ANNUAL REPORT

July 1, 2013 – June 30, 2014

MOJAVE DESERT RESOURCE CONSERVATION DISTRICT
15415 W. Sand St., #103, VICTORVILLE, CA 92392

Meetings are held the first Wednesday of each month at 12:00 P.M. at the District Office located at
15415 W. Sand St., #103, Victorville, CA 92392

BOARD OF DIRECTORS

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Technical Administrative Assistant …..…….……..…...Dana Raponi
ReLeaf Coordinator…….. Cheryl Nagy
Intern…….. ….Rebecca Everett
Intern…….Ethan Sockwell

TECHNICAL STAFF
USDA NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

District Conservationist……..…… Holly Shiralipour
Area Resource Soil Scientist ……..……..…….. Peter Fahnestock
Area Range Specialist……..…..…….…. Dustin Detweiler
Cluster Engineer…….……Travis Godeaux
Soil Survey Project Leader ……...Carrie Ann Houdeshell
Soil Scientist……...……..……Stephen Roecker
Soil Scientist…….…..Genevieve Widrig

MISSION STATEMENT: The Mojave Desert Resource Conservation District is committed to the development of a land stewardship ethic that promotes long-term sustainability of the region's rich and diverse natural resource heritage.

NATURAL RESOURCE OBJECTIVES OF THE DISTRICT:

- Provide resource management information to the community
- Promote the reduction of wind and water erosion
- Promote the proper utilization of our natural resources
- Promote water conservation
- Provide information for improved irrigation water management
- Demonstrate urban and agricultural practices that sustain and improve water quality and fish and wildlife habitat
- Work with the public and private sector toward land development practices that protect and enhance the region's natural resources and systems

TAMARISK/ARUNDO/RUSSIAN-OLIVE ERADCATION/CONTROL PROJECT

The District continued with their invasive plant removal program with the focus remaining on retreatments. In fall of 2013 we were able to retreat 768 weed acres using our contractor (SWEAT). RCD staff and Chuck Bell (President) retreated several weed acres in an area encompassing approximately 443 full acres. All treatments were done using the foliar method. This year our contractor was also able to work at Camp Cady doing initial removal of 46 acres of salt cedar. The District began control of these invasive plants during 2008 and has currently treated the majority of infested acreage from south of the Mojave Forks Dam to ½ mile east of the Barstow Marine Base. Parcels of non-consenting landowners and critical erosion areas were avoided. To date, a total of 1,780 "weed" acres of a total of 10,000 assessed acres of these invasive species have been removed/controlled.

With the exception of a few acres located in the Barstow area, we have completed all the actual removal that can be done. We have had to leave some areas in place due to lack of landowner permissions and/or locations located in sand blow/erosion areas that NRCS has required us to leave in place. Certain portions of the eastern bank were also left in place to maintain bank stabilization**.** Retreatments will continue for the next 3-5 years to make sure all weeds stay eradicated and any new sprouts are treated before they go to seed.

The majority of the funding for these re-treatments will be provided by the Mojave Water Agency. Initial funding for removal efforts was provided by USDA NRCS earmark of funds to the Mojave Water Agency, the Mojave River Basin Adjudication's Biological Resources Trust Fund, State Proposition 50, and direct funding from the Mojave Water Agency.

Benefits of this project are:

1. Implement the Mojave Basin Area Judgment (improve riparian habitats, maintain ground/surface water saturation at root zone, increase downstream flows).
2. Reduce evapo-transpiraton of ground and surface waters (water conservation).
3. Reduce salt deposition in the riverbed (water quality).
4. Reduce wildfire potential.

5. Keep channels open – reduce debris damming and severity of flooding.

MOUNTAIN COMMUNITIES RELEAF

This spring Mountain Communities Wildfire ReLeaf celebrated their 10th planting season. Nearly 60 volunteers came together to work side by side with representatives from grant funder, American Forests and American Forests' Corporate Partners - Jambu and Amour Vert. Volunteers traveled from Washington DC, Minnesota, Washington State, Boston, New York, and San Francisco along with residents of Orange, Riverside, LA and San Bernardino Counties. In addition to using volunteers to plant the seedlings we continue to use the Cal Fire Pilot Rock Conservation crews.

Developed in 2004 after the 2003 Wildfires, Mountain Communities Wildfire ReLeaf is an ongoing program educating private landowners in the value of reforesting the burn areas and areas devastated by the bark beetle infestation. The ReLeaf program uses seeds previously collected in the San Bernardino Mountain burned areas. These seedlings are grown at the Southern California Edison Nursery in Auburn, CA and delivered to the sites for direct plantings as weather and climate conditions permit. Citizen and student volunteers are used on much of the larger burned areas, and professional planting crews in the more hazardous areas.

Since 2004, ReLeaf Volunteers, partnering with the Mojave Desert Resource Conservation District and CALFIRE (California Department of Forestry & Fire Protection) have planted over 400,000 native seedlings across several hundred acres of land in the San Bernardino Mountains and additional areas located in San Diego and Riverside counties. More information on this program can be found at www.mountaincommunitieswildfirereleaf.org

CONSERVATION FIELD TRIALS

Conservation Field Trials (CFT's) were designed and implemented in 2011-12 on the Lewis Center for Educational Research (LCER), Apple Valley, CA; and Victor Valley College (VVC), Victorville, CA. The objective of these CFT's was to determine the suitability and sustainability of applied revegetation strategies, technologies, and selected plant materials for site restoration on riparian and historic floodplain sites affected by natural and anthropogenic disturbance activities (i.e., flooding, fire, saltcedar infestation and removal) along the Mojave River in San Bernadino County.

The LCER study was installed with the assistance of a) 15-30 high school students and faculty (number depending upon day and class schedules) from LCER, including members of the LCER's Junior ROTC Program; and b) 13 members (one crew, including Supervisor) of the Pilot Rock / CalFire Conservation Camp located near Lake Arrowhead, CA. The VVC study was installed with assistance of a) 8-10 college students, program interns, and faculty from VVC Department of Agriculture and Natural Resources; and b) 26 members (two crews, including Supervisors) of the Pilot Rock / CalFire Conservation Camp.

The studies evaluated 9 (LCER) or 10 (VVC) transplant species and 12 seeded species of native shrubs, forbs, and grasses as indicators of response to: a) seeding / planting techniques that incorporate varying levels of seedbed preparation; and b) use of polyacrylamide polymer and Zeolite™ columns for enhancement of soil moisture retention and duration within the initial root development zone. Emphasis was placed on testing native species (in conjunction with associated seeding/planting methodology) that best reflect environmental site adaptation, practical field applications by agencies and landowners, commercial availability, and cost-effectiveness. Treatments and related disturbance impacted approximately 0.5 acres in each study.

I. Victor Valley College (VVC) – 2014 data narrative summary

(graphical data presentation available upon request)

- Several individual species still demonstrate relatively good survival across all treatment types, with survival for 6 of the 10 transplant species continuing into 2014. Survival (into 2014) and relatively vigorous productivity included -- fourwing saltbush (90%), desert broom (23%), desert willow (21%), Anderson wolfberry (18%), desert globemallow (31%), and honey mesquite (40%). The two willows, Fremont cottonwood, and California buckwheat demonstrated no survival into 2014, although the cottonwood and California buckwheat did exhibit approximately 10-15% survival through 2013.

- In a reversal of previous years' findings, by 2014 most surviving species demonstrated superior survival under dry granular polymer treatment (TGP) vs. polymer gel dip application (TGP). The exceptions were desert willow and desert globemallow, where the polymer gel dip was more beneficial to survival.

- As with 2012 / 2013 results, most of the surviving species by 2014 benefitted significantly from early, supplemental irrigation. Irrigation was manually applied via individual plant watering only 4 times during the summer of 2012 (i.e., first growing season after planting), and was discontinued thereafter. This irrigation effect was evident across both polymer treatments, but the data suggests that the use of the polymer gel dip with this supplemental irrigation is slightly more beneficial for survival than under the granular polymer. The only species showing no significant positive response to irrigation, and essentially no significant difference in response between polymer treatments, was fourwing saltbush.

II. Lewis Center for Educational Research (LCER) – 2014 data narrative summary

(graphical data presentation available upon request)

- As with 2013 results, surviving species (fourwing saltbush and alkali sacaton) individually and cumulatively exhibited significantly improved survival under the Zeolite™ column treatment vs. standard transplants (78% vs. 56%, respectively). Three individual species (across all treatments) exhibited no survival regardless of treatment – desert broom, California buckwheat, and desert globemallow – attributed to early (i.e. immediate post-planting) freeze damage in November of 2011 when winter air temperatures dropped below 18^{o} F at night for several days.

- Overall survival across the six remaining species was 36%, with a survival range of 94% (across polymer treatments) for fourwing saltbush compared to 0.8% for Anderson wolfberry (this latter species being the only surviving species with less than 10% survival by 2014). These values include survival for the Zeolite™ plots.

- When separated and examined within the normal transplant treatment only, 2014 results varied from those of 2013. For all species collectively (i.e., averaged across all surviving species), there was no significant difference by 2014 between polymer (dry granular application) vs. no polymer treatments (36% vs. 37%, respectively). However, certain species individually demonstrated enhanced survival into 2014 under polymer supplementation – inland saltgrass, Screwbean mesquite, and alkali sacaton. In contrast, fourwing saltbush and honey mesquite exhibited superior survival in the absence of polymer treatment. This suggests that, in general, potential polymer benefit is species-specific. However, for those species that indicate positive response to polymer, standard transplants planted without irrigation or other forms of supplemental moisture supply (e.g., Zeolite™ columns) will benefit from polymer augmentation.

MOJAVE WEED MANAGEMENT AREA (MWMA)

The Mojave WMA continues to be coordinated by the District, which organizes and hosts quarterly meetings and oversees ongoing projects and outreach efforts. The Memorandum of Understanding for the MWMA currently has 23 signatories from agencies such as San Bernardino County Dept. of Agriculture, US Fish and Wildlife Service, Bureau of Land Management, California Dept. of Fish and Game, Joshua Tree National Park and Mojave National Preserve, to name a few.

We continue to work with our partners on prevention and control of noxious/invasive weeds on both public and private lands in the Mojave Desert. A one day workshop was held in December by the UC Cooperative Extension and National Park Service to educate Caltrans and County crews on the best timing options for shoulder work. This workshop also provided information to help with weed identification. Scheduling of shoulder grading on county maintained roads, at least in many desert areas including Bureau of Land Management and National Parks Service jurisdictions, often results in weed seed spreading and germination. This germination then creates significant weed growth that requires onerous removal work in the fall. If removal does not occur, the resulting effect is large tumbleweeds blowing into roads and adjacent property.

We will continue to work with our partners on collaborative projects, and try to secure alternate funding to continue local weed control work.

HERBICIDE DEMONSTRATION STUDY FOR SALTCEDAR CONTROL

A herbicide demonstration study was initiated in September, 2013 to evaluate an array of herbicide formulations, chemistry combinations, application rates, and application timing for effectiveness on saltcedar (*Tamarix* spp.) along the Mojave River watershed. This study evolved as a result of:

- Less than desirable results from prior (2010-13) application using the standard formulation of 2% imazapyr (aquatic label as Polaris™ or Habitat™), particularly in Phases III and IV of the MDRCD / MWA saltcedar, Russian olive, and Arundo control program on the Mojave River;
- The availability of new or recent herbicide chemistry, including commercial pre-mixes of newer and traditional products, that offers promise for effective saltcedar control (e.g., Milestone VM Plus™ [aminopyralid + triclopyr], Vista™ [fluroxypyr]);
- The desire to evaluate traditional herbicides in different formulations and application rates (e.g., imazapyr + glyphosate; imazapyr + fluroxypyr; imazapyr at higher application rates).

Final estimation of individual, treated saltcedar mortality will not be assessed until the end of the 2015 growing season (typically October 2015). Due to the relatively slower-acting systemic mode-of-action of imazapry, final estimates of saltcedar mortality should not be made until after two full growing seasons following treatment,

INTEGRATED REGIONAL WATER MANAGEMENT PLAN (IRWMP)

The District entered into a partnership with Mojave Water Agency as a Team Member sponsor for the 2014 IRWMP for the Mojave Region. An IRWMP describes the major water-related objectives and conflicts within a region, considers a broad variety of resource management strategies, identifies the appropriate mix of water demand and supply management alternatives, water quality protections, and environmental stewardship actions to provide long-term, reliable, and high-quality water supply and protect the environment. It also identifies disadvantaged communities in the region and takes the water-related needs of those communities into consideration.

CAMP CADY RESTORATION PROJECT

The District is working with Quail Forever and the Department of Fish and Wildlife on a restoration project at Camp Cady located in Newberry Springs. Native species adaptation (as transplant stock) to the previously flood-scoured/eroded river channel at Camp Cady will be evaluated as part of restoration of the native riparian forest following disturbance. The study is also a component of the Area-Wide Newberry Springs/Baja Sub-Basin water conservation and erosion control project currently administered by NRCS and Mojave Water Agency. The results of the study will be used to determine a recommended suite of native species for use in future Mojave River riparian restoration activities at both Camp Cady and at other locations along the full river reach.

CAMP CADY WELL REFURBISHMENT PROJECT

The District, with financial assistance from Department of Fish and Wildlife's Biological Trust Fund Administered by the Mojave Basin Watermaster, refurbished an agricultural well at Camp Cady which is used to supply irrigation water for a center pivot system. This system is used to irrigate game/wild bird food crops such as millet, sorghums and other grains. As a secondary purpose, it will be used to supply irrigation water for windbreaks established via a drip system along the west end of Camp Cady.

WIND EROSION

The District is working with San Bernardino County and solar developers and farmers regarding grading and scraping of parcels to mitigate/prevent vacant land to prevent sand blow issues.

ASSISTANCE TO DAIRY OWNERS

One of the districts role as a non-regulatory agency has been to facilitate communication between the NRCS and the dairy owners to develop a collaborative solution to the nitrate concerns raised by the Lahontan Region Water Quality Control Board. This FY the District, in partnership with NRCS, continued to assist dairyman with their Comprehensive Nutrient Management Plans (CNMP) being offered through NRCS. The CNMP can help producers utilize their manure sources available for nutrient application and to reduce nitrate intrusion into surface and/or ground water. It will also help with the infrastructure and in obtaining management resources available to aid in delivery and monitoring of nutrient and irrigated water applications to the cropland (i.e., flow meters, pipeline, manure spreading, pond liners, etc). It is important that all parties understand how Lahontan will determine the effectiveness of nitrate mitigation and what will constitute ultimate dairy compliance.

BAJA SUB-AREA AREA WIDE PLAN & WATER USE EFFICIENCY INVESTIGATION

The District has been working on an areawide plan for the Baja Sub-Area of the Mojave Watershed with partners NRCS, Mojave Water Agency, US Bureau of Reclamation and local community members. The critical resource concern is severe aquifer overdraft, which is threatening the viability of agriculture in the area and reducing land values (because of concerns about water availability). Water use has been ramped down to 55% from the original base years ending in 1990. The Mojave Water Agency and U.S. Bureau of Reclamation joined the partnership as major financial supporters including significant cash and staff support. The planning process has been underway since September 2013. The District and NRCS staff have been providing technical advice in all phases of the planning process including community involvement with meetings and a detailed survey. More information on the plan is available at bajaplan.com.

ALLIANCE for WATER AWARENESS and CONSERVATION

The District remains an active participant in the Alliance for Water Awareness and Conservation (AWAC). The mission of this dynamic coalition of over 20 regional organizations is to promote the efficient use of water and increase awareness of conservation as an important tool to ensure an adequate water supply.
The four specific goals of AWAC are:

- Serve as a network to assist agencies in educating the public on water conservation.
- Provide resources with a consistent message to help agencies meet their respective conservation goals.

- Maintain current gallons per capita per day or lower and continue to position agencies for meeting future conservation needs.
- Exchange ideas between agencies, especially at quarterly meetings.

The District will be working with AWAC to locate local nurseries that either currently are or are willing to stock their inventory with native plants for our area.

A calendar that features low water use plants is published annually to heighten the public's awareness of water efficient landscaping. These calendars are freely available to the public through AWAC members.

MITIGATION/COMPENSATION

The District remains actively engaged in providing mitigation/compensation and environmental credits for developers wanting to build in the San Bernardino County portion of the High Desert area. Mitigation practices include the removal/retreatment of tamarisk and arundo in the Mojave River as well as trash removal on the designated sites. To date, the District has nine active contracts totaling 123 full acres. Six contracts have been fulfilled since the start of this program in 2006. The latest mitigation contracts are with the City of Victorville and San Bernardino County Department of Public Works.

MOJAVE DESERT SOIL SURVEYS

The USDA's Natural Resource Conservation Service (NRCS) Victorville Soil Survey Office is continuing field work in Mojave National Preserve. The MLRA Soil Survey Leader (MSSL), Carrie-Ann Houdeshell, has left the office for a new position in Davis, CA, and her position should be filled by June 2014. Leon Lato, Soil Survey Project Leader for Mojave National Preserve, is Acting MSSL until the new MSSL is in place. The survey crew that remains is focusing their mapping on four grazing allotments within the Preserve, so as to help the National Park Service develop their Long Term Grazing Plans for the Preserve. Ecological Site Descriptions are being correlated and/or written for all landforms in the Preserve. NRCS is also working with BLM to resume their mapping efforts on lands between Desert Center and Blythe, along the I-10 corridor where there is potential for solar plant installations. This work should resume in Spring of 2014, and will be led by Peter Fahnestock, Area Resource Soil Scientist.
All completed soil surveys across the country can be accessed through Web Soil Survey at: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm.

KOREAN OUTREACH PROGRAM

A team comprised of NRCS employees, an Earth Team volunteer and the District joined forces to work with Korean farmers in San Bernardino County. An increasing number of Korean farmers are moving to the High Desert to join existing Koreans that grow jujubes, pistachios, Japanese Ume Plums, and apples among other crops. In spring 2013, Earth Team Volunteer Henry Eun encouraged Korean elders in Lucerne Valley to host and attend a June outreach workshop. The program, translated into Korean, included presentations about NRCS, agricultural cooperative marketing, and a Korean potluck. The event was well attended and

launched an ever expanding outreach effort with the Korean farmers. The NRCS & RCD team is working with the Korean early adopter farmers to develop conservation plans and contracts for their farms. These efforts helped staff to create outreach products and trainings (micro-irrigation, soil health and plant fertility) to benefit the larger Korean farm community. At the same time, the Korean early adopter farmers are eager to help the NRCS & RCD team communicate with fellow Korean farmers to get them involved. New partners such as the Mojave Water Agency and various San Bernardino County departments are joining the effort.

CIMIS

The District continues to maintain two California Irrigation Management Information System (CIMIS) stations. The station that has been in Barstow is being relocated to Newberry Springs to better service the ag community. The Victorville station remains at Victor Valley College in Victorville. These weather stations assist not only agricultural producers but urban landowners as well. Evapotranspiration data for alfalfa and turf grasses is updated Monday through Friday by RCD staff and is available on our website: mojavedesertrcd.org. Funding for maintenance of these CIMIS stations is provided through a Memorandum of Understanding with the Mojave Water Agency.

MOJAVE DESERT-MOUNTAN RC&D

The District continues to support and participate in the Mojave Desert-Mountain RC&D. This six county organization works as an extension of the Resource Conservation District and assists in the economic development of the rural segments of San Bernardino County.

NRCS FARM BILL PROGRAM

The NRCS Victorville Service Center boundaries comprise most of San Bernardino County including the mountains in the Mojave River watershed and the high desert extending east to the Arizona/Nevada borders. (The southwest corner of the County lies in the Redlands Service Center area.)

More than 60 applications were received for the new 2014 Farm Bill (up from 7 in FY2013). Due to the February passage of the new Farm Bill, the deadline for processing applications was extended.

More than 20 active contracts with area producers are being managed by the Victorville office. These contracts include plans addressing resource concerns such as water quality, water quantity, soil erosion, inadequate wildlife cover and food, and energy conservation