

Restoration Work on Former Pasture Place-based Fact Sheets



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TMK 344014004

DLNR DOFAW



Kapāpala Koa Canoe Forest



Photo Credit: Bill Rosehill

Sustainable Canoe Logs

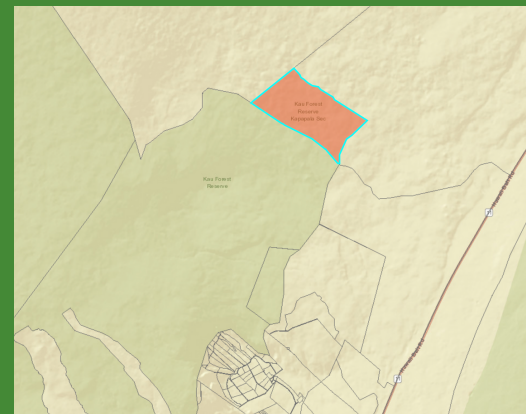
The Kapāpala Koa Canoe Forest was withdrawn from pasture lease in 1989 in order to create opportunities for sustainable koa harvest. In 1990, it began to be fenced in order to exclude cattle; 4.2 miles were installed with a \$171k price tag. Then in 1992, three additional miles of cattle proof fencing were installed. The materials alone cost \$50k and man power was supplied by DOFAW. Since that time, good natural regeneration of the forest has been documented. Today the primary purpose of this parcel is to be a sustainable log source for canoe building for racing clubs, civic organizations, and educational purposes. A plan was written in coordination with the Kapāpala Koa Canoe Forest Working Group.

Koa Canoe Forest Management Plan:

- Preserve natural and cultural inheritance for future generations
- Develop a stewardship model involving community groups
- Involve youth through cooperative programs with various educational and cultural entities
- Provide opportunity for compatible public uses
- Maintain and enhance overall forest health
- Support a sustainable, long-term supply of koa logs
 - Inventory of available canoe logs completed
 - Harvesting planned to begin in 2023
 - Re-planting will be a condition of all groups who harvest koa trees in the future

Ua 'Elepaio 'ia ka Wa'a

"The canoe is marked by the 'elepaio." Hawaiians believed 'elepaio (*Chasiempis sandwichensis*) are the kinolau (physical manifestation) of the canoe goddess Lea. The Kapāpala canoe forest is habitat for the 'elepaio and for other native Hawaiian birds like 'i'iwi and 'akiapōlā'au.



Pu'uwa'awa'a Forest Reserve Former Ranch Land in Restoration



Conservation and Restoration Management since 2003

Long-term cattle grazing leases at Pu'uwa'awa'a were discontinued after the year 2000 because of a strong community desire to protect its endangered dry forests and rare species. A management plan was completed in 2003 and the Pu'uwa'awa'a State Forest Reserve (PWW FR) was created by Executive Order in 2007. The Hawaii Experimental Tropical Forest (HETF), created in 2007, is a partnership with the USDA Forest Service to conduct research in Pu'u Wa'a'wa'a. Since 2007, 235 research projects have been conducted by the HETF.

Short-Term Grazing Permits in PWW FR:

- Annual Special Use Permits are issued for targeted grazing to reduce fire fuel loads and wildfire risk.
- Currently Issued Permits:
 - ◊ 18,610 acres above and below Hwy 190 to Jerry Egami
 - ◊ 700 acres around Makani Golf Course and Pu'u'anahulu community to Kamuela Bertelman

Ungulate-Proof Fencing for Native Ecosystem Protection:

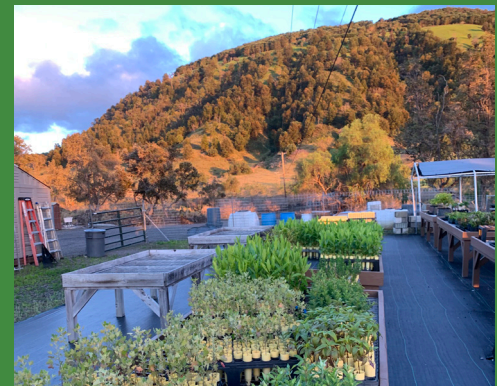
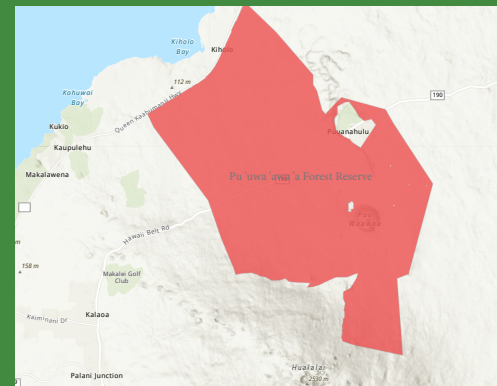
- 5,288 total acres fenced
- 3802 acres in Pu'u Wa'awa'a Forest Bird Sanctuary (FBS)
- 1,486 acres in PWW FR
- All are managed as ungulate-free areas for weed control and native plant restoration

Reforestation:

- 97,551 native plants planted since 2004
- Of that, 29,635 are threatened or endangered plants
- The remainder are common plants like koa, māmane, manele, 'ōhi'a and kolea
- Planting is ongoing, with thousands planted annually

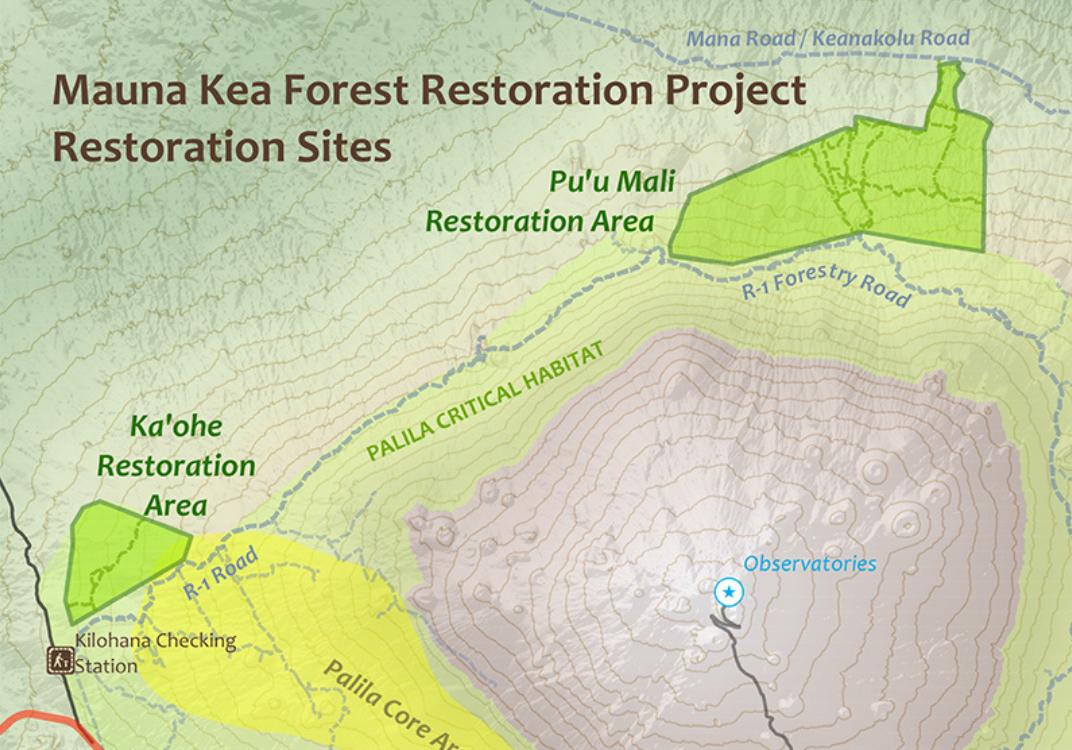
Special Highlights:

- Popular Trails: The Na Ala Hele Cone trail to the summit of PWW cinder cone is one of the most popular trails in leeward Hawai'i
- Threatened and Endangered (T&E) Species Protection: 40 rare plant taxa (23 of which are listed as endangered), six T&E birds, and several rare arthropods including the endangered Blackburn sphinx moth call PWW home



Pu'u Mali and Mauna Kea Forest Reserve Restoration Management

Mauna Kea Forest Restoration Project Restoration Sites



Restoration for Palila Critical Habitat

In 2002, lands in Ka'ohe and Pu'u Mali were set aside for restoration and conservation purposes in order to compensate for impacts to palila critical habitat as a result of the Saddle Road realignment project. In total, 1,400 acres were taken out of pasture lease to become Ka'ohe Restoration Area and 5,140 acres were taken out of ranching to become Pu'u Mali Restoration Area. The primary restoration goal in these areas is to manage the forest for the benefit of palila.

Ka'ohe Restoration Area

- 269.25 acres restored with māmane stocking rate of 192 plants per acre
- The majority of the unit shows good natural regeneration
- 103,867 plants have been planted since 2007
 - Transplants and seed scatter include māmane, koa, 'ili'ahi, kō'oko'olau, 'a'ali'i, pilo, na'ena'e, 'ilima, 'ūlei, 'akoko, 'āweoweo, pāwale, naio and pua kala
 - Seedlings grown at Waimea State Tree Nursery using wild Mauna Kea seeds
- 935 volunteers have contributed to restoration work including school groups, retirees, community businesses and organizations

Pu'u Mali Restoration Area

- Approximately 2,500 acres of the unit contain sections of the last Mauna Kea flow (4,500 years ago) that show good natural regeneration
- 400 acres in active restoration
- 146,279 plants planted since 2007
 - Transplants and seed scatter include māmane, koa, 'ili'ahi, kō'oko'olau, 'a'ali'i, pilo, na'ena'e, 'ilima, 'ūlei, 'akoko, 'āweoweo, pāwale, naio and pua kala
 - Seedlings grown at Waimea State Tree Nursery using wild Mauna Kea seeds
- 1,530 volunteers have contributed to restoration work including school groups, retirees, community businesses and organizations
- Carbon sequestration project with Pono Pacific to complete planting of entire area



Pu'u O'o 1,460 Acres in Restoration



Forest Recovery and Endangered Species Protection in Pu'u O'o

The Pu'u O'o area of Hilo Forest Reserve (TMK 2-6-018-013) was withdrawn from lease and incorporated into the Hilo Forest Reserve in 2011 in order to provide access, and to build a fence to keep cattle out of the upper sections of the Hilo Restricted Watershed.

Fencing:

- 5 miles of cattle-proof fencing installed at the boundary
- Access along boundary fence allowed additional protection to the Hilo Restricted Watershed
 - 741 Cattle removed through a public cattle hunt
 - Additional 5.6 miles of fence constructed between Hilo Restricted Watershed and DHHL all the way to Hakalau National Wildlife Refuge

Reforestation:

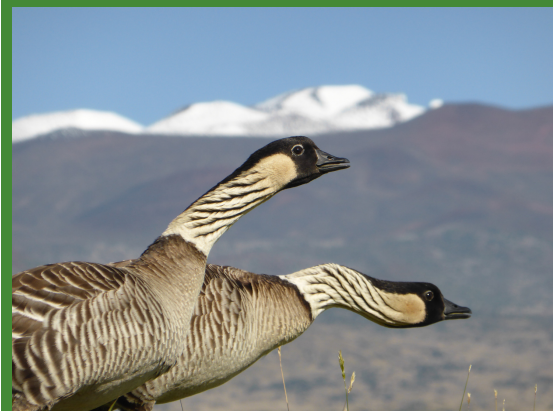
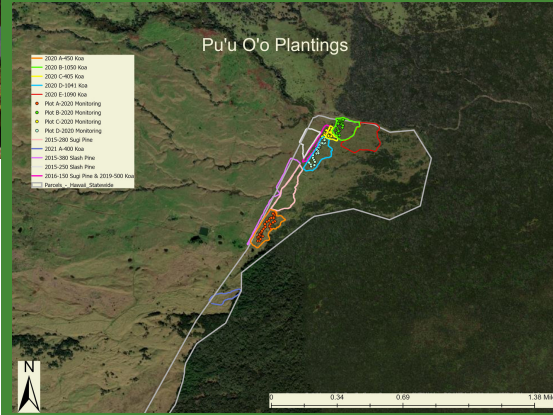
- 6,100 koa planted since 2015 across 37 acres
- Seedlings grown at Waimea State Tree Nursery
- Natural regeneration observed on 950 acres already forested

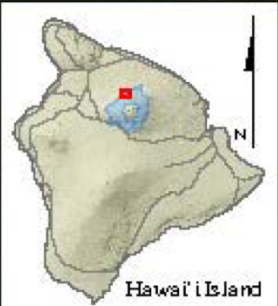
Gorse Control:

- Important access point for gorse control on Mauna Kea to prevent conversion of the landscape to a gorse monoculture

Predator-Proof Nēnē Habitat:

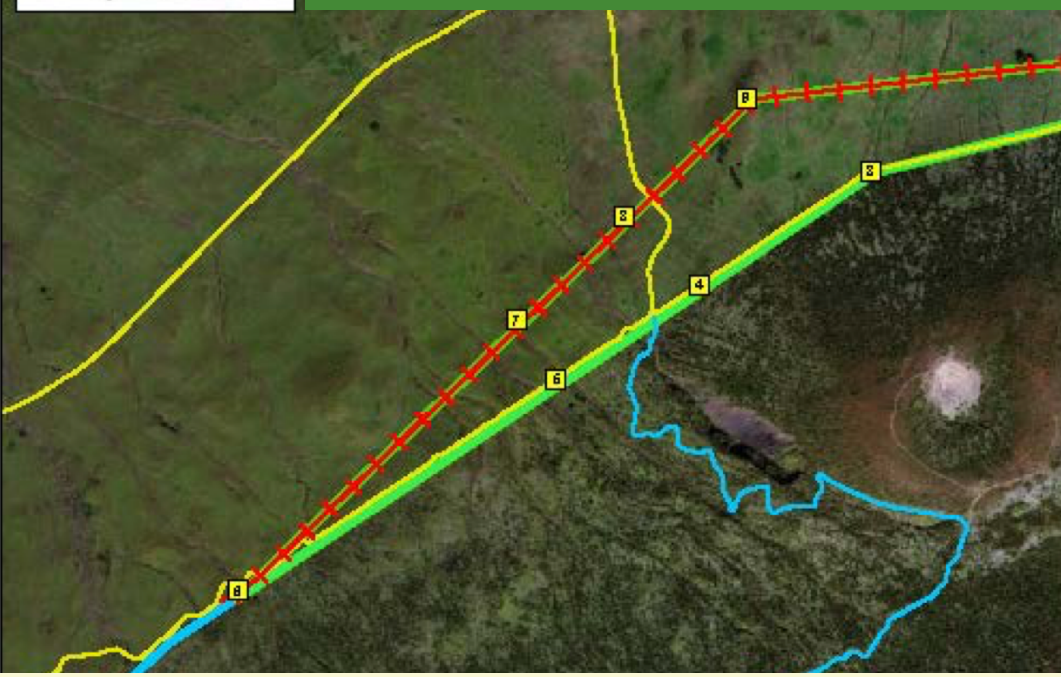
- Gov. Abercrombie's emergency proclamation made it possible for translocation of 598 nēnē from Kaua'i to Pu'u O'o in 2011
 - The last 30 wild nēnē were observed at Pu'u O'o in the 1950's
 - Pu'u O'o is in the middle of documented nēnē flyways
- Nēnē have nest fidelity and had to learn to use Pu'u O'o as their new nesting grounds
- Nesting attempts began in 2013 and up to 50 attempts have been documented each season since that time
- Biologists expect increases in nesting attempts and birds in the area each year due to the birds' instinctive drive to return
- Today, 98 acres are protected predator-proof habitat with up to 350 birds using the area in peak season





TMK 344014004

101 Acres of Former Ranch Land in Restoration



Fencing and Reforestation since 2019

TMK 3440144004 was withdrawn from Parker Ranch in 2019 and is requested for inclusion in the Mauna Kea Forest Reserve.

Fencing:

- 3.5 miles installed from 2019 - 2020
- 75 inch ungulate fence ties to existing fence at Pu'u Mali and strengthens the perimeter around Mauna Kea Forest Reserve

Reforestation:

- Augmenting remnant koa and māmane trees and forest stands on Eastern 75 acres of parcel
- Stocking rate of 100 koa per acre
- 2,600 koa planted to date
- 600 'iliahi planted to date
- Seedlings grown at Waimea State Tree Nursery using seed stock from wild Mauna Kea trees
- Over future spring and summer seasons- additional 7,400 koa to plant plus māmane, a'ali'i, pilo, naio, and more

Special Projects:

Paker Ranch has built a new reservoir and tied into the newly constructed fence in order to reforest their own 25 acre pasture alongside DOFAW efforts.



Doc No	Lessee Name	TMK	Lease From	Lease To	Purpose	Acres	Set aside	Reason	Island	Description of DOFAW's actions on the property
gl4471	PARKER RANCH, INC.	3440150020000	3/1/1976	2/28/2011	Pasture	1738.93	EO4642	Transferred to DOFAW - addition to Mauna Kea Forest Reserve	Hawaii	To date a total of 103,867 plants of 14 different taxa have been planted and or seed scattered including māmane, koa, `ili`ahi, kō`oko`olau, `a`ali`i, pilo, na`ena`e, `ilima, `ūlei, `akoko, `āweoweo, pāwale, naio and pua kala into the Ka`ohe Restoration Area. 269.25 acres of the 1400 acre unit have been restored with majority of the unit regenerating naturally. A total of 935 volunteers have assisted in the restoration work including school groups, retirees, organizations, businesses and community members. This area is very popular for bird hunting . A portion of the area outside of the fenced reforestation area is currently under a special use permit for grazing to Parker Ranch to reduce fire fuel loads.
gl3589	F. NEWELL BOHNETT	3711,2,3,4	8/15/1960	8/14/2000	Pasture	21139.52	EO4203	Transferred to DOFAW for Puuwaawaa Forest Reserve	Hawaii	DOFAW management have been intensive since the Executive Order establishing the Puu Waawaa Forest Reserve in 2007. The Na Ala Hele cone trail to the summit of
rp7069	PUUWAAWAA RANCH, INC.	3710010040000	4/11/1997	10/31/2000	Pasture	395	Transferred to DOFAW for Puuwaawaa Forest Reserve	EO4203	Hawaii	Puuwaawaa cinder cone is one of the most popular trails in West Hawaii. 97,551 native plants have been planted since 2004. 29,635 of these are threatened and endangered plants. Puuwaawaa is home to 40 rare plant taxa of which 23 are endangered, 6 threatened and endangered birds, numerous rare arthropods including Hawaii's largest native insect: the Blackburn sphinx moth. Puuwaawaa is open for public hunting of game birds from November through January. Game mammal hunting for sheep, goats and pigs is open from July to September. A total of 5,288 acres are fenced and have had ungulates removed, and restoration work is ongoing. This includes 3,802 acres of the
rp7250	ERNEST DELUZ	3710010040000	11/1/2000	10/31/2004	Pasture	395	Transferred to DOFAW for Puuwaawaa Forest Reserve	EO4203	Hawaii	

rp7323	ERNEST & STEPHEN DE LUZ	37116;7 1418	8/15/2000	10/31/2004	Pasture	17,834	Transferred to DOFAW for Puuwaawaa Forest Reserve	EO4203	Hawaii	Puuwaawaa Wildlife Sanctuary and 1,486 acres outside of the sanctuary are fenced. The Puuwaawaa Advisory Council made up of 14 community members was created in 2002. A management plan was created in 2003 with the assistance of the advisory council. In 2007 the Hawaii Experimental Tropical Forest(HETF) was established as a cooperative agreement between the State of Hawaii/DLNR and the USDA Forest Service to collaborate on management, research, education, and demonstration. Since 2007 there has been 235 research projects conducted in the Puuwaawaa HETF. Annual Special Use Permits are issued for targeted grazing to reduce fire fuel loads and wildland fire risk. Approximately 19,000 acres are under 2 permits for grazing.
rp7662	PARKER RANCH, INC.	3440140 040000	11/1/2002	9/30/2019	Pasture	101	Permittee request to cancel (pending transfer to DOFAW)		Hawaii	Since 2019, DOFAW has built 3.5 miles of fence in this area which strengthens the perimeter around Mauna Kea Forest Reserve. 2,600 koa and 600 'iliahi have been planted, and more seedlings are being grown to build in the upcoming seasons. DOFAW is partnering with Parker Ranch to conduct reforestation on adjacent lands.
rp7339	MARY THRONAS, TRUSTEE	44211;4 411	2/16/2003	3/31/2013	Pasture	1,855	Board approved mutual cancellation on March 8, 2013, Item D- 3; Land under EO #1389 (Dated 7/11/1950) to DOFAW	DOFAW	Kauai	This area is the Wailua Game Bird Management area and continues to be managed as a GMA.
rp7358	BRIAN M. ANDRADE	4240030 010000	4/28/2003	9/30/2005	Pasture	164	No longer interested in parcel; later issued GL #S- 5823 to Jonathan Akita; GL #S- 5823	DOFAW	Kauai	This parcel was added to Lihue-Koloa FR July 2019 and provides public access, future parking and additional hunting area for Hunting Unit C.

rp5133	ALBERT H. SILVA	1830010180000	5/1/1975	6/30/2004	Pasture	477	DOFAW Requested to Include Makua Keaau Public Hunting Area	EO4303	Oahu	This area was added to the Makua Keaau Forest Reserve. It is managed as a Public Hunting Area with vehicular access granted to hunters via a permit system. Small areas that contain rare plants and remnant native forest are fenced and managed for fire, weeds and ungulates and outplanted with rare and common native plants. DOFAW is the primary wildfire response agency for this fire prone area that regularly burns. USAG-HI conducts rare plant management to mitigate impact of training on specific endangered plants in coordination with DOFAW.
gl4092	MARY THRONAS, TRUSTEE	44211;4411	2/16/1967	2/15/2003	Pasture	1855.00	DOFAW	EO issued for Public Hunting Ground and Game Bird Reserve	Kauai	This area is the Wailua Game Bird Management area and continues to be managed for public hunting and access opportunities.
gl5517	MANUEL ANDRADE	4180050080000	1/2/1997	1/1/2012	Pasture	22.65	DOFAW	GL #S-5823 cancelled; then EO #4585 to DOFAW	Kauai	This parcel was added to Lihue-Koloa FR July 2019 and provides public access, future parking and additional hunting area for Hunting Unit C.
gl5823	JONATHAN K. AKITA	4240030010000	10/1/2005	9/30/2025	Pasture	163.84	DOFAW	EO 4585 to DOFAW for addition to Lihue-Koloa Forest Reserve	Kauai	This parcel was added to Lihue-Koloa FR July 2019 and provides public access, future parking and additional hunting area for Hunting Unit C.
gl4524	ETHEL K. ABREU	2130060070000	9/1/1976	8/31/2016	Pasture	393.00	SP, DOFAW, DOE, County	Tenant died. Lease expired. Lands to be setaside to various State agencies	Maui	DOFAW is working with Land Division to set aside to FR for conservation of the coastal hala forest.

Doc No	Lessee Name	TMK	Lease From	Lease To	Purpose	Acres	Reason	
rp5133	ALBERT H. SILVA	1830010180000	5/1/1975	6/30/2004	Pasture	477	DOFAW Requested to Include Makua Keaau Public Hunting Area	EO4303