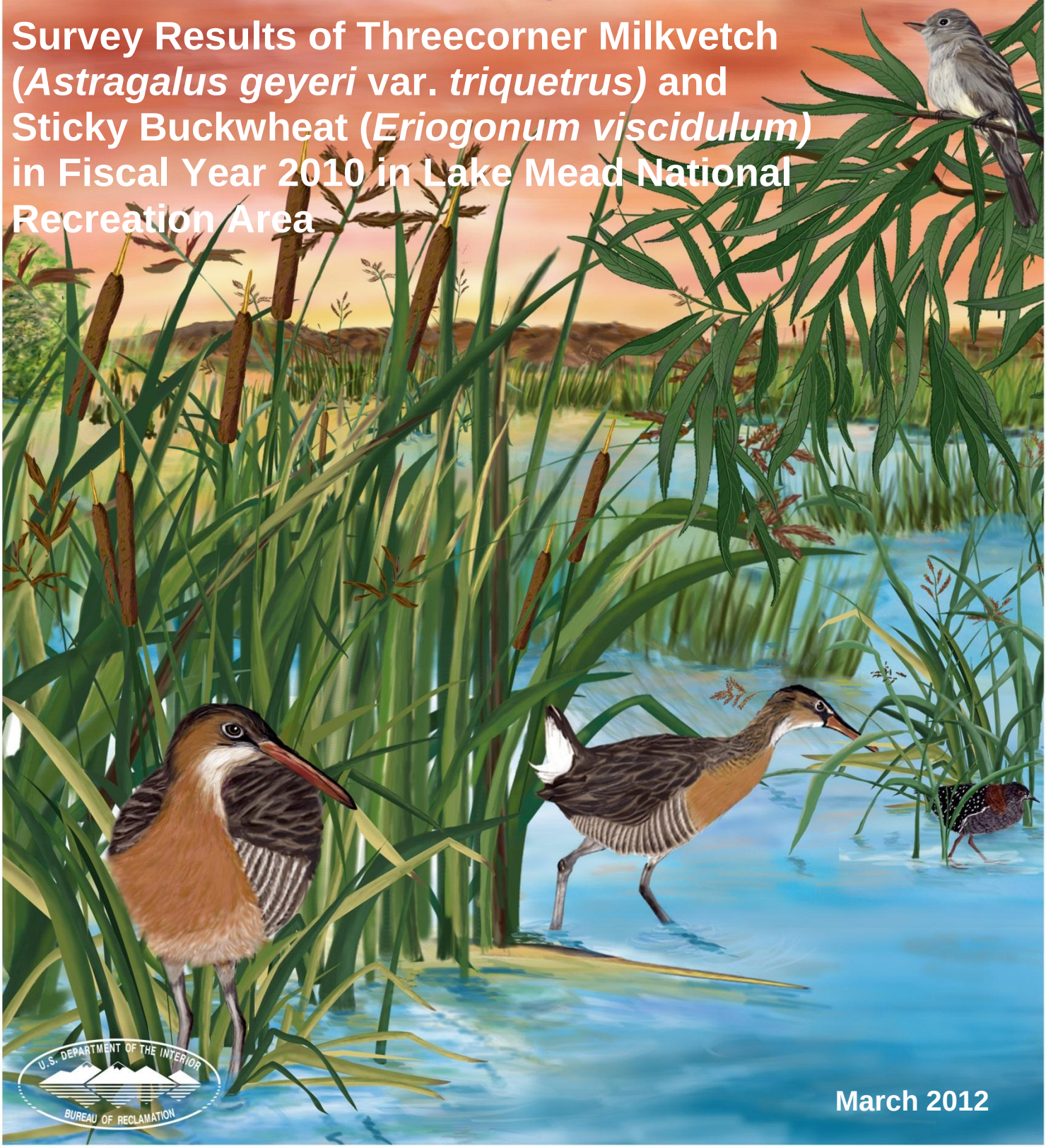
Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Survey Results of Threecorner Milkvetch (*Astragalus geyeri* var. *triquetrus*) and Sticky Buckwheat (*Eriogonum viscidulum*) in Fiscal Year 2010 in Lake Mead National Recreation Area



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

March 2012

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

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Imperial Irrigation District
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Lower Colorado River RC&D Area, Inc.
The Nature Conservancy

Lower Colorado River Multi-Species Conservation Program

Survey Results of Threecorner Milkvetch (*Astragalus geyeri* var. *triquetrus)* and Sticky Buckwheat (*Eriogonum viscidulum)* in Fiscal Year 2010 in Lake Mead National Recreation Area

Prepared by:

Alice Newton,[1] Carrie Norman,[2] and Sandee Dingman[3]

[1] Vegetation Branch Chief, Alice_Corrine_Newton@nps.gov, 702-293-8977
[2] Botany Program Manager, Carrie_Norman@nps.gov, 702-293-8734
[3] Natural Resource Specialist, Sandee_Dingman@nps.gov, 702-298-1070

Lower Colorado River
Multi-Species Conservation Program
Bureau of Reclamation
Lower Colorado Region
Boulder City, Nevada
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ACRONYMS AND ABBREVIATIONS

FY	fiscal year
Lake Mead NRA	Lake Mead National Recreation Area
LCR MSCP	Lower Colorado 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. The LCR MSCP's purposes are to (1) protect the Lower Colorado River 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 lower Colorado River. Two rare plant species occur within the covered areas designated in the LCR MSCP: sticky buckwheat (*Eriogonum viscidulum*) and threecorner milkvetch (*Astragalus geyeri* var. *triquetrus*). Both species occur within Lake Mead National Recreation Area (Lake Mead NRA), which is administered by the National Park Service.

This summary report was prepared to update the status of these rare plant species at Lake Mead NRA as of 2010.

SUMMARY OF SURVEYS

In March and April 2010, informal surveys (presence or absence) were conducted to locate plants in historic populations of threecorner milkvetch as well as to examine similar habitat types to determine if there were additional populations. In the weeks of March 5 and March 15, 2010, the dunes at Sandy Cove and Ebony Cove were surveyed. In those locations, threecorner milkvetch was located on all of the dunes where it was known to occur. In April, potential habitat at Boxcar Cove (April 19, 2010), Sandy Point (April 26, 2010), and an additional sand dune at Sandy Cove (April 13, 2010) were examined based on recommendations from Niles et al. (1995). No threecorner milkvetch was found at any of these dunes.

In June 2010, Lime Cove and Glory Hole were informally surveyed (presence or absence) for sticky buckwheat. The densest populations were clearly below the high water line (1,220 feet), but plants were also found above the high water line. Additional potential habitat at Boxcar Cove, Sandy Point, and Sandy Cove was also surveyed at the same time as the threecorner milkvetch surveys were conducted above.

DISCUSSION

Modern surveys of historical threecorner milkvetch and sticky buckwheat populations and potential habitat should not be considered complete. Several historic populations were surveyed, and very few of these plants were found at

each surveyed location. New locations within Lake Mead NRA should be surveyed again in a year of average to above average rainfall to obtain a better estimate of the population size (Bangle 2010).

The environmental factors that affect threecorner milkvetch and sticky buckwheat recruitment and germination within each population are currently unknown. Winter annuals typically respond to increased seasonal rainfall by germinating at higher densities. Our observations in recent years support this, but more data from this long-term monitoring project are necessary to effectively interpret relationships between environmental factors such as rainfall and temperature and germination rates of these plants (Bangle 2010).

Sticky buckwheat has been observed to spread into areas that were historically inundated during Lake Mead high water levels (1,220 feet). It should be noted that nearly the entire population of sticky buckwheat surveyed by presence or absence in fiscal year (FY) 2010 had established below the high water level. If Lake Mead water levels rise in the future, these populations may be at risk of extirpation (Niles et al. 1995).

It is recommended that a long-term monitoring program continue in order to develop a better understanding of what environmental stressors are affecting rare plant populations over time (Bangle 2010). Effective management decisions are impossible without knowledge of a population's status and trend and whether they are increasing, decreasing, or stable (Philippi et al. 2001). Knowledge of environmental requirements and stressors may help predict future population survival under changing climate conditions (Bangle 2010; Niles et al. 1995).

OTHER MANAGEMENT ACTIONS

In FY10, of the 173.1 infested acres of Sahara mustard (*Brassica tournefortii*), 3.5 acres were treated, and it was removed from the dunes at Sandy Cove and surrounding beaches. The amount of Sahara mustard has been steadily declining in these areas, which have been treated for over 10 years (C. Norman, personal observation). The amount of Sahara mustard on top of the dunes where threecorner milkvetch is located was minimal compared to previous years. Without paired Sahara mustard monitoring plots, it cannot be determined whether this decline is a result of our management efforts or other environmental factors. Also, fluctuating water levels greatly influence Sahara mustard recruitment on the shoreline, making it difficult to determine the actual effects of management control efforts on those populations.

REFERENCES

Bangle, D. 2010. Inventory, research and monitoring for covered plant species (2005-NPS-535-P). Unpublished report to Clark County Mutiple Species Habitat Conservation Plan from the National Park Service, Lake Mead National Recreation Area. Boulder City, NV.

Knight, T. 1992. Status report on four rare plant species located on Lake Mead National Recreation Area, Nevada and Arizona. Lake Mead National Recreation Area. Boulder City: Unpublished-National Park Service.

Niles, W., P. Leary, J. Holland, and F. Landau. 1995. Occurrence and distribution of *Astragalus geyeri* var. *triquetrus* (three-corner milkvetch) and *Eriogonum viscidulum* (sticky buckwheat) in Lake Mead National Recreation Area and adjacent regions of Nevada and Arizona. Lake Mead National Recreation Area. Boulder City: National Park Service.

Philippi, T., S. Collins, and P. Dixon. 2001. A multistage approach to population monitoring for rare plant populations. Natural Areas Journal, 21(1), 111–116.