Argentine ants on Santa Cruz Island, Channel Islands National Park; *options for containment and control*

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Abstract

Non-native Argentine ants (*Linepithema humile*) have established in six discrete locations on California's Santa Cruz Island but are not yet widespread. Santa Cruz Island, a highly valued conservation area within Channel Islands National Park, harbors a large number of endemic plants, animals, and communities. Argentine ants are known to have significant impacts on ecosystems, with particularly negative effects on native animals. TNC and NPS have implemented biosecurity procedures to reduce human transport of the ants or new introductions. We are working with experts to detect and delimit the infestations, develop control methods with minimal impacts to non-target species, complete environmental compliance, and study the effects of Argentine ants on island ecology. The planned containment, and perhaps ultimate eradication, of Argentine ants follows our ambitious ecological restoration program which included removal of non-native cattle, pigs, sheep, honey bees and selected habitat-modifying weeds.

Figure 1. The rare native ant, Messor chamberlini, known primarily from Santa Cruz Island, is an example of an invertebrate likely to be negatively impacted by Argentine ants.

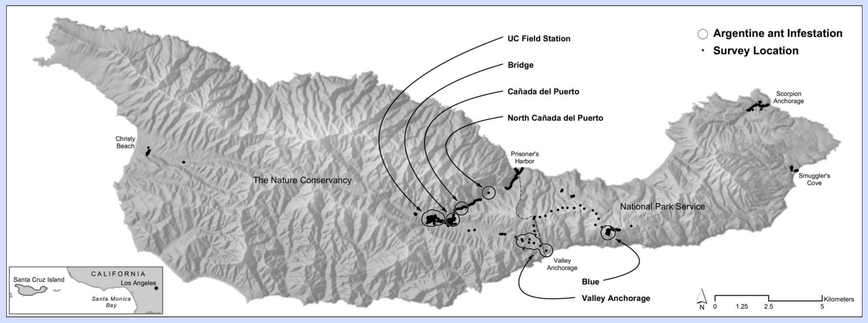

Figure 2. Known locations of Argentine ant colonies on Santa Cruz Island.

History: Argentine ants were first detected in 1996 on Santa Cruz Island at two former Navy sites (Valley Anchorage and Blue sites) that had been dismantled in 1995. Within two years, a third small infestation was detected at the University of California (UC) Field Station site in the Central Valley. It was thought that this infestation resulted from movement of wood from the Valley Anchorage area to the Station. Surveys in 2009 and 2010 showed that the ants had spread downstream from the UC Field Station site to three additional sites. Additional surveys at 27 other sites on the island with heavy human use did not detect Argentine ants.

Ecological Impacts: The NPS and TNC convened an Expert Working Group in October 2009 of 18 experienced ant biologists, ant control specialists and conservation land managers to discuss the potential impacts of Argentine ants and control options. All agreed that the potential ecological damage the Argentine ants will cause if allowed to expand warrants a full effort to dramatically reduce their abundance, prevent their spread to new areas, and, if possible, to eliminate them from the island. As a result, TNC and NPS are launching an integrated Argentine ant management program and will collaborate with researchers to test control methods and assess their effects on the target ants, as well as on native ants, arthropods, and other native species.

Management Options: We have identified the UC Field Station site and downstream as the highest priorities for management based on their a) contribution to spread of ants, b) high levels of human use, and c) feasibility for elimination. To date, we have deployed a commercial bait station (KM Ant Pro) with a liquid boron bait (Gourmet Liquid Ant Bait) to control Argentine ants at the Station. Small downstream infestations have been treated with botanical oils.

We don't yet know if it will be possible to eradicate some or all of the Argentine ant infestations on Santa Cruz Island. We are not aware of a US-registered product that has demonstrated ability to eliminate entire colonies. Land managers in New Zealand report a high degree of success with a gel bait with the insecticide fipronil. NPS and TNC are evaluating options for products, deployment in the field, and considering permitting/registration options with EPA and California Department of Pesticide Regulation.

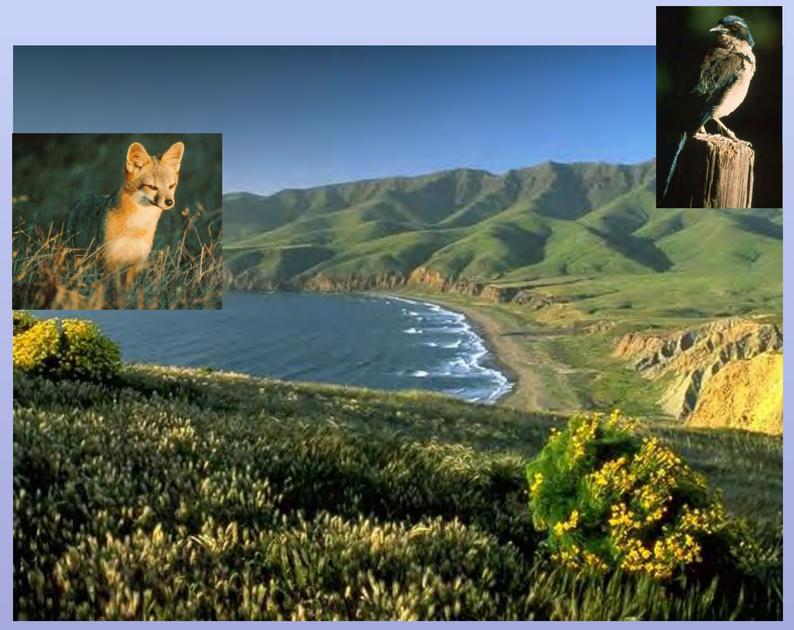

Figure 3. At 96 square miles, Santa Cruz Island is the largest and most biodiverse of the California Channel Islands. The islands are home to numerous endemic animals and plants, including the Island fox and Island scrub-jay.

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