

Kaua‘i National Wildlife Refuge Complex

Kalo (Taro) Farming at Hanalei National Wildlife Refuge



Hanalei National Wildlife Refuge kalo farms and wetland management units H. Tonneson 2015

Kalo farming is an important part of the Hanalei National Wildlife Refuge (NWR), with approximately 191 acres of the 917 acre Refuge currently under special use permit for kalo farming. Kalo farming existed prior to the establishment of the Refuge and continues to be an important part of the area’s agricultural history. Hanalei is known to be the largest producer of kalo for the State of Hawai‘i. Historically, Hanalei Valley was a dynamic, braided-river system teeming with native birds and other wildlife.

Kalo has significance to the environment, economy, culture, and spirituality of the people in Hawai‘i. Kalo farming in the Hanalei Valley has been going on for many centuries. The Hanalei NWR was established in 1972 to protect and recover threatened and endangered species, including the Hawaiian duck, moorhen, coot, stilt, and goose. Kalo farming has continued under special use permit since that time and the U.S. Fish and Wildlife Service (Service) is proud to be a part of working with local farmers to continue this tradition on the Refuge, so long as the farming remains compatible with the conservation and recovery of the endangered birds that the Refuge was established to protect.

The Hanalei NWR provides benefits for kalo farmers of Hanalei Valley in different manners, including: 1) charging only a small fraction of the current market rate for their special use permit (\$25/acre/yr) to compensate for potential losses incurred as a result of the requirement to maintain compatibility with the Refuge's purpose to recover endangered waterbirds; 2) not requiring resident farmers to pay property tax for their homes or associated land; 3) charging permit fees only for "wet acres," which does not include acreage used such as residence, garage, storage shed, rice mill, gardens, etc.; 3) maintaining the multi-million dollar main irrigation system; 4) maintaining primary access roads on the Refuge; 4) conducting invasive species management (pigs, rats, cats, chickens, Guinea grass, California grass, Paspalum grasses, and Albizia trees, among others); and 5) monitoring and controlling trespassing, theft, poaching, and other illegal activities. The Service will continue to provide technical and management assistance to Hanalei Refuge kalo farmers as we strive to work together to incorporate better management practices for healthier aquatic systems using guidance such as the Watershed Management Plan for Hanalei Bay Watershed.

A draft Comprehensive Management Plan and Environmental Assessment for Hanalei National Wildlife Refuge is currently under development and scheduled for release by fall of 2018. The Service strives to work with the farmers to incorporate traditional ecological knowledge and the sustainable farming ecosystem management approach. Best management practices to ensure mutual benefits for the Hanalei Refuges species and habitats and kalo farmers include:

- Resting the land by incorporating wet and dry fallow periods into the crop rotation - minimum of a 30-day post-harvest wet fallow and up to 6 months dry fallow.
- Limiting and monitoring herbicide and pesticide use; ensuring use of only pre-approved chemicals or biological control methods; incorporating principles of sustainable and organic farming; and using slow release nitrogen or other methods, such as cover cropping to decrease chemical and nutrient loading into Hanalei River and Bay and incidence of avian botulism outbreaks.
- Reporting any nests of endangered waterbirds to the Service within 48 hours of first discovery and working with the Service to ensure avoidance measures are implemented.
- Maintaining and enhancing native or beneficial plant and wildlife diversity to help increase beneficial insects, bats, and birds and to help provide additional food sources and nesting habitat for the endangered waterbirds.
- Managing crops and surrounding areas as integrated systems, under the sustainable ecosystem management principle.
- Working to manage and eradicate invasive species, upgrade irrigation infrastructure, and provide additional habitat which meets all the endangered waterbird life history requirements, including roosting areas within the kalo lo'i to provide alternatives besides the kalo plants.
- Proper and expedient disposal of waste and kalo tailings to prevent habituation of birds to anthropogenic food sources or pollutants.

