JAN-FEB-MAR 2013 Volume 8: Issue 2

Hoolehua PMC News

Helping People Help The Land

Pollinator Pasture Plants Study

Sida fallax with a sweatbee and honeybee.

Initial observations at the Hoolehua PMC have indicated that certain native Hawaiian plants have the potential to attract a variety of pollinators and other beneficial insects. These native plants could be ideal candidates for pollinator pasture plantings. The purpose of a pollinator pasture is to serve as a supplemental food source for pollinators when a crop requiring pollination is out of rotation. Information about native Hawaiian plants and the beneficial insects they attract is very limited. We plan to evaluate the blooming cycle of four native Hawaiian plant species: *Sida fallax*, *Waltheria indica*, *Achyranthese splendens*, and *Bidens menzesii*. *S. fallax* and *W. indica* are plants that bloom year-round. We want to determine if there is a peak blooming period for each species. *A. splendens* and *B. menzesii* are seasonal bloomers and we want to evaluate the time and duration of their flowering season. We are also trying to identify what insects are attracted to these plants. A farmer will be able to utilize this information to optimize pollination of a crop. This is a study in cooperation with the University of Hawaii Extension Service and we hope to be looking at other native Hawaiian plant species in the future.

Native for Hillside Stabilization

Vitex rotundifolia: 3ft x 3ft photo squre for point frequence data collection.

Vitex rotundifolia, pohinahina, is a native plant that may prove useful at stabilizing hillsides. It spreads relatively quickly once it has become established. Pohinahina sends out long runners that eventually develop roots that secure the plant to the ground. It is this characteristic that allows the plant to slow the erosion process.

We have collected several strains of pohinahina from throughout the state. Although they are all the same species, there are slight differences that make each one unique. One strain may have larger leaves; one may have a tendency to produce more runners; and one may spread faster than the others. We will be comparing the rate of spread by collecting point frequency data and evaluating each accession's ability to cover ground. A faster rate of spread is desirable for erosion control measures. We will also be comparing dry matter yields, or the amount of vegetation the plant can produce over a given amount of time. These evaluations will help us to select a superior strain of *Vitex rotundifolia*.

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees and applicants for employment on the bases of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, or all or part of an individual's income is derived from any public assistance program, or protected genetic information in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases apply to all programs and/or employment activities.)

An Equal Opportunity Provider and Employer

Plant of Interest
Panicum torridum

Panicum torridum, or kakonakona, is endemic to the Hawaiian Islands and found abundant in pastures in very dry situations at low altitudes on the islands of Maui, Molokai, and Oahu. Although competition with introduced grasses and over grazing by ungulates has greatly reduced native grasses and grasslands, kakonakona is one of the most common and widespread of the native species of *Panicum.* It forms a valuable part of the forage in dry situations where the introduced species will not survive. If managed properly, kakonakona could prove to be a valuable native alternative. We are in the process of collecting specimen samples from throughout the state for initial evaluation here at the PMC.

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Hoolehua Plant Materials Center
4101 Maunaloa Highway
P.O. Box 236
Hoolehua, Hawaii 96729
Phone: (808) 567-6885

Glenn S. Sakamoto
PMC Manager
glenn.sakamoto@hi.usda.gov

Kawika Duvauchelle
Natural Resource Specialist

Keni Reyes
Biological Technician

Andres Juario
Biological Technician Aid

Plant Materials Specialist
Position vacant

Establishing Natives in Critical Areas Utilizing Natural Rainfall

3ft x 3ft square. Native plants, no irrigation, 2 months after germination.

When trying to establish plants in critical areas, one of the limiting factors is always water availability. Installing temporary irrigation to establish seedlings seems to be the obvious approach. On the other hand, we feel that with the right timing, native plants can be established without irrigation and solely on natural rainfall. Plants that are native to the area are likely well adapted to the climate in the area. Given the right circumstances, these native plants will thrive.

Our current trial with the Molokai Land Trust is evaluating a technique to establish native plants in extreme environments with the soil down to the hardpan, windswept terrain, and very low annual rainfall. Plants need the very basics to establish themselves. A seed needs soil and water to germinate. Breaking the soil surface, even if just a little, allows rainwater to penetrate deep. By adding a thin mulch layer, soil moisture is retained longer. When it comes to rain, timing is the key. By seeding before the rainy season, seedlings will be able to take full advantage of all available rainfall and will develop faster and become vigorous. Plants also need nutrients. Our initial study shows that there is a significant difference in plant vigor between plots that received fertilizer and plots that did not. Most native plants are adapted to nutrient depleted soils, on the other hand, healthier seedlings will have a better chance at survival in extreme environments.

Through this trial we hope to demonstrate that it is possible to re-vegetate large tracts of land with no irrigation. If you would like more information on the current status of this trial, please do hesitate to contact us.