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Hoolehua PMC News

Helping People Help The Land

Establishing Native Plants in Critical Areas

We are currently continuing on with a trial that we had started about 2 years ago in partnership with the Molokai Land Trust. It is located on the north-west part of Molokai with very extreme conditions: an annual rainfall below 20 inches, exposure to frequent high trade-winds, and hardpan with no topsoil. This trial was designed to test various techniques to establish natives in critical areas without the use of irrigation in these types of areas.

During the first phase of the trial we compared lightly ripping the soil vs. no ripping, the use of mulch vs. no mulch, and the use of fertilizer vs. no fertilizer. After 2 years the results were almost what we had predicted. It was determined that the addition of mulch and fertilizer were absolutely necessary to establish any type of plant in these extreme conditions. What was unclear was whether or not light-ripping the soil was necessary. In plots with no ripping, because of the addition of mulch, enough top-soil had accumulated from the wind that plants were able to germinate and grow. On the other hand, it is questionable how long a shallow root system will persist in.

The second phase of the trial all the plots will have mulch and fertilizer included. However, we will compare light ripping vs. no ripping along with 2 different seeding rates of our Native seed mixture. The 2 different seeding rates are 60 pure live seeds per square foot and 120 pure live seeds per square foot, with 7 different plot locations. The mixture consists of piligrass, kawelu, aalii, uhaloa, aweoweo, and *Achyranthes splendens*. These plants were selected because they are well adapted to the extreme conditions once they are established. We will attempt to determine which treatment will allow the plants to persist through the dry season and into the next rainy season.

Native Plants for PIA Pollinators

Almost everyone knows how important pollinators, specifically honey bees, are to agriculture, they depend on each other. Farmers depend on them to produce crops for market and also to promote genetic diversity when breeding crops. Honey bees depend on farmers to grow crops that produce pollen and nectar for their survival. When a production crop is growing, there is a lot of food for bees, which enables the colony to grow and become more efficient at pollinating the crop. What many farmers tend to overlook is the time period when their cash crop is out of rotation and there is no food source for the larger colony of pollinators. It is during these times that many hives grow weak and tend to die.

To ensure survival of pollinators, it would be in the best interest of farmers to treat honey bees as live stock. By taking care of pollinators during the off season, it will ensure a healthy honeybee population when they are needed during crop season. This can be done by providing a food source when there is no crop.

In the past, some people have had success with providing sugar water for their hives as a supplement during the off season. An alternative would be to plant a 'pollinator pasture'. This is a planting of low maintenance type plants that provide an alternative food source when the main crop is out of rotation.

Currently, we are looking at four native Hawaiian species that have potential to be included in a pollinator pasture; ilima, uhaloa, kookoolau, and *Achyranthes splendens*. We are partnering with the University of Hawaii Extension Office to investigate these plants and the beneficial insects that they attract. We would appreciate any other ideas for other potential plants for pollinator pastures.

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Plant of Interest

Vigna marina

Also known as nanea, *V. marina* is a perennial, low growing, creeping vine. The leaves are light green in color with yellow flowers which occur year round. It produces pods in groups of 4 to 9 that dehisce when the seed ripens.

V. marina is an indigenous plant found in pan-tropical coastal regions throughout the world and is ranked as one of the most widely distributed flowering plants. It is naturally found in at the vegetative line of sandy beaches and is rarely found inland, but it is known to occur to about 400 feet in elevation.

Like all legumes, *V. marina* fixes nitrogen and benefits other plants growing next to it. Because of this aspect, we feel *V. marina* could potentially be used as a cover crop and/or forage in the PIA. Other places reported to use *V. marina* as a cover crop or forage include Maldives, Cuba, Bangladesh, Africa and other parts of the world. We will be making seed collections of wild strains of *V. marina* that are found within the PIA. Please contact us if you have any information of any natural populations.

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Napiergrass: An Alternative Bio-Fuel

In an effort to find an alternative to fossil fuels, we have partnered with the University of Hawaii and Hawaii Cane and Sugar to test several different accessions of a sterile hybrid napeirgrass that was developed right here at the Hoolehua Plant Materials Center. In the early 90s, a genetic cross was made between a male-sterile pearl millet and a banagrass in an effort to develop a windbreak type grass that was drought tolerant and not invasive. After years of evaluations a release was never made, but all the accessions were retained with the hopes of a future use. Well… the future is here and we may now have a use for this hybrid. We will be looking for the accession with the highest biomass yield. The University of Hawaii will be conducting a simultaneous trial on Maui. Above, JB and Keni take seed cutting to plant the trial plots.

Bob Joy Retires After 44+ Years of Service

From his humble farming background in New Jersey to his beginning with SCS in the early 70's at the Tucson Arizona Plant Materials Center, Bob eventually made Molokai his permanent home in 1972. In 1973, he was very instrumental in re-establishing the Maui Plant Materials Center to its present location on Molokai, now the Hoolehua Plant Materials Center.

After 44 years, Robert "Bob" Joy said "So long!" to his NRCS ohana. His well deserved retirement comes after a long career in helping to address the plant materials needs of the Pacific Island Area. Bob's wealth of knowledge of plants, which he willingly shared with all of us, is second to none. His soft spoken voice and always pleasant demeanor will surely be missed. Bob, we wish you the best in your future endeavors and thank you for all that you have done for us!