



Maintaining Riparian Habitats after Initial Invasive Plant Treatments on MCB Camp Pendleton



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Program Overview

Camp Pendleton controls non-native invasive species (NIS) within riparian habitats along 4 major and 10 minor drainages. Following large-scale removal projects of primarily arundo (*Arundo donax*) and salt cedar (*Tamarix* spp.), the Base maintains these riparian areas through:

- Re-treatment of known NIS infestations
- Simultaneous monitoring for new NIS populations
- Active restoration of areas heavily impacted by NIS
- Monitoring the recovery of the affected habitat

Initial Treatments

Since 1996, large infestations of NIS (namely arundo and salt cedar) have been mechanically removed from Base riparian areas.

Historical treatments entailed the mechanical removal of the entire plant. This proved to be costly, susceptible to other NIS invasions, and required intensive re-treatments for at least 4 years.



Current methods involve foliar glyphosate applications, followed by on-site mulching and minimal native plantings.

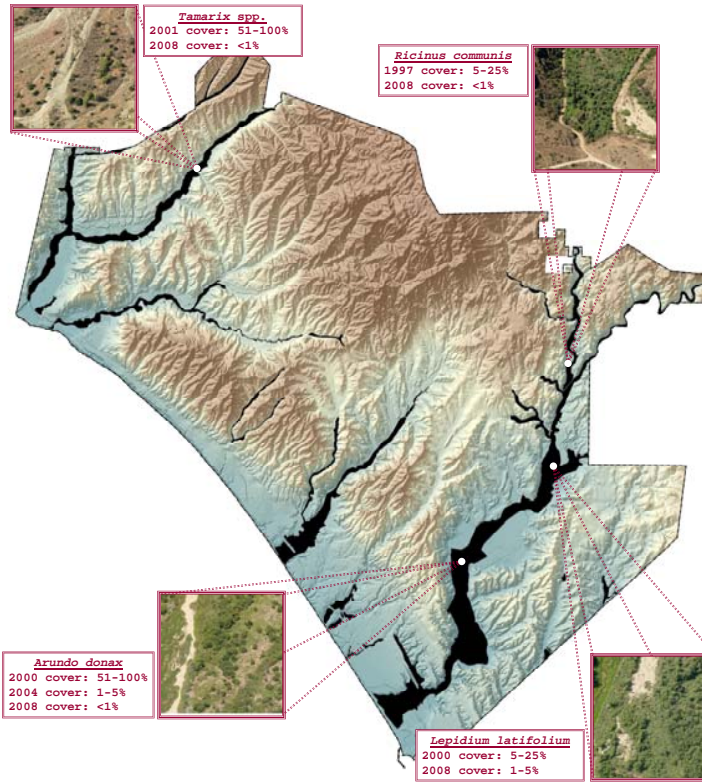
Re-treatment of Exotics

Re-growth from initial treatments and smaller NIS infestations are treated under the Riparian Weed Maintenance Program.

Crews simultaneously treat known NIS infestations and monitor for new populations.



With nearly 5000 acres of riparian habitat and 14 waterways, re-treatments are managed more efficiently through a rotating treatment schedule.



Native Restoration

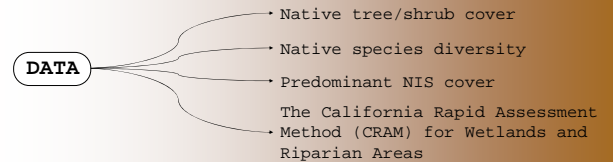
Limited active native restoration is planned for the remaining NIS infested riparian sites on Base.

Common native riparian species will be planted to promote habitat recovery and suppress ruderal NIS which invade sites after initial treatments.



Habitat Recovery Monitoring

A monitoring plan was developed in 2007 to assess native vegetation recovery following the removal of NIS from riparian habitats on Base.



The Santa Margarita River is the primary waterway on Camp Pendleton. Preliminary data shows that it takes **5-10 yrs** for areas treated for NIS on the river to return to mature riparian habitat.

Monitoring Geodatabase

A geodatabase of initial treatments and re-treatments was compiled in 2003 to track the current extent of NIS populations and aid in management objectives.

Treatment attributes include:

- Treatment year
- NIS species name & cover
- Control method
- Herbicide type & concentration
- Contractor performing maintenance



The geodatabase also serves to track mitigation requirements for Base projects that have impacted riparian habitats.

Future Challenges

Management

Initial treatments are expected to be complete within the next 3-4 years. The focus will then shift solely to the suppression of known NIS populations in riparian habitats.

Monitoring

More efficient and accurate monitoring methods are being explored to aid in the detection of new NIS populations in riparian habitats.

Methods

Keeping apprised of new and innovative NIS treatment methods to improve control efficacy and minimize the use of herbicides in sensitive habitats.

Acknowledgements

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