



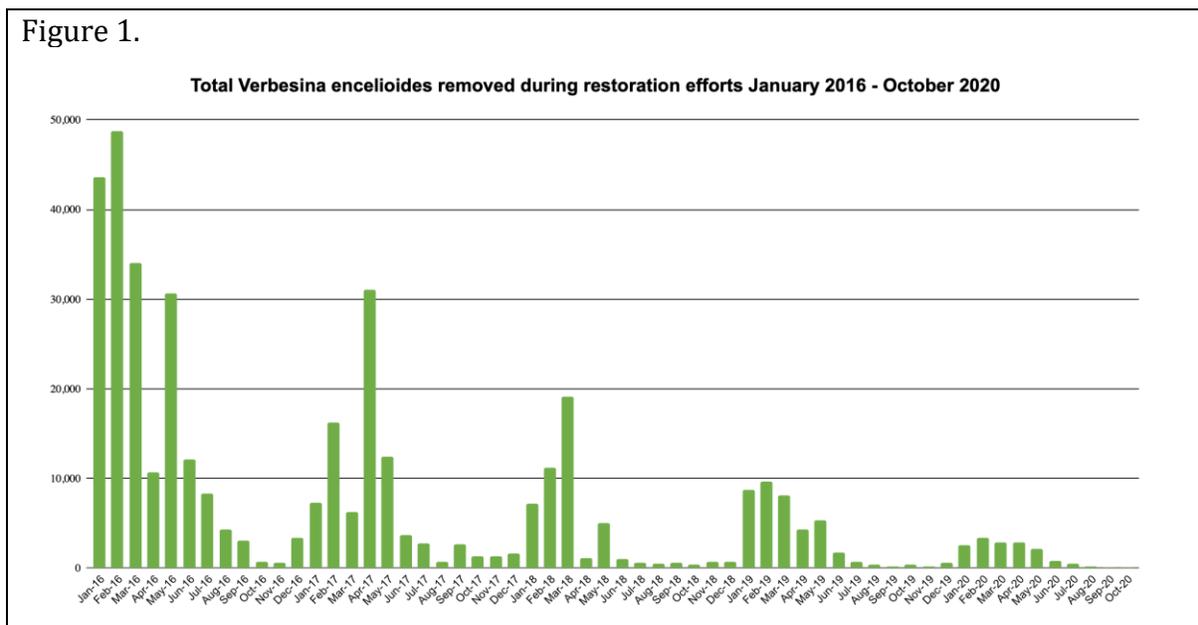
**DLNR/DOFAW Kure Atoll Wildlife Sanctuary
Papahānaumokuākea Marine National Monument**

**Atoll Update for RAC Meeting
9 December, 2020**

Field personnel deployments: The Kure summer 2020 field camp led by Naomi Worcester and Matt Saunter has returned from a 253-day deployment (26 February – 4 November). A winter field team of 4 led by Andy Sullivan-Haskins replaced the summer field team of 4. The Kure crew swap was accomplished on 26 October with the use of the M/V Imua. The outbound team quarantined at Midway Atoll and volunteered for 21 days with USFWS. The inbound team volunteered for 8 days and quarantined in Honolulu upon return.

- **DLNR headquarters maintenance** is performed by onsite personnel. Photovoltaic systems and a water purification system are monitored and repaired as necessary.
- **Ongoing habitat restoration** includes removing invasive plants including *Verbesina encelioides* from the 188-acre vegetated portion of Kure’s Green Island on a 4-6 week visitation schedule. The figure below details the reduction of *Verbesina encelioides* plants encountered and removed from the field (Fig 1).

Figure 1.



- **Native plant propagation** is conducted in an on-site shade house. In addition to establishment of important restoration species including Kawelu (*Eragrostis variabilis*) and Naupaka (*Scaevola taccada*), other species such as ‘Ānaunau (*Lepidium bidentatum* var. *owaihiense*), Naio (*Myoporum sandwicense*), Nanea (*Vigna marina*), Ilima (*Sida fallax*) and Ma’o (*Gossypium tomentosum*) continue to show promise. Pōpolo (*Solanum nelsonii*) has become well established since its recent reintroduction.
- **Vegetation monitoring** was conducted in August 2020. Vegetation monitoring was last conducted in August 2015. The results of the 2020 survey showed Verbesina cover at 0.00% and native vegetation cover at 64.98%. Photo points taken throughout the island since 2006 demonstrate dramatic increases in native vegetation..

Table 1: Vegetation Monitoring - Verbesina, bare ground and native plant percent cover

Date	Verbesina Cover	Bare Ground	Native Plant Cover
Winter 2012	21.86 % *	22.80 %	8.41 %
Winter 2013	1.89 %	33.36 %	19.69 %
Winter 2014	0.37 %	13.06 %	44.58 %
Summer 2012	0.83 %	8.23 %	69.01 % **
Summer 2013	0.55 %	11.11 %	57.64 %
Summer 2014	0.09 %	11.74 %	58.61 %
Summer 2015	0.04 %	7.49 %	73.87 %
Summer 2020	0.00 %	1.59 %	64.98 %

* Beginning of growing season for Verbesina. Plants were 1’ high and patchy during the winter, they would have grown into dense stands during the summer if not treated.

**Peak season for annual natives varies according to rain.



2012



2020

- **Laysan teal (*Anas laysanensis*) population** is estimated to be at least 46 adults (Sep 2020) with 23 females and 23 males. Botulism prevention measures include regular water source checks and removal of protein sources from hard pack areas (runway, turnarounds, and roads) where we suspect outbreaks have originated in the past after rain events. 24 broods were documented this summer and more have been reported by the winter team.
- **An approximated 7,500-10,000 lbs. of marine debris** was collected from Kure’s beaches and nearshore reef this year. Collected items have been secured in large tote bags which are ready and staged for removal. The marine debris cruise planned for September 2020 has been postponed to Spring 2021. An approximately 250-pound conglomerate was brought back for an HPU research study.



- **2020 Hawaiian monk seal (HMS) reproductive results:** 15 pups born - 14 weaned, 1 died/disappeared. NMFS field camps cancelled for 2020. HMS surveys were conducted by DLNR personnel at least twice a month. DLNR disentangled Pup 14 W/F from marine debris conglomerate attached to nearshore patch reef on 18 September. Pup 14 had green netting tightly wrapped around her muzzle and neck. It is unknown how long she had been entangled prior to discovery.



Pup 14 W/F entangled on patch reef



Pup 14 post-release

- **Low nesting success for Albatross** observed again for HY2020. However, Laysan albatross were more successful than the previous breeding season. Nest and fledgling count totals were extrapolated based on a subset of areas due to limited personnel.
 - **HY2020**
 - **LAAL Estimated Island Totals** – 42,174 Nests/7,406 Chicks – 17% Survival
 - **BFAL Estimated Island Totals** – 3,439 Nests/1,301 Chicks – 37% Survival
 - **HY2019**
 - **LAAL Island Totals** – 39,335 Nests/1,282 Chicks – 3% Survival
 - **BFAL Island Totals** – 3,429 Nests/1,343 Chicks – 39% Survival

- **Collection of albatross boluses** continued as part of educational and research projects. Boluses from Kure have been sent to educators across the US and to other countries. Kure field teams were able to collect 97 LAAL, 105 BFAL, and 11 species-uncertain boluses for education and outreach.
- **Big-headed ant (*Pheidole megacephala*, BHA) eradication program** continues. Island wide surveys are conducted annually and general monitoring is ongoing. A small infestation was discovered this season and it was successfully removed.
- **Southern house mosquito (*Culex quinquefasciatus*) eradication program** continues since the introduction in 2016. Water sources are checked 2-3 times per week. VectoLex larvicide (*Bacillus sphaericus*, Bs) treatments of water sources are currently on a monthly schedule to maintain control. It is uncertain whether mosquitoes are able to reach Kure from nearby Midway where they are established. No mosquitoes were documented this season. The last documentation of mosquitos on Kure was in August 2019.
- **Cultural Practice** - Oli is exchanged upon Hōlaniku group arrivals and departures. Huli 'ia (cultural observations) continues to be observed and recorded. Opportunistic collection of hulu (feathers) is a standard practice however very few feathers were collected this season due to limited personnel and specimens.
- **Enforcement** - All “no landing” signage was maintained including the repair of the north-facing sign. VHF radio channels 10 and 16 are monitored from a fixed-mount radio located in the main facility.
- **Onsite weather monitoring** is carried out with the use of a Davis Instruments Vantage Pro2 weather station. We had a generally wet summer season.
 - March Rainfall – 2.9 inches
 - April Rainfall – 0.98 inches
 - May Rainfall – 1.77 inches
 - June Rainfall – 6.81 inches
 - July Rainfall – 1.46 inches
 - August Rainfall – 3.97 inches
 - September Rainfall – 1.66 inches
 - October Rainfall – 2.12 inches
- Upon the summer 2020 team’s return to Honolulu Associated Press (AP) correspondent Caleb Jones conducted interviews with the team and released the article “**Isolated for months, island crew sees pandemic for 1st time**” released on 19 November.

We are seeking volunteers for the upcoming summer 2021 Kure field season as well as prospective field camp leaders.