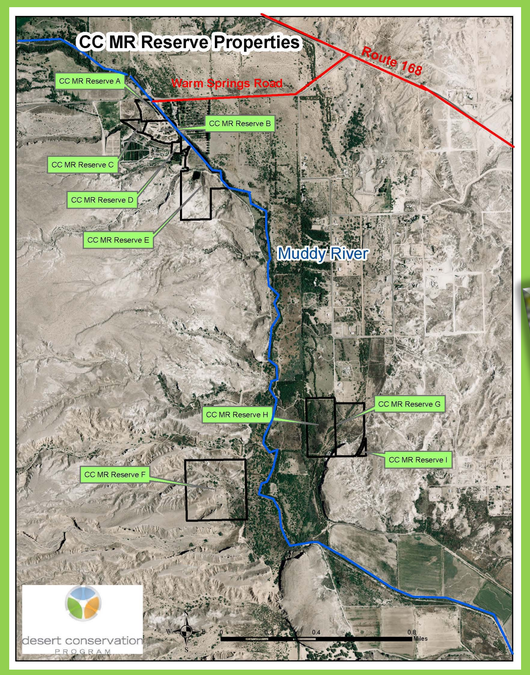
# Muddy River Restoration and Property Management
# Winter 2011-2012 Project

## Introduction

The Clark County Muddy River Reserve Property, now in its second year under the direct management of the Desert Conservation Program, is situated downstream from the Warm Springs Natural Area, the Moapa Valley National Wildlife Refuge and upstream of the Overton Wildlife Management Area. This 118 acre Reserve was acquired pursuant to the Clark County Multiple Species Habitat Conservation Plan (MSHCP) and associated Incidental Take Permit TE034927-0 Permit Condition K, to preserve as habitat for riparian birds covered by the MSHCP. According to the MSHCP, the Muddy River is one of the region's most ecologically important and threatened riparian landscapes. The Reserve is ideally located along the River and provides opportunities to bolster habitat for the southwestern willow flycatcher and other sensitive species in the riparian corridor. The Reserve includes groundwater rights, an operational well, a holding reservoir and municipal water feature.




### Covered Riparian Birds

- Southwestern willow flycatcher
- Yellow billed cuckoo
- Arizona bell's vireo


Southwestern willow flycatcher

*Photo by George Andrejko, Arizona Game and Fish Department*

## Project Goal

The goal of this project was to support vegetation management and maintenance activities along the Muddy River for enhancement of native riparian species of concern covered by the Clark County Multiple Species Habitat Conservation Plan and associated Incidental Take Permit.

To this end, Clark County implemented the following projects in the winter of 2011-2012:

- Property Management and Restoration
- Soil and Water Sampling
- Botanical Inventory, Mapping and Weed Treatment

desert conservation PROGRAM

## For further information

Please contact *bickmore@ClarkCountyNV.gov*

*These projects were funded by Southern Nevada Public Lands Management Act (SNPLA) Round 6.*

## Property Management and Restoration

NDF 561K
11/21/2011 – 1/31/2012, $24,000

**GOAL**
The goal of this project was to conduct riparian management and restoration on the Clark County Desert Conservation Program (DCP) Muddy River Properties.

The Nevada Division of Forestry provided 24 crews from November through January to implement a variety of property management tasks. Activities were conducted on Muddy River Reserve Properties A – E, on approximately 41 acres.

The accomplishments included:
- Chipped vegetation and mulched bare ground areas along the bank
- Cleared nondesirable vegetation along the river bank in preparation of planting
- Harvested native trees, shrubs and groundcover from offsite for planting
- Planted native wetland and riparian species
- Collected trash and waste material to fill six 28-yard dumpsters
- Conducted minor repair and maintenance of property features
- Implemented fuel reduction measures:
  - trimmed palm trees
  - cleared vegetation to maintain existing firebreaks
- Assisted with soil collection

**SPECIES PLANTED**

**Willow Wattles**
Sandbar willow (Salix exigua)
**Pole Cuttings**
Cottonwood (*Populus fremontii*)
Goodings' willow (*Salix gooddingii*)
**Grasses and Forbes**
Saltgrass (*Distichlis spicata*)
Yerba mansa (*Anemopsis californica*)
Scratch grass (*Muhlenbergia spp.*)
Spikerush (*Eleocharis spp.*)


Before and After habitat restoration at Property A, looking downstream.


Three months of growth for sandbar willows at Property E, looking downstream.

## Soil Sampling

UNLV 561J
11/21/2011 – 1/27/2012, $6,131

**GOAL**
The goal of this project was to collect and analyze soil at varying depths and water samples on the Muddy River Properties to determine future restoration requirements and site potential.

The accomplishments included:
- Consulted with the USDA Natural Resource Conservation Service, Resource Soil Scientist to determine the locations and frequency for sampling
- Collected soil samples at 19 locations on Properties A, B, and E
- 58 soil samples were collected at four, eight and 24 inches in depth at each site
- Contracted the analysis with the University of Nevada at Las Vegas Environmental Soil Laboratory Department of Geoscience
- Collected water samples at three locations:
  - Muddy River
  - Groundwater source
  - Irrigation pond

Next Steps
- Review results with Soil Scientist
- Develop recommendations for future restoration efforts based on results


**SOIL ANALYSIS**
pH & EC (saturated paste)
Available B and Cu, Fe, Mn, Zn
$CO_3$ and $HCO_3$
Cl and $SO_4$
K, Ca, Mg, Na, & ESP

**WATER ANALYSIS**
pH & EC
Cl
K, Ca, Mg, Na
$CO_3$, & $HCO_3$

## Botanical Inventory, Mapping & Weed Treatment

2005-NPS-561N
1/3/2012 – 2/1/2012, $20,000

**GOAL**
The goal of this project was to inventory and treat weeds on the Muddy River Reserve Properties A – I and conduct a botanical inventory of native plant species.

The accomplishments included:
- Conducted an inventory of the entire 118 acre Reserve for native and nonnative plants
- Developed plant lists for both native and nonnative species
- Photographed each species identified
- Recorded GPS locations for weeds and native plants
- Documented the extent of infestation of weeds with a GPS
- Treated weeds on a prioritized basis
- Provided recommendations for future treatments for perennial and a annual weed species


**SPECIAL ATTENTION WEEDS**

| Scientific Name | Common Name |
|---|---|
| Acroptilon repens | Russian knapweed |
| Atriplex semibaccata | Australian saltbush |
| Centaurea melitensis | Malta starthistle |
| Malcolmia africana | African mustard |
| Tribulus terrestris | punctureveine |


**NATIVE PLANTS INVENTORY**

catclaw iodinebush white bursage fiddleneck yerba mansa four-winged saltbush wheelscale saltbush desertholly quailbush cattle saltbush desert brickellbush spiny herb rabbitbrush horseweed saltgrass hedgehog cactus Mormon tea skeleton weed desert trumpet barrel cactus singleleaf ash snakeweed sunflower white ratany prickly lettuce creosote bush wolfberry pale desert-thorn Mojave aster common mallow four o'clock beavertail pricklypear common reed desert plantain James' galleta honey mesquite screwbean mesquite indigo bush willow desert globemallow copper globemallow alkali sacatone grass iodine weed arrowweed fiveneedle pricklyleaf cattail