus*
Black-necked stilt	*Himantopus mexicanus*		White-crowned sparrow	*Zonotrichia leucophrys*
California gull	*Larus californicus*		Golden-crowned sparrow	*Zonotrichia atricapilla*
Double-crested cormorant	*Phalacrocorax auritus*		Song sparrow	*Melospiza melodia*
Great egret	*Ardea alba*		Savannah sparrow	*Passerculus sandwichensis*
Snowy egret	*Egretta thula*		Red-winged blackbird	*Agelaius phoeniceus*
Turkey vulture	*Cathartes aura*		Western meadowlark	*Sturnella neglecta*
Red-tailed hawk	*Buteo jamaicensis*		Common yellowthroat	*Geothlypis trichas*
Red-shouldered hawk	*Buteo lineatus*			



SOURCE:
Service Layer Credits: Imagery Source: Contra Costa County, 2014
Trail alignments shown are preliminary and subject to change.

Figure 1
Lower Walnut Creek Restoration Project



SOURCE: ESA; ESRI; DigitalGlobe 2017

Lower Walnut Creek Restoration Project D170378

Figure 2
2019 Rail Survey Area

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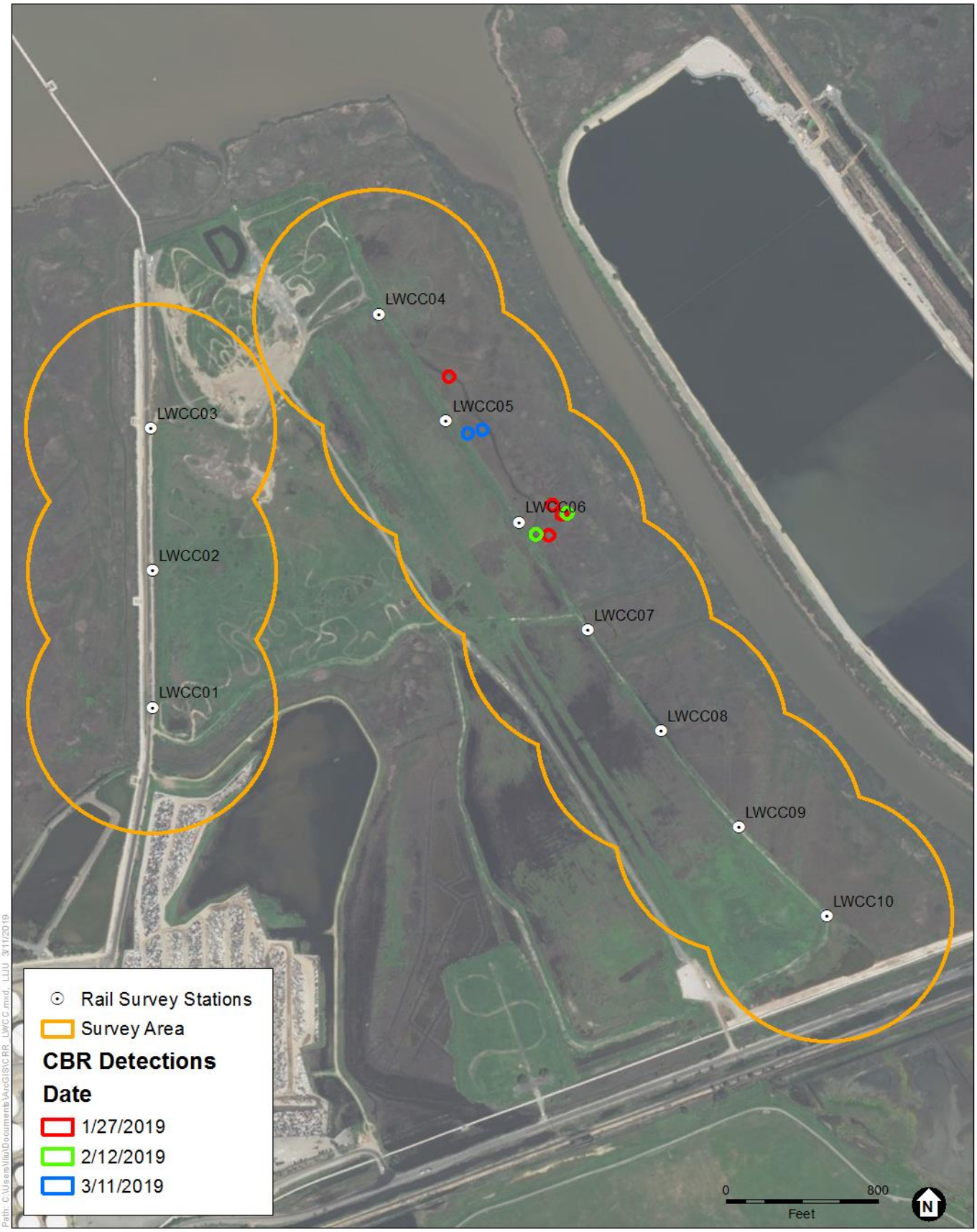

SOURCE: ESA; ESRI; DigitalGlobe 2017

Lower Walnut Creek Restoration Project D170378

Figure 3
2019 California Black Rail Detections

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