



**A Tamarisk Removal Effort
at
Water Reclamation Plant No. 7 (WRP No.7)
Coachella Valley Water District**



Impacts Associated with Tamarisk Invasion

- **Water Consumption/Hydrology alteration**

Saltcedar apparently uses more water than native species which can result in depressed water tables, which in turn alters the onsite and offsite hydrology of the area (Horton 1976).

- **Salinity tolerance and salt deposition**

Saltcedar has the ability to grow in saline environments and to excrete salt from its leaves. This salt may fall directly to the soil or may arrive through leaf fall. In either case this increases the salt concentration in the soil surface which may inhibit the establishment and growth of other salt intolerant species (Shafroth et al. 1995, Smith et al. 1998)

- **Fire Tolerance and Litter Dynamics**

Saltcedar on the other hand is only topkilled by fire but actively resprouts to heights of up to 2 m in one growing season. It also produces greater quantities of leaf and woody debris which tends to favor fires. Its rapid regrowth following fire and its tendency to create conditions that favor fire adds to its ability to control and replace native species (Busch and Smith 1993, Smith *et al.* 1998)

- **Flood Tolerance**

Generally mature saltcedars can survive greater durations and depths of flooding than most native species. Thus, once established they can persist under conditions that would result in mortality or reduction in abundance of many native species (Warren and Turner 1975)

- **Herbivory Tolerance**

Saltcedars are apparently not as readily consumed and if they are they are not greatly suppressed. In addition, as introduced species, salt cedars lack associated insect herbivores that could perhaps exert influence on these species and, if introduced, these insects may offer some potential for use in the biological control of saltcedar (DeLoach 2000)

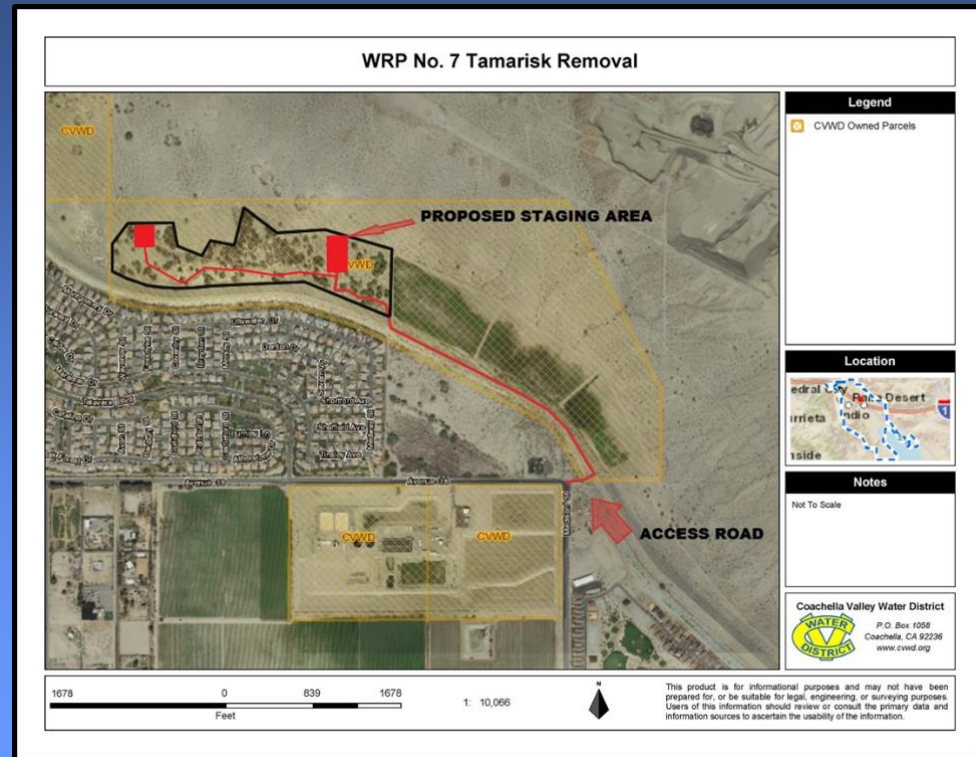
WRP No. 7 Location and Preparation

Approximately 42 acres in size and located within the East Indio Hills Conservation Area. Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) lists potential habitat for the following species:

- Burrowing Owl
- Palm Springs Pocket Mouse
- Flat-tailed horned lizard
- Coachella Valley fringe-toed lizard
- Palm Springs round-tailed ground squirrel
- Crissal thrasher
- Le Conte's thrasher

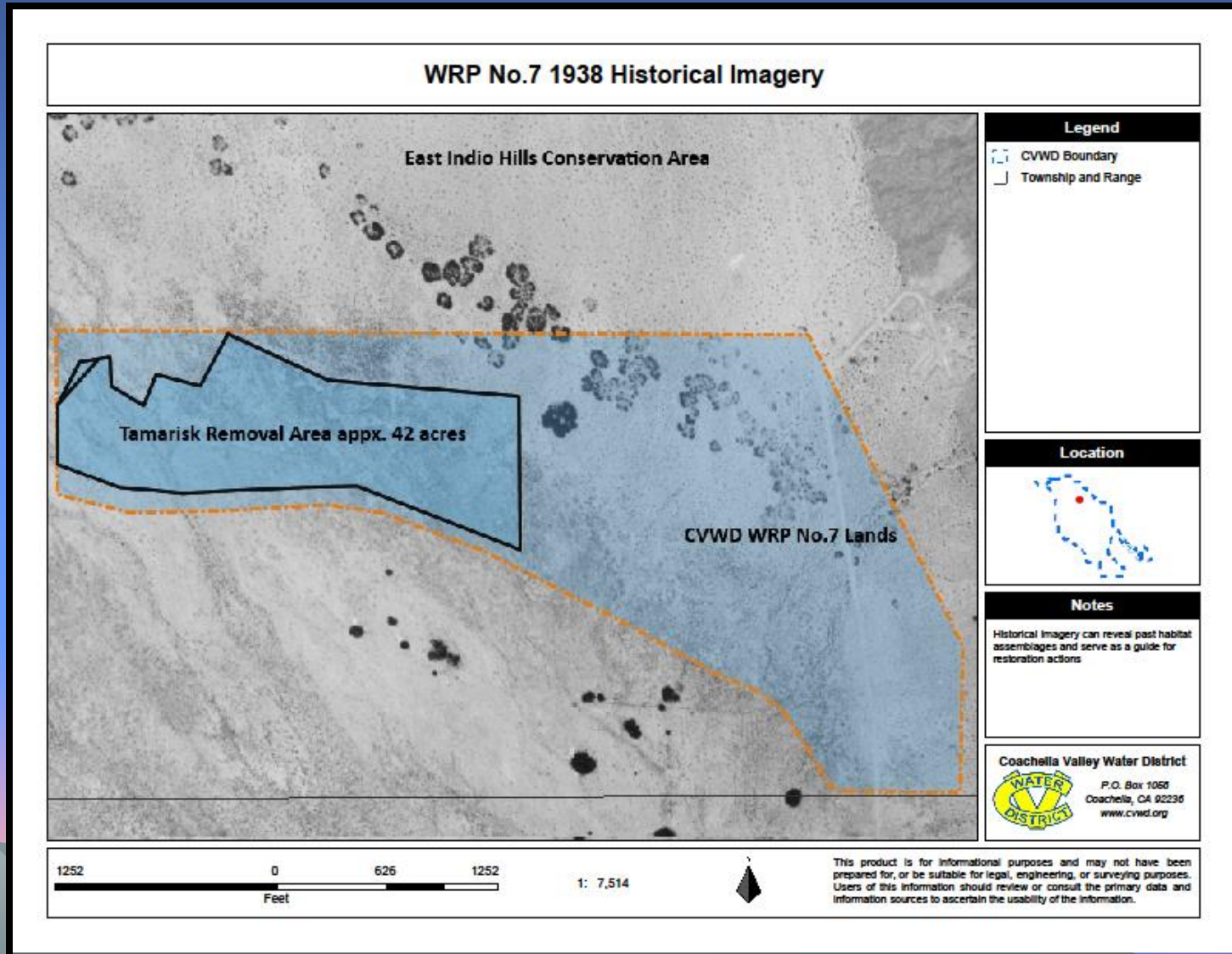
Pre-activity Survey Work

- Burrowing Owl Surveys
- Nesting Bird Surveys
- Nesting Bird Management Plan
- Worker Environmental Awareness Program
- Access and Staging Route Designation



Put a Work Plan together to guide efforts

What was present before?



Before Removal Efforts

- TAMARISK MONOCULTURE
- LITTLE TO NO FLORISTIC DIVERSITY
- HIGHLY SALINE SOILS AND DUFF BUILT UP AROUND TREES
- LITTLE HABITAT VALUE FOR MOST WILDLIFE SPECIES ASSOCIATED WITH THE EAST INDIO HILLS CONSERVATION AREA
- OHV AND ILLEGAL DUMPING ATTRACTANT
- POTENTIAL WILDFIRE ISSUES



Equipment Used During Work



The Aftermath



What Came Back First ?

Quarterly Visits for the following two years revealed:

- Average of 20-30 resprouts per year (treated or pulled entirely)
- Recruitment of native annuals
- Increasing floral diversity
- Increase in bird and small animal diversity

Observed recruitment

- Desert saltbush
- Paper Daisy
- Indian Mallow
- Golden Eye
- Brittle Bush
- Shadscale
- Wild Buckwheat
- Native grass sp.



2 Years Post Removal NO MORE TAMARISK 😊



- Tamarisk monoculture gone
- Native recruitment observed
- Habitat enhanced for small animals
- Less potential for fire
- Relief for local groundwater table
- Removal of substantial non-native seed source



Working With The Locals



Western Diamondback Rattlesnake



Sidewinder Rattlesnake



Speckled Rattlesnake

WRP No.7 Tamarisk Removal Costs

- Man Hours = 227
- Rental Equipment = \$6864.00
- UTS Tree Service = \$82,818.51
- Green Waste Fees = \$ 6,221.13
- Labor, Materials, Equipment = \$ 22,357.90
- Dust Control = \$13,603.31
- Retreatment = \$ 2,130.35
- **TOTAL COST = \$133,995.20**
- **COST PER ACRE = \$3190.36**



Acknowledgements

Kudos to the Coachella Valley Water District Facility and Maintenance Storm water Staff !!

A Special Thanks to:

Chad Austin

Patrick McDaniel

Benito Reyes



Your department's assistance and coordination resulted in an environmental stewardship effort that will benefit wildlife species and natural areas in the Coachella Valley. Thank You!

QUESTIONS?

