

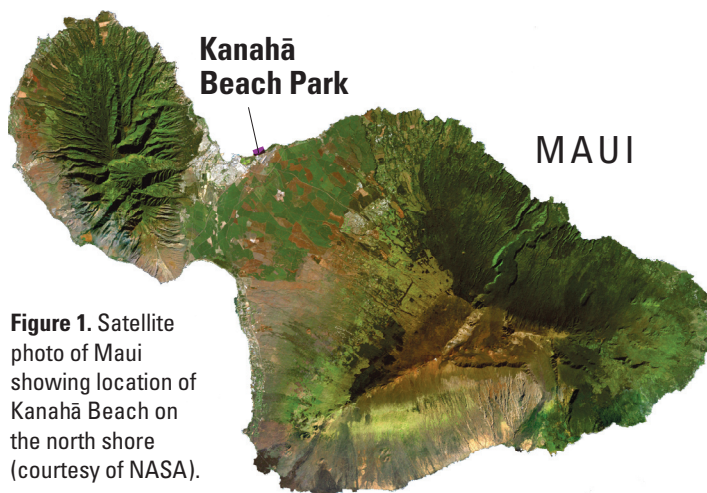


# Community Partners with USGS to Restore Coastal Ecosystem on Maui

## Background

Kanahā Beach Park is a heavily-visited, publicly-owned coastal park on the north shore of the Hawaiian Island of Maui (Figure 1). A broad white sand beach with plenty of shade trees and breezes favorable for wind sports, Kanahā is a popular spot for swimming, windsurfing, canoeing, diving, kitesurfing, polefishing, and beach volleyball, among other recreational activities.

Traditionally, beach parks in Hawai‘i have been managed for recreational use, rather than ecosystem protection. Overuse, vehicle traffic, and litter had transformed Kanahā Beach into a degraded coastal zone with little value but great potential as a habitat for native plants and animals. In 2001, the USGS began providing scientific understanding of invasive species management and native ecosystem ecology to a collaborative, volunteer-driven effort to restore this ecosystem.



**Figure 1.** Satellite photo of Maui showing location of Kanahā Beach on the north shore (courtesy of NASA).

## Steps to Restoring a Coastal Ecosystem

A walk-through botanical survey was done on the site prior to restoration activities. This survey, which was a helpful tool during the planning process, documented the plants known to occur on the site, and highlighted areas with high restoration potential. In addition, dozens of photo points were established prior to restoration activities, and have proved invaluable in documenting the area’s transformation.

With the assistance of governmental agencies and private companies (see **Collaborators**), a dedicated volunteer force built a post-and-rail vehicle barricade that eliminated traffic on 75 acres of coastal wetlands and sand dunes (Figure 2). This barrier also delineated parking areas and increased public safety at the site.

Once vehicle traffic was eliminated, trash and debris were cleaned up and non-native plants were gradually and systematically removed from 50 acres, avoiding the creation of large bare

**Figure 2.** A contractor (top right) constructs the vehicle barrier that was finished by volunteers (bottom right). Vegetation grows back after vehicle traffic is eliminated (below).

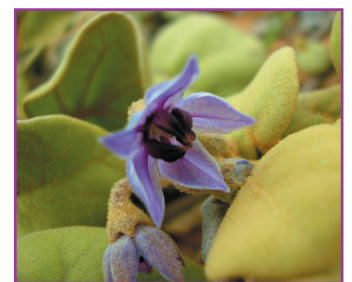


Before



After

areas and enabling native species to fill in where aliens were removed. Alien species removed included: *kiawe* (*Prosopis pallida*), pluchea (*Pluchea* spp.), and buffel grass (*Cenchrus ciliaris*), among others. To date, over 25 acres of Kanahā Beach have been revegetated with native species collected from sites nearby. Native species planted included: *pōpolo* (*Solanum nelsonii*) (Fig 3), ‘ohai (*Sesbania tomentosa*), *ma’o* (*Gossypium tomentosum*), ‘aki‘aki (*Sporobolus virginicus*), and *naio* (*Myoporum sandwicense*) (Figure 4). Native animals have also benefited from the restoration. Native insects such as the long-horned beetle *aweoweo* (*Plagithmysus* sp. *novum*) and moths (*Omiodes* spp.); and birds such as the endangered Hawaiian stilt or *ae’o* (*Himantopus mexicanus knudseni*) and numerous species of shorebirds can be found at the site (Figure 4).



**Figure 3.** Presumably extinct on Maui, *pōpolo* plants for the Kanahā Beach restoration project were cultivated from fruits collected from the Maui Nui island of Moloka‘i.





**Figure 4.** Native species benefiting from the restoration of Kanahā Beach, from left: *ma'o* (Hawaiian cotton); *'aki'aki* (Seashore rushgrass); *'ohai*; *aweoweo* (long-horned beetle), and *ae'o* (Hawaiian stilt: photo © Jack Jeffrey).

Maintenance of the restored site is minimal and includes such activities as controlling weeds after winter rains, picking up rubbish, and making occasional repairs to the vehicle barricade. Community volunteers have taken responsibility for these efforts.

### A Model for Coastal Restoration in Hawai'i

Coastal areas offer many advantages for restoration, including harsh growing conditions that favor native plants, ease of access, and a large group of frequent visitors who provide a potential volunteer pool. The Kanahā Beach restoration project uses a management approach that maximizes both conservation value and recreational opportunities. Kanahā Beach is within walking distance of Kahului Airport, thus habitat recovery offers great educational potential for residents and visitors alike. This unique project provides a model and inspiration for the restoration of other coastal Hawaiian habitats by community members under the guidance of regional scientists.



### Collaborators

- US Geological Survey – Pacific Island Ecosystems Research Center
- US Fish & Wildlife Service – Pacific Islands Coastal Program
- USDA Tri-Isle Resource Conservation and Development Program
- Corporation for National & Community Service Americorps Program
- Maui County Emergency Environmental Workforce



Before



After

**Figure 5.** Prior to restoration efforts, Kanahā Beach was a degraded coastal ecosystem inhospitable to native species (left). Since 2001, dedicated volunteers have restored native vegetation on 1½ miles of coastline (below).

### For more information, contact:

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### Photo credits:

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