Western Riverside County
Multiple Species Habitat Conservation Plan
Biological Monitoring Program

2019–2020 Mountain Plover Survey Report

Two Mountain Plovers on Conserved Land within the San Jacinto River Floodplain Core Area in January 2012.

1 April 2021

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NOTE TO READER:

This report is an account of survey activities conducted by the Biological Monitoring Program for the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP was permitted in June 2004. Reserve assembly is ongoing and is expected to take 20 or more years to complete. The Conservation Area includes lands acquired under the terms of the MSHCP and other lands that have conservation value in the Plan Area (called public or quasi-public lands in the MSHCP). In this report, the term "Conservation Area" refers to these lands as they were understood by the Monitoring Program at the time the surveys were conducted.

The Monitoring Program monitors the status and distribution of the 146 species covered by the MSHCP within the Conservation Area to provide information to Permittees, land managers, the public, and the Wildlife Agencies [i.e., the California Department of Fish and Wildlife (CDFW, formerly California Department of Fish and Game) and the U.S. Fish and Wildlife Service]. Monitoring Program activities are guided by defined conservation objectives for each Covered Species, other information needs identified in MSHCP Section 5.3 or elsewhere in the document, and the information needs of the Permittees. A list of the lands where data collection activities were conducted in 2020 is included in Section 7.0 of the Western Riverside County Regional Conservation Authority (RCA) Annual Report to the Wildlife Agencies.

The primary author of this report was the 2020 Avian Program Lead, Nicholas Peterson. This report should be cited as:

Biological Monitoring Program. 2021. Western Riverside County MSHCP Biological Monitoring Program 2019–2020 Mountain Plover Survey Report. Prepared for the Western Riverside County Multiple Species Habitat Conservation Plan. Riverside, CA. Available online: https://www.wrc-rca.org/species-surveys/.

While we have made every effort to accurately represent our data and results, the reader should recognize that data management and analysis are ongoing activities. Anyone wishing to make further use of the information or data provided in this report should contact the Monitoring Program to ensure that they have access to the best available or most current data.

Please contact the Monitoring Program Administrator with questions about the information provided in this report. Questions about the MSHCP should be directed to the Executive Director of the RCA. Further information on the MSHCP and the RCA can be found at www.wrc-rca.org.

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INTRODUCTION

Mountain Plovers (*Charadrius montanus*; "plover") are one of 45 bird species covered by the Western Riverside County MSHCP (Dudek & Associates 2003) and are designated as a Species of Special Concern (wintering) by the State of California (Hunting and Edson 2008). The statewide population is considered greatly reduced (40–80%) since population estimates reported by Grinnell and Miller (1944), with a 2008 estimate of 1,000–10,000 birds. The range size of plovers in California is moderately reduced (20–40%) since the publication of Grinnell and Miller (1944). By 2028, habitat loss, habitat degradation, or other human-induced threats are projected to moderately reduce (10–15%) the species' population in California (Hunting and Edson 2008).

Plovers breed in the western Great Plains and winter in dry grasslands and deserts in California and northern Mexico (Knopf and Wunder 2020). Within California, most wintering plovers occur in the Central, Imperial, and San Joaquin Valleys (Knopf and Wunder 2020). In the Plan Area, plovers are considered a rare transient species and a very local winter visitor (Dudek & Associates 2003). For example, Mountain Plovers are present on just 0–0.86% of checklists submitted to eBird in Riverside County (eBird 2020). Recent detections (i.e., since approximately 1996) of plovers within western Riverside County have occurred in a handful of locations, including the vicinity of Perris, Mystic Lake, and Nuevo; in the Domenigoni Valley (now Diamond Valley Lake); and near Winchester, between Highway 79 and Interstate 215 (Dudek & Associates 2003). The only area during the past few winters that has apparently supported wintering flocks of plovers is the land between Nuevo and the San Jacinto Wildlife Area and this is also the only area in which we detected Mountain Plovers during our last survey effort in 2011–2012 (Biological Monitoring Program 2013).

The MSHCP identifies two species objectives for plovers. First, at least 2,715 ha (6,710 ac) of suitable habitat will be conserved, including playa and vernal pool habitat. Second, there will be at least four Core Areas and interconnecting linkages included in the MSHCP Conservation Area (Figure 1). Two Core Areas will be large, consisting of at least 1,012 ha (2,500 ac) of playa, grassland, or fallow agriculture habitat; and two Core Areas will be smaller, consisting of at least 405 ha (1,000 ac) of suitable habitat. The Core Areas can be in the following locations: San Jacinto River floodplain, Mystic Lake/San Jacinto Wildlife Area (WA), the playa west of Hemet, areas adjacent to Lake Elsinore, Lake Skinner/Diamond Valley Lake, and Lake Mathews (Dudek & Associates 2003). Because it is not explicitly stated in the species objective, we assume that we must document plovers are using at least 75% of the aforementioned Core Areas at least once every eight years (*see* Volume I, Section 5.0, Table 5-8 of the MSHCP; Dudek & Associates 2003).

Mountain Plovers wintering in California tend to be associated with short-grass habitats (<6 cm tall) that are flat and nearly devoid of vegetation (<65% vegetative cover), enabling them to detect predators at a distance (Hunting and Edson 2008) and forage for arthropods within cracks in the bare ground (Knopf 1998; Hunting and Edson 2008). Oftentimes these habitat characteristics are manifested in the form of alkaline flats, recently burned fields, or grassland landscapes that have been heavily grazed by livestock or fossorial mammals (Knopf and Rupert 1995). Plovers may initially use non-

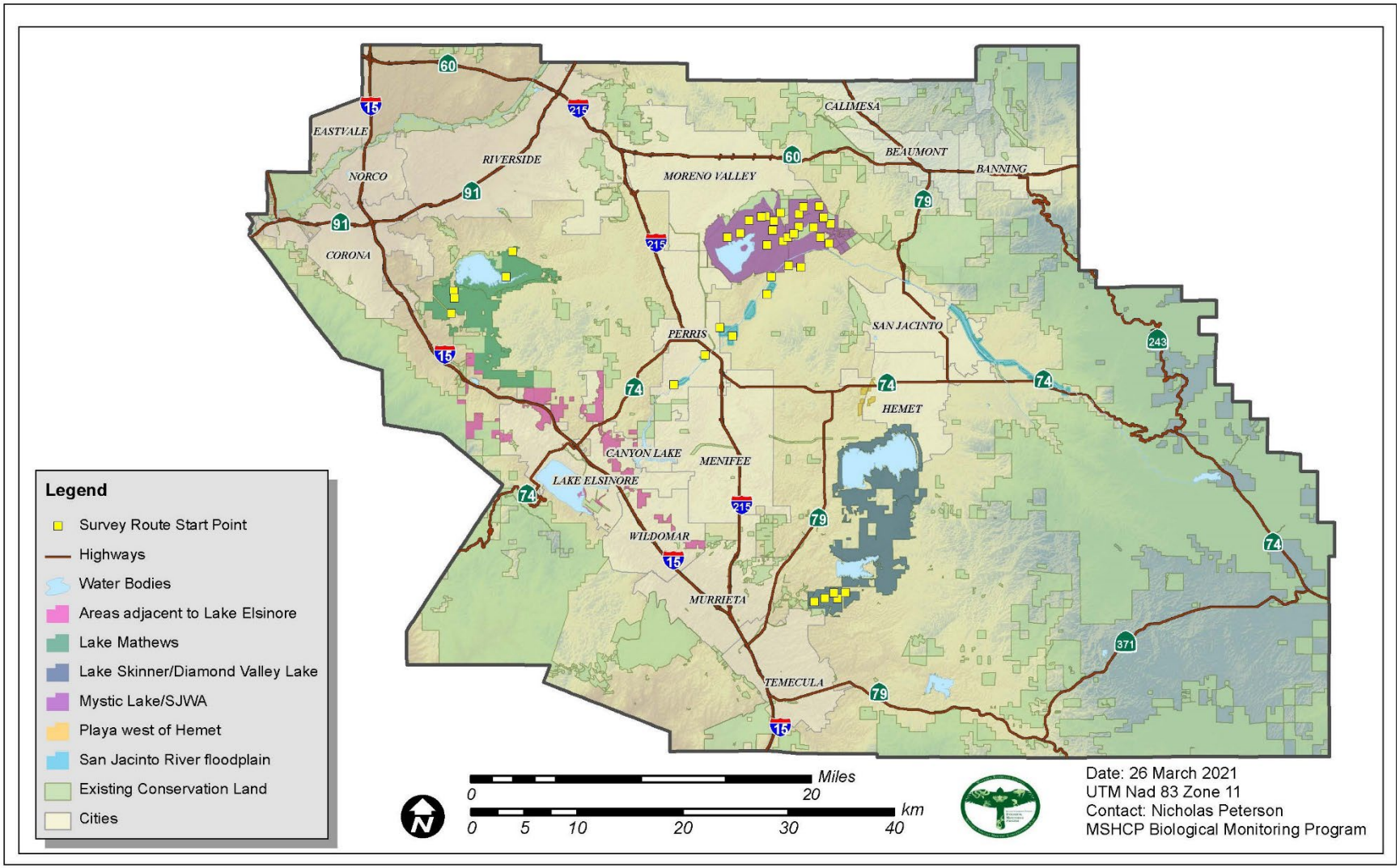

Figure 1. Mountain Plover Core Areas, with locations of 2019-2020 survey routes.

cultivated areas with short vegetation when they arrive on wintering grounds but will sometimes shift to cultivated lands in late winter if vegetation on the non-cultivated lands grows too tall.

Investigators quantifying habitat use by plovers in southern California, where approximately 80% of the state's plovers occur (Hunting et al. 2001), have focused on birds in the Imperial Valley, where plovers are most abundant and consistently overwinter. Plovers in the Imperial Valley most often use alfalfa and Bermudagrass fields, sprouting wheat fields, or recently burned agricultural fields (Wunder and Knopf 2003). Investigators have also reported seasonal shifts in habitat use by plovers, with birds in November using fields in which vegetation is <3 cm tall and bare ground does not exceed 5%. By February, the plovers use burned hayfields consisting entirely of bare ground, or other fields in which vegetation is 3–5 cm tall (Shuford et al. 2004). Wunder and Knopf (2003) reported that they never detected plovers in alfalfa fields in which vegetation exceeded 20 cm in height.

Plovers are decreasing in abundance rangewide, due almost exclusively to habitat loss (Knopf and Wunder 2020). In southern California, declines in plover populations within historic ranges are due primarily to loss of habitat from urban development (Hunting et al. 2001; Wunder and Knopf 2003) and conversion of agricultural fields to vineyards (Roberson 2002). Within the Plan Area's San Jacinto Lake Christmas Bird Count (CBC) circle that encompasses the San Jacinto WA and Mystic Lake, the median number of plovers detected during the CBC decreased from 13 during the years 1980–1991, to three during the years 1992–2004 (J. Green and C. McGaugh in litt., *in* Hunting and Edson 2008). From 2005–2018, Mountain Plovers were detected on just three CBC surveys in this area (National Audubon Society 2020), which is experiencing ongoing urban development (Hunting and Edson 2008). Finally, our Program biologists have detected Mountain Plovers on Conserved Land in just one general location near the City of Nuevo, within the San Jacinto River floodplain Core Area. We first detected plovers here in January 2011 and have not detected them since January 2015 (Figure 2).

Goals and Objectives

1. Determine whether Mountain Plovers are using at least 75% of the MSHCP-identified Core Areas during the winter of 2019–2020.
    a. Conduct repeat-visit driving and walking surveys within accessible Mountain Plover habitat in the Core Areas, recording all bird species observed.

METHODS

Survey Design

We surveyed for Mountain Plovers primarily by driving within apparently suitable plover habitat and stopping occasionally to scan for birds (USFWS 1999; Wunder and Knopf 2003; Wunder et al. 2003; Dreitz et al. 2006). In areas where plover habitat did not contain roads, we conducted walking surveys for the species (Tipton et al. 2009). We conducted all surveys in plover Core Areas as defined by the MSHCP (Dudek & Associates 2003). Furthermore, all survey areas contained at least one of the following, identified as "positive habitat images" for plovers by the USFWS (1999): flat terrain,

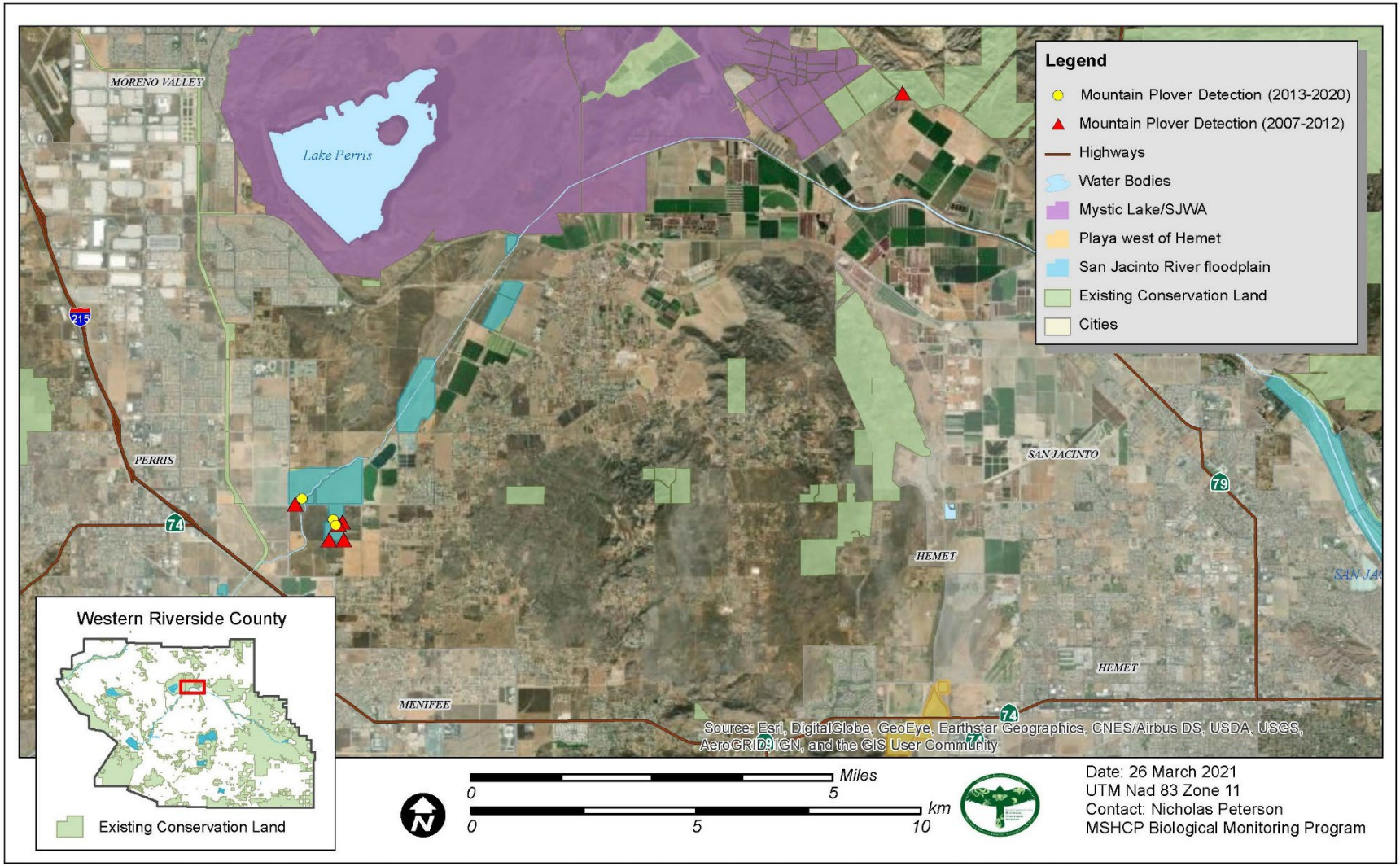

Figure 2. Detections of Mountain Plovers prior to the current reporting period (2007-2012) and during the current reporting period (2013-2020).

burned field or pasture, ≥30% bare ground, "spaced" grass plants, ground squirrels (Family *Sciuridae*), Horned Larks (*Eremophila alpestris*), cattle, heavily grazed vegetation, visible *Opuntia* pads, or non-leaking stock tanks.

Driving and walking surveys varied in length and were always within 100 m (Wunder et al. 2003; Tipton et al. 2009) of areas containing the aforementioned positive habitat images. Endpoints of different survey routes were separated by patches of habitat that lack positive habitat images for plovers and therefore were less likely to contain the species.

We defined individual survey efforts by distinct driving (n = 33) or walking routes (n = 5) (Figure 1). Driving routes were a total of 40.5 km in length and walking routes were a total length of 7.3 km. Each route was surveyed up to five times during this project, which could increase to 50% or more the probability of our biologists being able to detect plovers that were present (Dreitz et al. 2006). We began our surveys on 18 November 2019 and concluded them on 5 March 2020, which coincided with the dates when plovers tend to overwinter in California (Knopf and Rupert 1995; Hunting et al. 2001; Hunting and Edson 2008; eBird 2020; Knopf and Wunder 2020). We commenced surveys at sunrise and did not start any new survey routes after four hours post-sunrise (Tipton et al. 2009). Finally, we did not conduct surveys during periods of heavy precipitation, fog (where visibility <125 m), warm temperatures (>27 °C), or strong winds (>21.6 km hr^{-1}; Tipton et al. 2009).

Field Methods

We began surveys when a pair of observers reaches an endpoint of either a driving or walking survey route. Upon arrival, observers recorded on the data sheet the date, their initials, and the route identification code. Next, observers recorded the starting weather, temperature, and wind speed. If conducting a driving survey, observers stood at least 5 m from the vehicle when acquiring the temperature to ensure there was no influence of the vehicle's engine heat on the thermometer. After these initial data were recorded, observers then recorded the survey start time and began surveying.

For driving routes, the two observers had distinct roles. The primary job of the driver was to safely drive the route at speeds of less than 15 km hr^{-1} (9 mi hr^{-1}; Wunder et al. 2003), which was done by keeping the vehicle in first or second gear. The secondary job of the driver was to scan for birds while driving. The primary jobs of the second observer, who was sitting in the front passenger seat of the vehicle, were scanning for birds and recording data. If either observer suspected that they had detected plovers or were near an area that was likely to contain plovers, the driver stopped the vehicle. Both observers then exited the vehicle, stood within 5 m of the vehicle, and used binoculars and spotting scopes to scan for plovers. At no time did observers leave the roadway and attempt to approach plovers on foot (Dreitz et al. 2006). Observers spent at least 2 min scanning for plovers and scanned a full 360 degrees. When observers were finished scanning the area and had documented relevant species information, they re-entered the vehicle and continued driving their route. There was no limit on how much time was spent surveying the routes. The roles of driver and passenger were alternated for each subsequent driving route.

In addition to stopping and scanning for plovers under the aforementioned scenario, observers stopped, exited the vehicle, and scanned for plovers at pre-determined points along the route that were separated by approximately 400 m of roadway. The points were separated by this distance because the probability of detecting plovers at more than 200 m (i.e., the longest possible midway distance between our stopping points) is less than 20%, even for experienced plover observers (Wunder et al. 2003).

For walking routes, we also had two observers, each of whom had a distinct role. The primary observer walked ahead of the secondary observer and was responsible for detecting all birds, including plovers, along the route, and communicated species, age, and sex information of the birds to the secondary observer, who acted as the data recorder. The secondary observer also recorded any information on birds missed by the primary observer (Tipton et al. 2009). Observers maintained a comfortable walking speed along the route and always stayed within 10 m of one another while walking. As with driving surveys, observers on walking routes stopped to scan for birds any time they suspected the presence of plovers. Additionally, as with the driving routes, we had pre-determined points along walking routes that were separated by approximately 400 m; observers stopped at each of these points to scan for plovers.

Observers recorded information on all bird species detected along their survey route. For non-covered species, observers recorded information for only the first individual of that species detected along the route, which provided us species richness data for the general area. For such species, observers recorded only the species name, age class information (if determined), and sex (if determined). For covered species, excluding Mountain Plovers, observers recorded the species name, age class, and sex for every individual detected along the route. If observers were unsure whether they had already recorded data on an individual along a route (i.e., they may be double-counting), they erred on the side of caution and recorded information on that individual. For Mountain Plover detections, observers recorded the following information on a separate part of the data sheet: flock size (approximate or exact), number of adults and juveniles (approximate or exact), and distance to the approximate center of the flock (Rosenstock et al. 2002), measured with a laser rangefinder and never estimated. Observers also made note of their location on the data sheet using a handheld GPS and also recorded the compass bearing from their location to the approximate center of the plover flock. These data enabled us to map the location of the flock with relative accuracy. At the completion of a survey route, observers recorded the survey end time, weather, wind speed, and temperature. Finally, the roles of observers were reversed for any subsequent routes surveyed that day.

RESULTS

We detected 143 avian species during our 2019–2020 surveys, 24 of which are covered by the MSHCP (Appendix A). We did not detect any Mountain Plovers on Conserved Land during our survey effort and have detected them just three times on Conserved Land within the current eight-year reporting period (2013–2020) (Figure 2). All three detections were on RCA-owned parcels near the City of Nuevo, within the San Jacinto River floodplain Core Area (Figure 2). The most recent of these detections occurred in January 2015.

DISCUSSION

We observed Mountain Plovers using Conserved Land in just one Core Area during the current reporting period (2013–2020). As a result, we conclude that the default objective requiring documentation of Mountain Plovers using ≥75% of listed Core Areas is not currently being met.

The three Mountain Plover detections within the current reporting period occurred on the RCA-owned Carlsbad and KB Home Coastal Donation #3 properties (Figure 2), near the rural community of Nuevo. Through early 2015, these sites routinely provided habitat for migrating and wintering plovers. For example, the sites usually had short vegetation or bare dirt during this time of year, perhaps resulting from discing. Small furrows were also present in the soil and we were able to watch plovers walk the plow lines and forage within the cracks. In the absence of bare ground created by historically-occurring grazers in southern California, disced fields such as these are one of the few habitat types available to wintering plovers within the Plan Area (Knopf and Rupert 1995; Hunting and Edson 2008). We did not detect Mountain Plovers here during our 2019–2020 survey effort, however, which may have resulted from changes in habitat composition at the site, although we did not collect these data in 2020. To increase the quality of the habitat for Mountain Plovers, and thereby increase the likelihood of use by the species, we recommend that the conditions of the sites be restored to their condition in early 2012, when we were consistently detecting Mountain Plovers at the properties. Ultimately, the vegetation, including the thatch layer, should be removed prior to October each year. This can be accomplished using grazing livestock such as goats (*Capra aegagrus hircus*) or sheep (*Ovis aries*), or through a combination of mowing and de-thatching.

Most of the survey routes within the Lake Mathews Core Area were near areas that had a few positive habitat images for Mountain Plovers, such as flat terrain and "spaced" grasses, but overall may have lacked sufficient suitable habitat for Mountain Plovers, since we have never detected them within the Core Area. Portions of this Core Area, specifically south of Cajalco Road, are actively managed to create Burrowing Owl (*Athene cunicularia*) habitat. Management techniques include grazing by sheep and controlled burning, both of which may contribute to the improvement of the area for Burrowing Owls and Mountain Plovers.

All five survey routes within the Lake Skinner/Diamond Valley Lake Core Area (Figure 1) traversed areas that contained short vegetation, patches of bare round, and gently sloping topography. Despite the presence of these positive habitat images for Mountain Plovers, we have never detected the species within the Core Area. Much of this site is managed to create Burrowing Owl habitat, with the main management technique being grazing by sheep and cattle (*Bos primigenius*). Other investigators have reported that cattle grazing can alter the habitat in such a way that improves conditions for plovers (Knopf 1998; Hunting and Edson 2008), especially by creating large furrows in the soil and clearing patches of vegetation. As such, management practices focused on maintaining Burrowing Owl habitat may benefit plovers as well, depending on the nature of the management.

Many of the routes within the Mystic Lake/San Jacinto WA Core Area (Figure 1) were near areas that contained a few positive habitat images for Mountain Plovers based upon our pre-survey assessments. For example, all routes were along flat or gently sloping terrain; however, several routes, especially those near Lake Perris, were also near steep, hilly terrain, which may preclude use by Mountain Plovers (USFWS 1999).

Several parcels within the San Jacinto River floodplain Core Area have been conserved since our last Mountain Plover survey effort in 2011–2012, totaling approximately 236 ha. The northernmost of these new parcels is on the south side of Ramona Expressway and is 5.6 ha in size. The topography here is flat and the site is treeless. Two additional new parcels are approximately 1.2 km to the south of this parcel, west of Reservoir Avenue in Lakeview. This pair of parcels total 46.1 ha of similarly flat, treeless habitat. Seven additional parcels, approximately 6 km to the southwest of these two parcels, have also been conserved since our last Mountain Plover survey effort. These parcels total 125.0 ha in size and are west of Ski Land Lake and north of San Jacinto Avenue, in Nuevo. These parcels are immediately north of where we detected Mountain Plovers in 2012 and are in the vicinity of additional privately owned parcels on which local birders have detected Mountain Plovers from 1997–2016 (eBird 2020). The topography is flat and there are a few scattered trees along the eastern edge of these parcels. Approximately 3.5 km southwest of here are two additional newly conserved parcels, totaling 13.3 ha in size. The parcels are north of Case Road and south of Ellis Avenue, in Perris. Again, these sites are generally treeless and flat. Finally, there is a cluster of six conserved parcels approximately 3.0 km to the southwest of these two parcels. These six parcels total 45.9 ha in size and are west of Goetz Road and north of Ethanac Road, in Perris. The land here is generally flat and there are trees scattered along the San Jacinto River, which bisects this group of parcels. Overall, Conserved Land within this Core Area is oftentimes flat and treeless and could provide suitable overwintering sites for Mountain Plovers if vegetation is maintained at ≤5 cm (Shuford et al. 2004).

Recommendations

Future Surveys

We recommend continuing to check suitable Mountain Plover sites periodically each winter. Our Program biologists have routinely checked the sites near Nuevo since the winter of 2011–2012, and we will continue to do so. Future surveys for Mountain Plovers should continue to incorporate Conserved Land within or near Core Areas that contains potentially suitable plover habitat.

We also recommend collecting habitat data near our survey routes. This will allow us to quantify characteristics that may affect the likelihood of Mountain Plovers using the site. Perhaps one of the most important pieces of information we can collect is vegetation height, which is also one of the simplest site characteristics that can be managed for the benefit of plovers. These habitat data can ultimately help us make accurate management recommendations to the RCA.

Conservation and Management

In general, many of the areas near our survey routes would need to be actively managed and modified to create suitable Mountain Plover habitat. The topography was oftentimes flat or gently sloping, and the main reason why sites were unused by plovers was likely due to relatively tall vegetation height. Some investigators suggest creating suitable sites for plovers by replicating the effects of historic grazers such as American bison (*Bison bison*) within the breeding range of plovers (Dechant et al. 1998). For example, establishing supplemental feed sites on flat terrain for domestic cattle would lead to those areas being cleared of vegetation, thereby creating bare ground preferred by plovers, and would disturb the soil in such a way that attracts plovers without reducing arthropod abundance. These supplemental feed sites should be moved periodically to replicate movements by historic herds of grazing animals, which would create patches of cleared vegetation across the landscape (Derner et al. 2009). Some investigators, however, have reported that the effects of livestock grazing alone do not benefit breeding plovers to the same extent as black-tailed prairie dog (*Cynomys ludovicianus*) grazing or fire (Augustine 2011; Augustine and Derner 2012), so livestock may best be used as a supplemental management tool.

Active management to create overwintering Mountain Plover habitat has the additional benefit of creating suitable habitat for other species covered by the MSHCP. For example, moderate to high levels of grazing would likely benefit Ferruginous Hawks (*Buteo regalis*) that also winter within the Plan Area (Derner et al. 2009). Management may also benefit Burrowing Owls, which have similar habitat requirements (i.e., short vegetation or bare ground, and gently sloping or flat terrain) and have been shown to benefit, along with Mountain Plovers, from management for black-tailed prairie dogs (Tipton et al. 2009; Goguen 2012). We do not have prairie dogs within the Plan Area, but the presence of California ground squirrels (*Otospermophilus beechyi*) may indicate areas that could successfully be managed for plovers and Burrowing Owls.

ACKNOWLEDGMENTS

We thank the land managers in the MSHCP Plan Area, who in the interest of conservation and stewardship facilitate Monitoring Program activities on the lands for which they are responsible. Funding for the Biological Monitoring Program is provided by the Western Riverside Regional Conservation Authority and the California Department of Fish and Wildlife. Program staff who conducted surveys in 2019 and 2020 were Masanori Abe, Collin Farmer, Tara Graham, Jennifer Hoffman, Cristina Juran, Nicholas Peterson, Nathan Pinckard, and Taylor Zagelbaum.

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Appendix A. Avian species detected during 2019–2020 Mountain Plover surveys. Species in bold are covered by the MSHCP.

COMMON NAME	SCIENTIFIC NAME
American Avocet	*Recurvirostra americana*
American Coot	*Fulica americana*
American Crow	*Corvus brachyrhynchos*
American Goldfinch	*Spinus tristis*
American Kestrel	*Falco sparverius*
American Pipit	*Anthus rubescens*
American Robin	*Turdus migratorius*
American White Pelican	*Pelecanus erythrorhynchos*
American Wigeon	*Mareca americana*
Anna's Hummingbird	*Calypte anna*
Audubon's Warbler	*Setophaga auduboni auduboni*
Bald Eagle	***Haliaeetus leucocephalus***
Barn Swallow	*Hirundo rustica*
Bell's Sparrow	***Artemisiospiza belli***
Belted Kingfisher	*Megaceryle alcyon*
Bewick's Wren	*Thryomanes bewickii*
Black Phoebe	*Sayornis nigricans*
Black-bellied Plover	*Pluvialis squatarola*
Black-crowned Night-Heron	***Nycticorax nycticorax***
Black-necked Stilt	*Himantopus himantopus*
Blue-gray Gnatcatcher	*Polioptila caerulea*
Bonaparte's Gull	*Chroicocephalus philadelphia*
Brewer's Blackbird	*Euphagus cyanocephalus*
Brewer's Sparrow	*Spizella breweri*
Brown-headed Cowbird	*Molothrus ater*
Bufflehead	*Bucephala albeola*
Burrowing Owl	***Athene cunicularia***
Bushtit	*Psaltriparus minimus*
California Horned Lark	***Eremophila alpestris actia***
California Quail	*Callipepla californica*
California Scrub-Jay	*Aphelocoma californica*
California Thrasher	*Toxostoma redivivum*
California Towhee	*Melozone crissalis*
Canada Goose	*Branta canadensis*
Canvasback	*Aythya valisineria*
Canyon Wren	*Catherpes mexicanus*
Cassin's Kingbird	*Tyrannus vociferans*
Cattle Egret	*Bubulcus ibis*
Cedar Waxwing	*Bombycilla cedrorum*

Appendix. Continued.

COMMON NAME	SCIENTIFIC NAME
Cinnamon Teal	*Spatula cyanoptera*
Clark's Grebe	*Aechmophorus clarkii*
Cliff Swallow	*Petrochelidon pyrrhonota*
Coastal California Gnatcatcher	***Polioptila californica californica***
Common Goldeneye	*Bucephala clangula*
Common Merganser	*Mergus merganser*
Common Raven	*Corvus corax*
Common Yellowthroat	*Geothlypis trichas*
Cooper's Hawk	***Accipiter cooperii***
Costa's Hummingbird	*Calypte costae*
Double-crested Cormorant	***Phalacrocorax auritus***
Eared Grebe	*Podiceps nigricollis*
Eurasian Collared-Dove	*Streptopelia decaocto*
European Starling	*Sturnus vulgaris*
Ferruginous Hawk	***Buteo regalis***
Forster's Tern	*Sterna forsteri*
Gadwall	*Mareca strepera*
Gray Flycatcher	*Empidonax wrightii*
Great Blue Heron	***Ardea herodias***
Great Egret	*Ardea alba*
Great Horned Owl	*Bubo virginianus*
Greater Roadrunner	*Geococcyx californianus*
Greater Yellowlegs	*Tringa melanoleuca*
Great-tailed Grackle	*Quiscalus mexicanus*
Green Heron	*Butorides virescens*
Green-winged Teal	*Anas crecca*
Herring Gull	*Larus argentatus*
Hooded Merganser	*Lophodytes cucullatus*
Horned Grebe	*Podiceps auritus*
Horned Lark	*Eremophila alpestris*
House Finch	*Haemorhous mexicanus*
House Sparrow	*Passer domesticus*
House Wren	*Troglodytes aedon*
Killdeer	*Charadrius vociferus*
Lark Sparrow	*Chondestes grammacus*
Least Sandpiper	*Calidris minutilla*
Lesser Goldfinch	*Spinus psaltria*
Lesser Scaup	*Aythya affinis*
Lincoln's Sparrow	***Melospiza lincolnii***
Loggerhead Shrike	***Lanius ludovicianus***

Appendix. Continued.

COMMON NAME	SCIENTIFIC NAME
Long-billed Curlew	*Numenius americanus*
Long-billed Dowitcher	*Limnodromus scolopaceus*
Mallard	*Anas platyrhynchos*
Marbled Godwit	*Limosa fedoa*
Marsh Wren	*Cistothorus palustris*
Merlin	***Falco columbarius***
Mountain Bluebird	*Sialia currucoides*
Mourning Dove	*Zenaida macroura*
Northern Flicker	*Colaptes auratus*
Northern Harrier	***Circus hudsonius***
Northern Mockingbird	*Mimus polyglottos*
Northern Pintail	*Anas acuta*
Northern Shoveler	*Spatula clypeata*
Nuttall's Woodpecker	*Dryobates nuttallii*
Orange-crowned Warbler	*Leiothlypis celata*
Osprey	***Pandion haliaetus***
Pectoral Sandpiper	*Calidris melanotos*
Peregrine Falcon	***Falco peregrinus***
Phainopepla	*Phainopepla nitens*
Pied-billed Grebe	*Podilymbus podiceps*
Prairie Falcon	***Falco mexicanus***
Redhead	*Aythya americana*
Red-necked Phalarope	*Phalaropus lobatus*
Red-shouldered Hawk	*Buteo lineatus*
Red-tailed Hawk	*Buteo jamaicensis*
Red-winged Blackbird	*Agelaius phoeniceus*
Ring-billed Gull	*Larus delawarensis*
Ring-necked Duck	*Aythya collaris*
Rock Pigeon	*Columba livia*
Rock Wren	*Salpinctes obsoletus*
Rough-legged Hawk	*Buteo lagopus*
Ruby-crowned Kinglet	*Regulus calendula*
Ruddy Duck	*Oxyura jamaicensis*
Savannah Sparrow	*Passerculus sandwichensis*
Say's Phoebe	*Sayornis saya*
Sharp-shinned Hawk	***Accipiter striatus***
Short-eared Owl	*Asio flammeus*
Snow Goose	*Anser caerulescens*
Snowy Egret	*Egretta thula*
Song Sparrow	*Melospiza melodia*

Appendix A. Continued.

COMMON NAME	SCIENTIFIC NAME
Sora	*Porzana carolina*
Southern California Rufous-crowned Sparrow	***Aimophila ruficeps canescens***
Spotted Towhee	*Pipilo maculatus*
Surf Scoter	*Melanitta perspicillata*
Tree Swallow	***Tachycineta bicolor***
Tricolored Blackbird	***Agelaius tricolor***
Tundra Swan	*Cygnus columbianus*
Turkey Vulture	***Cathartes aura***
Vermilion Flycatcher	*Pyrocephalus rubinus*
Vesper Sparrow	*Pooecetes gramineus*
Violet-green Swallow	*Tachycineta thalassina*
Virginia Rail	*Rallus limicola*
Western Bluebird	*Sialia mexicana*
Western Grebe	*Aechmophorus occidentalis*
Western Meadowlark	*Sturnella neglecta*
Western Sandpiper	*Calidris mauri*
White-crowned Sparrow	*Zonotrichia leucophrys*
White-faced Ibis	***Plegadis chihi***
White-tailed Kite	***Elanus leucurus***
White-throated Swift	*Aeronautes saxatalis*
Wilson's Snipe	*Gallinago delicata*
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*
Yellow-rumped Warbler	*Setophaga coronata*