

# An Assessment of Control Methods for Cape ivy in Central California Coastal Riparian Ecosystems

## Abstract:

This study will measure the success and cost-effectiveness of three control methods for Cape ivy (*Delairea odorata*), a non-native invasive plant, in riparian areas in the Central Coast region of California, over the course of twelve months. Success of each control method will be determined by to the method's ability to control Cape ivy as well as its effect on the recovery of native vegetation. The objectives of this research are to inform policymakers and resource managers of the achievable outcomes and associated costs of Cape ivy control.

## Questions To Be Answered By This Research:

- What control method achieves the highest reduction of Cape ivy cover twelve months after initial treatment?
- What control method is most cost-effective (per dollar) for Cape ivy control over twelve months?
- What control method results in the highest native plant cover twelve months after initial treatment?
- What control method is the most cost-effective in promoting native plant recovery twelve months post-initial treatment?

The results from this study will also inform policymakers and resource managers of the potential need for post-disturbance treatments. Additionally, this research will contribute to urgently needed guidelines on how to restore Cape-ivy infested riparian ecosystems.

## Methods:

Within this restoration experiment, I will measure the success and cost-effectiveness of three control methods for Cape ivy. I will quantify the effects of three control methods on Cape ivy cover and the regeneration of native vegetation. Following the application of control methods to plots at three sites, the regeneration of the plant communities (native and invasive plants) will be monitored every other month over a period of twelve months. The resiliency of the riparian ecosystem, at all three sites, to return to pre-disturbance conditions (measured by increase in native plant cover) or a trajectory close to that within twelve months, will be quantified. If resiliency is not displayed by these ecosystems, this will support the hypothesis that additional human intervention is needed to move the community from the altered state (Cape ivy dominated) to a more desired state (high native plant cover). Research activities will take place at three locations within Santa Cruz and Monterey counties beginning June 2008 and concluding September 2009.

## The following control methods will be tested:

- 1) Modified Scorched Earth (a hand removal method), follow up with hand removal
- 2) Rodeo + Activator 90, follow up with Rodeo + Activator 90.
- 3) Rodeo + Activator 90, follow up with hand removal

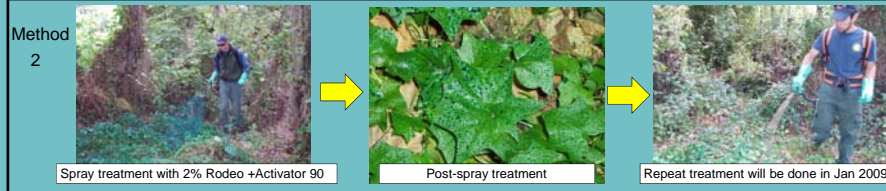
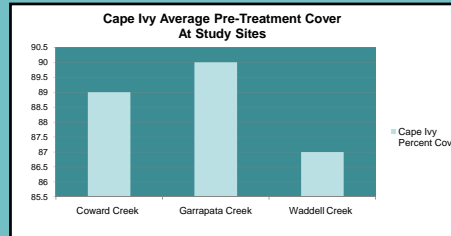
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## Introduction

Cape ivy (*Delairea odorata*), native to South Africa, is an invasive plant with considerable impacts to ecosystems (Cal-IPC 2005). This deleterious invasive vine is currently expanding its range in coastal California and Oregon. The California Invasive Plant Council (Cal-IPC) lists Cape ivy on its High List as a "Species with severe ecological impacts on ecosystems, plant and animal communities, and vegetational structure" (Cal-IPC 2005). In areas containing predominantly Cape ivy, native species seedling richness has been shown to decrease 75 to 95 percent compared to pre-infestation conditions (Alvarez 1997, Alvarez and Cushman 2002). The rapid growth rate of Cape ivy coupled with the reduction of indigenous species habitat and species diversity that Cape ivy causes, make control of this species a priority (Alvarez and Cushman 2002).



Pre-treatment vegetation cover measurements



## Expected Results:

Based on my literature review, all three control methods will be effective in Cape ivy control, and therefore it is the cost that will set them apart. My expectation is that one method will be more cost-effective for Cape ivy control and native plant recovery, and this information will allow resource managers to reduce costs and increase effectiveness by switching to this method (if they are not already using the method). Consequently leading to more effective overall resource management in riparian areas in California and elsewhere.

The results of this study will also help inform policymakers who dictate funding amounts for weed control and restoration in California. Researchers conducting research related to the control of Cape ivy, and restoration of disturbed sites may also find these results important.



## References:

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