



# Lower Colorado River Multi-Species Conservation Program

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*Balancing Resource Use and Conservation*

## Surveys of Threecorner Milkvetch and Sticky Buckwheat – Lake Mead National Recreation Area

### 2019 Annual Report



**March 2020**

Work conducted under LCR MSCP Work Task C2

# 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 Local Governments Authority  
Desert Wildlife Unlimited

## **California Participant Group**

California Department of Fish and Wildlife  
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**

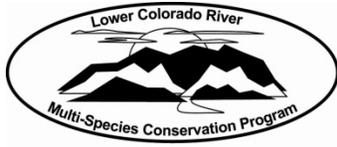
Colorado River Commission of Nevada  
Nevada Department of Wildlife  
Southern Nevada Water Authority  
Colorado River Commission Power Users  
Basic Water Company

## **Native American Participant Group**

Hualapai Tribe  
Colorado River Indian Tribes  
Chemehuevi Indian Tribe

## **Conservation Participant Group**

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



— BUREAU OF —  
RECLAMATION

# **Lower Colorado River Multi-Species Conservation Program**

## **Surveys of Threecorner Milkvetch and Sticky Buckwheat – Lake Mead National Recreation Area**

### **2019 Annual Report**

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**Lower Colorado River  
Multi-Species Conservation Program  
Bureau of Reclamation  
Lower Colorado Basin  
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**March 2020**

Norman, C. 2020. Surveys of Threecorner Milkvetch and Sticky Buckwheat – Lake Mead National Recreation Area, 2019 Annual Report. Submitted to the Lower Colorado River Multi-Species Conservation Program, Bureau of Reclamation, Boulder City, Nevada, by the National Park Service, Boulder City, Nevada, under interagency No. R19PG00051.

# **ACRONYMS AND ABBREVIATIONS**

ArcGIS	a platform to create, manage, share, and analyze spatial data
FY	fiscal year
GPS	Global Positioning System
Lake Mead NRA	Lake Mead National Recreation Area
LCR	lower Colorado River
LCR MSCP	Lower Colorado River Multi-Species Conservation Program

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# INTRODUCTION

The Lower Colorado River Multi-Species Conservation Program (LCR MSCP) is a coordinated, comprehensive, long-term multi-agency effort to conserve and recover endangered species and to protect and maintain wildlife habitat on the lower Colorado River (LCR). The LCR MSCP's purposes are to (1) protect the LCR environment while ensuring the certainty of existing river water and power operations, (2) address the needs of threatened and endangered wildlife under the Endangered Species Act, and (3) prevent the listing of additional species on the LCR (LCR MSCP 2004). Two rare plant species occur within the covered areas designated in the LCR MSCP: threecorner milkvetch (*Astragalus geyeri* var. *triquetrus*) and sticky buckwheat (*Eriogonum viscidulum*). Both species occur within the Lake Mead National Recreation Area (Lake Mead NRA), which is administered by the National Park Service.

Conservation measure goals were created under the LCR MSCP to provide funding for threecorner milkvetch and sticky buckwheat conservation programs. A total of \$10,000 per year will be provided under the LCR MSCP until 2030, which will go toward an ongoing conservation program for the two rare plants or to another entity that has been approved by the U.S. Fish and Wildlife Service to implement conservation activities for these plant species

Conservation opportunities at the Lake Mead NRA include:

1. Monitoring populations of rare plants to identify threats.
2. Conserving rare plant populations through reduction of threats at a site-specific level. This may include removal of exotic plants and efforts to exclude activities that degrade habitat, such as off-highway vehicles.

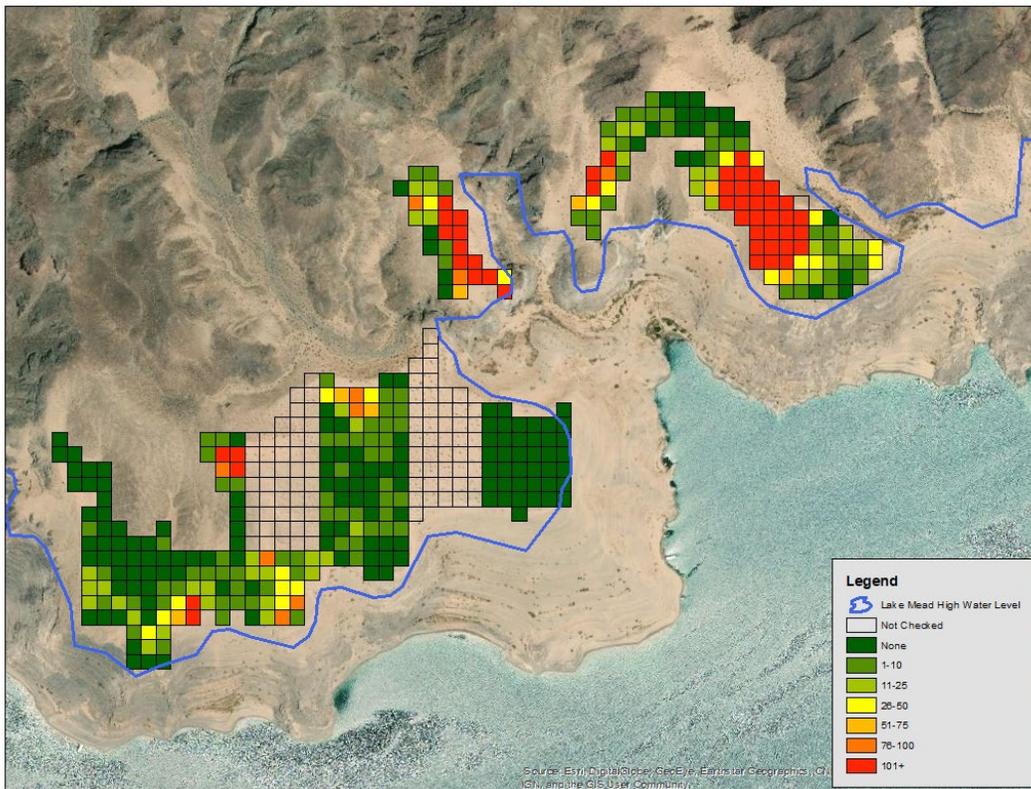
This summary report was prepared to update the status, monitoring results, and conservation actions for these rare plant species at the Lake Mead NRA for fiscal year (FY) 2019.

## METHODS

### Threecorner Milkvetch Population Monitoring

Threecorner milkvetch populations at Sandy Cove are monitored every year by mapping their spatial distribution. A polygon was used to delineate known and potential threecorner milkvetch habitat in ArcGIS, and then a permanent 30- x 30-meter grid system was overlaid on the habitat polygon (figure 1). This grid system was implemented in 2013 and contained 600 plots. The number of plots

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**Figure 1.—Threecorner milkvetch monitoring grid at Sandy Cove in FY19.**

sampled each year varies based on available funding and personnel. Between 2013 and 2017, 130 plots were removed from the monitoring grid. Some were removed because they were determined not to be threecorner milkvetch habitat (such as areas where annual grasses stabilized the sand, restricting the milkvetch from growing). Other plots were removed because of unsafe terrain, including those with the correct habitat that were too steep for an employee to safely access and those where plants would have been damaged while surveying in the steep terrain. Many of the plots removed along the periphery contain steep terrain. Each plot was assigned a density score each year based on the number of plants observed in the plot. The threecorner milkvetch density categories are: none, 1–10, 11–25, 26–50, 51–75, 76–100, and 101+.

Additional populations or potential habitat areas are also surveyed. This is done by walking in the appropriate habitat, logging the route walked during the surveys with a tracklog on the Global Positioning System (GPS). Threecorner milkvetch observed within 1 meter on either side of the tracklog were counted and documented on the GPS as either a point, line, or polygon. The number of plants is recorded per feature on the GPS unit.

## **Sticky Buckwheat Population Monitoring**

The highest density of sticky buckwheat at the Lake Mead NRA is located between Lime Cove and Glory Hole. Locations of sticky buckwheat are documented on a GPS unit, and a tracklog is used to document the path walked. Plants are counted and documented as either a point, line, or polygon. Sticky buckwheat plants are counted within 1 meter on either side of the tracklog. The number of plants is recorded per feature on the GPS.

## **RESULTS**

### **Threecorner Milkvetch Population Monitoring**

Threecorner milkvetch surveys were conducted on March 19, April 1, 8, 24, 25, and May 3, 2019, with results shown on figure 1. A total of 470 plots (30 x 30 meters) were surveyed; 156 plots contained no plants, 93 plots contained 1–10, 41 plots contained 11–25, 21 plots contained 26–50, 7 plots contained 51–75, 9 plots contained 76–100, and 48 plots contained 100+ plants. The total number of threecorner milkvetch counted was 21,089. There were 95 plots that were not checked due to lack of personnel and environmental conditions (too windy).

### **Sticky Buckwheat Population Monitoring**

Less than 0.01 acre at Lime Cove was surveyed on May 30, 2019, for sticky buckwheat by walking the habitat, logging the route walked during the survey with a tracklog on the GPS. Sticky buckwheat plants were documented with the GPS when found, resulting in 71 plants (figure 2). Each location on figure 2 represents either a single plant or a cluster of plants. The exact number is recorded on the GPS for each location.

## **DISCUSSION**

### **Threecorner Milkvetch**

There have been 6 years with a complete census of the threecorner milkvetch population at Sandy Cove. The population size has increased and decreased depending on environmental cues. The environmental factors that dictate how many threecorner milkvetch come up can be timing and amount of precipitation, whether the temperature gets too warm too quickly or stays too cold for too long, and

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**Figure 2.—Sticky buckwheat survey at Lime Cove.**

Black lines represent areas surveyed in FY19.

whether non-natives are stabilizing sandy habitat. There is no need to do a complete survey every year. Next season (FY20), efforts will be focused on controlling not just Sahara mustard (*Brassica tournefortii*), but native (*Vulpia octoflora*) and non-native (*Schismus* spp.) grasses that are stabilizing the dunes. This should promote more habitat over time for the threecorner milkvetch. The same 30-meter square monitoring plots will be used to define potential treatment areas. A percentage of the squares that contained zero threecorner milkvetch over the past 6 years will be treated with either herbicide or a mechanical treatment. The treated plots and untreated control plots will be monitored to measure the effectiveness of the herbicide and mechanical treatments in reducing Sahara mustard and native and non-native grasses and to document any threecorner milkvetch that colonize the plots.

### Sticky Buckwheat

Sticky buckwheat are annual plants that emerge in different places each year. With the water levels of Lake Mead fluctuating sometimes every month, sticky buckwheat have an opportunity to expand their populations as well as density levels at Lime Cove.

## OTHER MANAGEMENT ACTIONS

In FY19, 1.7 of 34 acres surveyed were treated to remove Sahara mustard from the dunes/sandy areas and surrounding beaches at Sandy Cove (figure 3). No exotic plant removal was done this season at Lime Cove, Ebony Cove, or Middle Point due to lack of personnel.



Figure 3.—Sahara mustard removal at Sandy Cove, totaling 1.7 acres.

## **LITERATURE CITED**

LCR MSCP (see Lower Colorado River Multi-Species Conservation Program).

Lower Colorado River Multi-Species Conservation Program. 2004. Lower Colorado River Multi-Species Conservation Program, Volume II: Habitat Conservation Plan, Final. December 17 (J&S 00450.00). Sacramento, California.