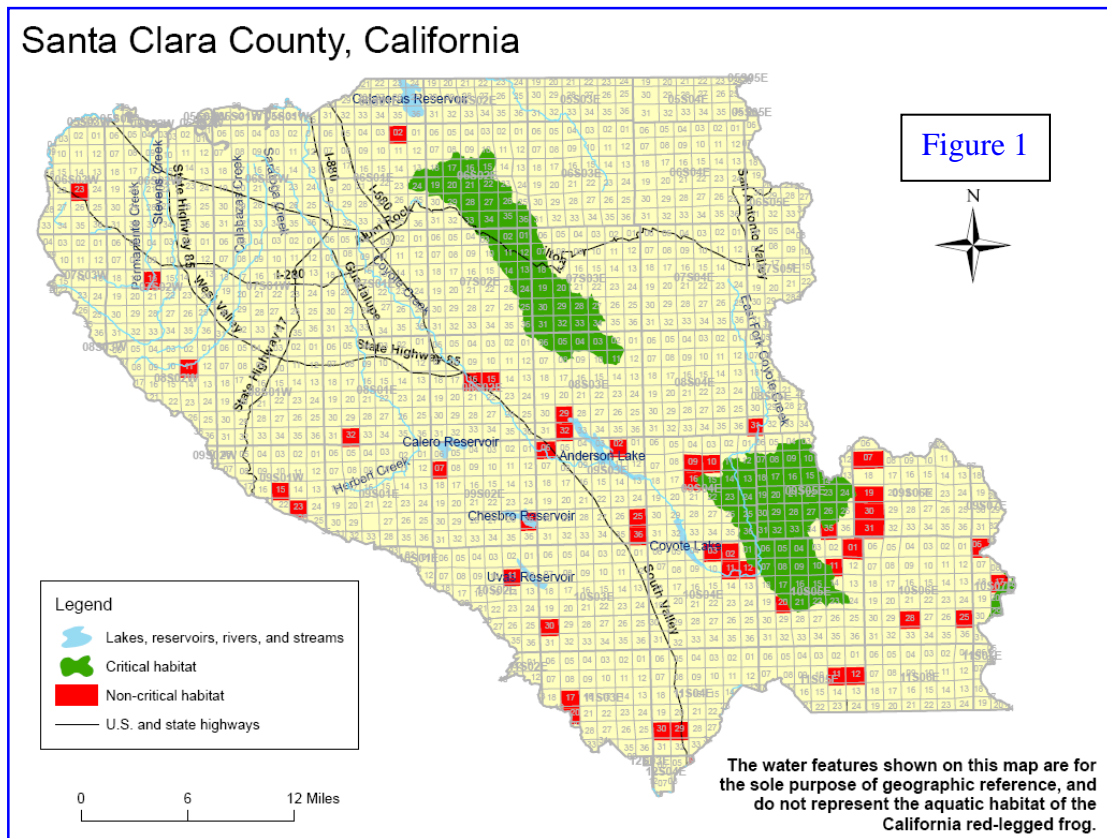


Strategies for Working in Areas with Endangered and Sensitive Species

Clean Lakes, Inc. (CLI) has been working with clients on a variety of vegetation management programs, some of which have challenges associated with endangered and threatened species, that include the Western Pond Turtle (*Actinemys marmorata* or *Emys marmorata*), Clapper Rail (*Rallus longirostris*) the Red-Legged Frog (*Rana draytonii*), and the Dusky-footed Woodrat (*Neotoma fuscipes annectens*). The presence of these species alters, and at times puts a stop to these vegetation control programs, as well as substantially increases the costs. Projects where implementing swift management strategies ensured that the project moved forward as planned, and most importantly, that the species in question were not impacted due to habitat alterations are outlined below.

CLI has been working on the Arundo (*Arundo Donax*) Control Program with the Santa Clara Valley Water District (SCVWD) over the last eight years. The project consists primarily of controlling Arundo using EPA approved aquatic herbicides, then later removing the dead biomass. The Arundo is spread across various Santa Clara County creek systems that include the Coyote, Guadalupe, and Uvas/Llagas watersheds. Several of these areas are located in Red-Legged Frog and Dusky-footed Woodrat habitat. A map that encompasses some of the project areas, and shows the critical and non-critical Legged Frog habitat can be seen below in Figure 1. In order to continue work in these areas, SCVWD and CLI staff developed a control strategy that ensures the protection of the endangered and other species in concern.



The first step of the control strategy is to have SCVWD biologists survey the proposed work site. If there are no Red-Legged Frogs present, the biologists give CLI staff the clearance to move forward with the work. If Red-Legged Frog is located, then CLI skips this area and schedules another biological survey for a future date. The standard protocol in the areas that are not designated Red-Legged Frog habitat is to do a foliar treatment using an approved aquatic herbicide and surfactant. The developed protocol for treating Red-Legged Frog habitat is outlined below:

- In stream cut stump treatments (no foliar treatments allowed): Aquamaster herbicide @ 85% concentration and marker dye.
- Foliar treatments within five feet of the edge of the streambed: Aquamaster herbicide @ 2% solution, marker dye, and drift control agent applied by backpack sprayer.
- Foliar treatments greater than five feet from the streambed: Aquamaster herbicide @ 2% solution, surfactant @ 1% solution, marker dye, and a drift control agent.



This protocol ensures that if Red-Legged Frogs are in a control area, that there would be minimal impact. The two key elements of this plan are that cut stump treatments prevent herbicides from being applied on or around the Red-Legged Frogs habitat and that no surfactant is used within 5 feet of a streambed.

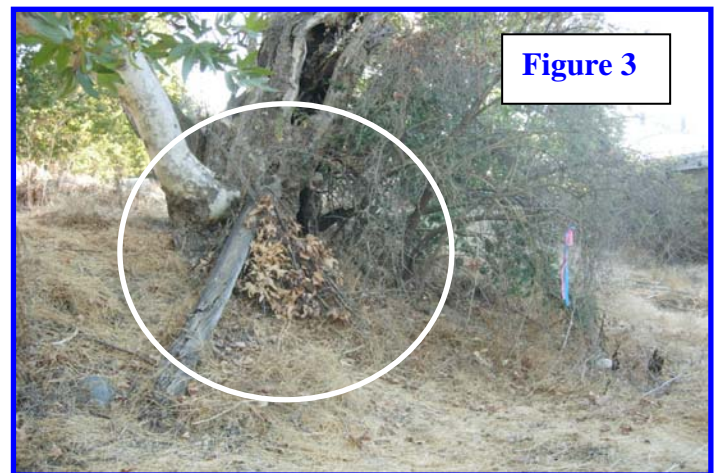
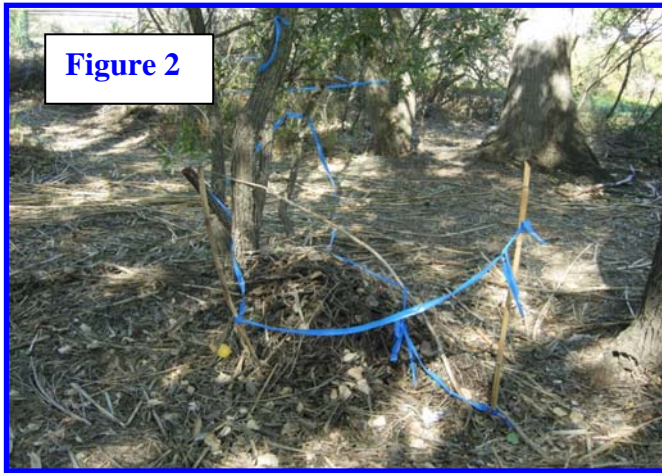
Another species of concern is the Dusky-footed Woodrat (*Neotoma fuscipes annectens*). When CLI and SCVWD staff first observed the Dusky-footed Woodrat a few years back, the California Department of Fish and Game (CDFG) was contacted. CDFG sent experienced representatives to review the onsite conditions. The CDFG representative's recommendations were incorporated into the vegetation management plan to provide additional protection to the Dusky-footed Woodrat and its habitat. Some of the recommendations outlined in the plan are listed below.

- When doing foliar herbicide treatments in Woodrat habitat, or potential Woodrat habitat, take precautions to not disturb lodges.
- All stockpiled *Arundo* must be either loaded by hand or inspected by a biologist prior to being loaded mechanically.
- *Arundo* will not be stockpiled for extended periods in order to avoid colonization by Woodrats.



<http://picasaweb.google.com/lh/photo/PCXEldiGOuTO8jDgS299Pg>

- A trained individual must be on the work site during control operations to monitor for Woodrats. In the event that a Woodrat is disturbed a qualified biologist must be contacted.
- Provide alternative habitat (constructed Woodrat lodges) in areas where a Woodrat is occupying *Arundo* and does not have alternative habitat options. An example of an actual Woodrat lodge is provided in Figure 2 (below) and Figure 3 shows a lodge that was built by SCVWD and CLI staff.



Through the implementation of various endangered species protection measures, the endangered species of concern in the control areas have been protected from impacts associated with the invasive species control program.