Ungulate Exclusion and Sediment Reduction

2014

PROJECT OVERVIEW

Hawaii's watersheds have been under significant threat from ungulate introduction, changes in land use, invasive species and other anthropogenic impacts. Native plant species found in dryland forests used to be present in Kawaihae but due to these impacts such as feral ungulates (goats) damaging the watershed there is very little left of these forests. This project led by the Kailapa Community is working to replant native species previously found in the area to help improve the health of watershed of Kawaihae and reduce sediment runoff from entering the coastal and marine ecosystems. The goal of this project was to reduce local erosion and its effects with ungulate-proof fencing and propagating and out-planting native plants.

Objectives of the project included taking action to:

- Decrease erosion and sediment runoff,
- Establish native plants to stabilize soil,
- Educate the broad community on watershed management strategies,
- Provide outreach to future leaders of our islands,
- Protect the watershed,
- Establish monitoring plan and collect baseline data on water quality,
- Strengthening partnerships with other organizations with similar visions and goals.

APPROACH

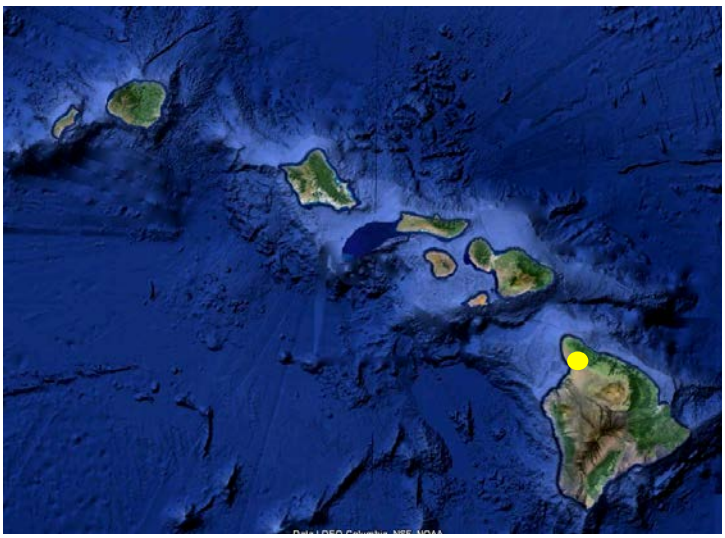
To achieve our goals we conducted the following activities:

- Designed, installed and maintained an ungulate proof fencing and exclusion area of 13 acres,
- Planted over 1,200 native plants and established a dry-land forest seed bank,
- Presented information at outreach events and community meetings,
- Organized community work days and workshops with local watershed experts,
- Installed a variety of soil retention methods (native re-vegetation and sediment dam),

MOST IMPORTANT RESULTS

- *15 community work days with 198 volunteers,*
- *Fenced approximately 13 acres of land with ungulate (goat) proof fencing,*
- *One large sediment dam built and multiple smaller dams installed,*
- *Over 1,200 native plants propagated and out planted.*

SITE LOCATION



- Collected baseline data on erosion rates and water quality,
- Engaged and educated residents of Kohala and community members about watershed management and land use practices that minimize sediment runoff with the guidance of the South Kohala Coastal Partnership.

www.kailapa.org

The South Kohala Coastal Partnership is a dynamic partnership committed to the implementation of the SKCAP guided by the shared vision. The vision of the South Kohala Coastal Partnership is to achieve: A restored, healthy, abundant and resilient South Kohala coastal system cared for and cherished by an island community guided by the values and traditions of South Kohala.

HAWAII ~coral reef~ STRATEGY

ACCOMPLISHMENTS

The 13 acre project area was fenced in order to re-vegetate native plants and reduce sediment runoff into the adjacent coastal and marine ecosystems. Over 1,200 native plants were propagated and out-planted with an 80% survival rate. The irrigation lines were installed and prepared for the next out-planting of an additional 1,300 plants. One large sediment check dam was built and several small rock dams were strategically placed to capture and reduce sediment runoff. Community members were trained to repair the irrigation lines, monitor the plants and to maintain the ungulate fence.

Over 198 volunteers participated in community work days and workshops with over 15 organizations providing expertise and support for the project.

The community established new partnerships with Liquid Robotics to collect and analyze baseline water quality samples offshore and the UH Hilo Marine Science Analytic Lab to analyze the near shore water samples to document the effectiveness of the sediment reduction efforts.

Figures 1a and b: Sediment check dams and native plants were installed to capture and reduce sediment entering the ocean.

MANAGEMENT IMPLICATIONS

This project addressed the South Kohala Conservation Action Plan Objective 1: Community Partnerships, and Objective 4: Sediment Reduction.

The project has engaged not just members of Kailapa but a broad range of volunteers who participated in our organization's efforts. The efforts highlighted the fact that whatever is done on land will affect what happens in the ocean. Community awareness of the importance of watershed and resource management was improved not just for Kailapa, but all participants, partners, and volunteers. The project emphasized our social responsibilities and the positive effects of small changes we can make.

The project serves as an example of a successful community led partnership project that effectively implemented multiple strategies to reduce impacts to the coastal and marine ecosystems while increasing community engagement and awareness of watershed restoration.

To highlight the ungulate fencing and sediment reduction project and methods site visits were conducted with representatives from state and federal agencies as well as local youth groups and the University of Hawaii at Hilo students and faculty.

This site will continue to serve as a location for site visits with stakeholder groups interested in the application of these management strategies in other locations or communities. Additionally, educational service learning opportunities and coastal monitoring will continue to provide an increase understanding of watershed management and reducing impacts to coastal and marine ecosystems.

Figure 2: Coastline near project site, note the exposed soil and sediment in the water.

More Information
Sierra Tobiason
tobiason@hawaii.edu
www.southkohalacoastalpartnership.com
www.hawaiicoralreefstrategy.com
www.facebook.com/SouthKohalaCoastalPartnership

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