



DLNR/DOFAW Kure Atoll Wildlife Sanctuary  
Papahānaumokuākea Marine National Monument

Atoll Update for RAC Meeting  
March 2019

**Field crews:** The Kure DLNR summer field team will be departing aboard the IMUA with 7 team members on March 20. On March 26, Field camps are scheduled to swap on Kure. One winter team member decided to stay on Kure for the summer so they will have eight members until Naomi departs in late April on the monk seal cruise. The winter team is scheduled to return April 3 or 4, 2019. On 12 October, the summer team is scheduled to return to Honolulu on the Imua.

- Ongoing **habitat restoration** includes treating the 188-acre island on a 4-8 week rotation. Approximately 800 gallons of glyphosate-based herbicide mixed at a 2% concentration was applied in 2018. The number of *Verbesina* plants removed during each complete treatment ranged from approximately 1,000 to 17,000 individuals depending on the season. The seed bank appears to be rapidly diminishing since complete island treatments started in September 2014.

Table 1. Number of *Verbesina* plants removed from Green Island (188 acres) during the peak of the growing season.

Spring 2016	81,556
Spring 2017	35,087
Spring 2018	16,937

- **Native plant propagation** is conducted in shade houses. A couple thousand native plants are produced annually. Some new native species are being experimented with in an attempt to find plants that compete with weeds. *Lepidium bidentatum var.* has been the most successful.
- **Collection of albatross boluses** continued as part of educational and research projects. When educators request boluses, they fill out a form answering questions to give us an idea of how many educators and students will be using boluses. Over the surveyed decade from 2008 to 2018, an estimated 90,486 students and 1590 educators have been exposed to boluses from Kure. In that timeframe, minimally 1,720 boluses from Kure have been sent to educators across the US and to other countries.
- The **Runway Reclamation project** has shown some initial success in remediating the flooding problem and recruiting nesting albatross to the areas that were jack-hammered, capped with sand and planted with native plants. This is a long-term project to attract Black-footed Albatross away from the beaches and up onto higher ground on the interior.

- **Laysan duck population** is estimated to be 76 adults (Nov 2018) including 10 members of the initial introduction. Botulism outbreaks have taken many adults. Prevention measures include daily water source checks and removal of albatross chick carcasses and abandon eggs on the runway where we suspect outbreaks have originated in the past after flood events. One fresh Laysan duck carcass was found last week and botulism was suspected. water source checks were increased to twice a day.
- **Marine Debris:** On Dec 11, 2018 the team removed approximately 1500 pounds of green net from the reef. The annual total removed was about 6,000 pounds.



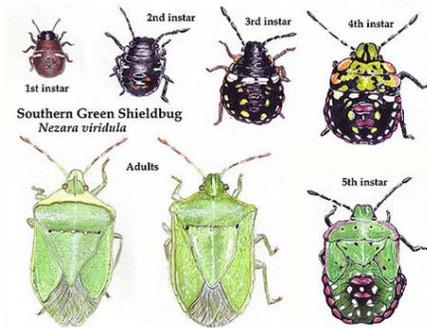
- **Monk Seals** DLNR disentangled a male yearling (KN02) in Feb 2019, and an adult female in October 2018.

Weekly surveys were conducted by DLNR during the winter when NMFS is not on island. During the summer DLNR staff assists with tagging pups and disentangling.



- Complete **nesting albatross count** is conducted in Dec. 2018 with a record high of 39,325 nests. Last record for LAAL was in 2015: 38,307.  
BFAL nest count in 2018 was 3,429. The kure winter team has documented very high abandonment of chicks and eggs this winter. We are expecting record low survival when the summer team conducts fledgling counts the first week of June.
- In 2018, **fledgling albatross counts** were conducted from June 4-8. Lower than usual survival was documented:  
1,226 Black-footed albatross chicks (2,749 nests counted in Dec 2017) – 45% survival  
8,061 Laysan albatross chicks (27,714 nests counted in Dec 2017) – 29% survival
- Three **Christmas Shearwater Counts** a year are conducted in the summer. The population continues to increase.
- **Brown and Masked Boobies** are monitored year round. Both populations are growing. In 2018 DLNR documented 131 BRBO nests and 31 MABO nests.

- **Big-headed ant (*Pheidole megacephala*) eradication program** continues. Island wide surveys are conducted twice a year. Small infestations are found and treated during surveys.
- **Southern house mosquito (*Culex quinquefasciatus*) eradication program** continues since the introduction in 2016. Water sources are checked twice a week and treated once a month with VectoLex larvicide (*Bacillus sphaericus*, Bs). The last sighting was in June 2017.
- **Stink Bug (*Possibly Nazara viridula*) A New Introduction of Invasive Species**



First observed on Kure on Feb 1, 2019 by Zach Pezzillo. Now thought to be wide spread on Green Island with perhaps several hundred in all stages. The kure team has been killing them with chemical (neem oil) and mechanical (squishing them) methods. Two natural predators on Kure may be katydids and jumping spiders. We are researching the use of a tiny wasp as a biocontrol. The use of biocontrols would require extensive permitting and research on possible non-target species.

*N. viridula* has not been previously documented in the NWHI but is wide spread in the Main Hawaiian islands. *N. viridula* is highly invasive and feeds on new vegetation growth especially plants in the tomato family such as the endangered popolo (*Solanum nelsonii*). Traps with pheromone lures have been bought for Kure and will be deployed around camp and where infestations are found when the summer team arrives in early April to determine if they work.

<https://www.harriseseeds.com/products/40987-rescue-reusable-stink-bug-trap>

If the traps work they maybe be deployed on other NWHIs to help determine how extensive the stink bug range has increased. A special biosecurity meeting with all agencies was conducted by Amanda Boyd on March 7, 2019 to discuss biosecurity measures after stink bugs were discovered. Hyper vigilance and invasive species education were two of the primary take home messages at that meeting. Notes from the meeting were taken by Beth Flint and will be distributed by Amanda Boyd.

