



2018 Secretary of Defense Environmental Awards Natural Resources Conservation, Small Installation Award

Each year since 1962, the Secretary of Defense has honored installations, teams, and individuals for outstanding conservation achievements, innovative environmental practices, and partnerships that improve quality of life and promote efficiencies without compromising the Department of Defense's (DoD) mission success. The 2018 Secretary of Defense Environmental Awards cycle encompasses an achievement period from October 1, 2015 through September 30, 2017 (Fiscal Year (FY) 2016-2017). A diverse panel of 63 judges with relevant expertise representing Federal and state agencies, academia, and the private sector evaluated all nominees to select one winner for each of the nine categories that cover six subject areas: natural resources conservation, environmental quality, sustainability, environmental restoration, cultural resources management, and environmental excellence in weapon system acquisition.

About the Natural Resources Conservation, Small Installation Award

The Natural Resources Conservation, Small Installation award recognizes efforts by small installations to promote the conservation of natural resources, including the identification, protection, and restoration of biological resources and habitats; the sound long-term management and use of the land and its resources; support of the military readiness mission; and the promotion of a conservation ethic. Protecting endangered plant and animal species on our installations and other DoD lands ensures the preservation of these valuable environmental assets for current and future generations and assures the availability of these resources to sustain military readiness. The 2018 winner of the Natural Resources Conservation, Small Installation award is *Hawaii Army National Guard*.

About Hawaii Army National Guard

Hawaii Army National Guard's (HIARNG's) statewide installation is comprised of seven readiness centers that stretch across several islands. These training sites are home to a number of unique biological resources. Keaukaha Military Reservation (KMR) contains 229 acres of lowland wet forest, an increasingly rare ecosystem in Hawaii, as well as endangered species such as the Hawaiian hawk, Hawaiian hoary bat, and Haiwale shrub. The KMR forest is also home to a variety of endemic species that are found nowhere else in the world. At Kekaha Firing Range, the natural resources conservation program manages endangered Niihau panicgrass and threatened sand dune habitats. Throughout all HIARNG's training sites, the most consistent challenge has been eradicating invasive and non-native species that continually threaten ecosystems and impede training access. To that end, the natural resources conservation program has implemented a multi-faceted invasive species management program that achieves holistic benefits at the ecosystem level and increases acreage available for training. With training land at such a premium, every acre matters.



KMR lowland wet forest restoration continues after invasive species removal. These efforts are critical to the success of the HIARNG mission and allow endemic species to thrive, protect endangered species habitat, reduce maintenance costs, and sustain training lands.

Major Accomplishments in FY 2016-2017

- HIARNG eradicated miconia, an invasive woody shrub, and is now moving from the active treatment phase into monitoring miconia. The elimination of adult miconia has slashed herbicide use by 95%, with the natural resources conservation program using only 1.5 gallons of concentrated herbicide this year to manage several hundred acres of previously overrun and unusable habitat. Herbicides can be toxic to more than just their target organism, so using less herbicide reduces threats to native plants and animals, groundwater and surface water, the air, and installation personnel.
- The installation eradicated over 5,000 long-thorn kiawe plants and around 4,000 albizia trees. These plants represent some of the greatest challenges to both ecology and training access on the installation because they spread so quickly and create virtually impenetrable understory. Personnel removed mature seeding plants and then vigilantly removed seedlings without significant amounts of herbicide. This approach is time and labor intensive but it helps HIARNG achieve the ecosystem transformation required to save these habitats that are threatened by invasive species. The installation is evaluating the use of unmanned aerial vehicles to conduct efficient annual monitoring and identify future treatment needs.
- HIARNG coordinated with the U.S. Department of Agriculture and used a scale insect, *Tectococcus ovatus*, to create galls, or abnormal outgrowths of plant tissues, on young strawberry guava tree leaves that eventually reduce fruit production on these invasive plants. The use of this biological control method along with seed-base eradication reduced the use of herbicides and will increase training land availability over time.
- HIARNG introduced goat and sheep grazing as a cost- and resource-effective approach to eradicating invasive species. This initiative has slashed the use of herbicides, safeguarded sensitive habitat from adverse maintenance impacts, and it has re-opened large sections of KMR training lands. Goat and sheep grazing costs only \$500 per acre whereas the installation's previous strategy of inmate labor required \$1,500 per acre, and hiring contractors for mechanical and chemical invasive plant removal is \$5,000 per acre.
- The HIARNG is not open to the public, but it has developed other ways to work with its community and encourage natural resources awareness. The HIARNG has successfully implemented partnerships with the Big Island Invasive Species Committee and Kauai Invasive Species Committee to target miconia, albizzia, and kiawe. These partners provided labor and expertise required to contain these plants without using enormous quantities of herbicide that could threaten native plants. These partnerships have also supported internships for local students to participate in fieldwork onsite at HIARNG.



Long-thorn kiawe, a highly invasive and noxious shrub plant, dominates the area at KMR, reducing mobility and crowding out native plant species. Long-thorn kiawe grows up to 30 feet tall with three to four inch thorns. Each plant is capable of producing thousands of seeds per year.



Biological control efforts combatting one of Hawaii's most invasive species, strawberry guava. HIARNG works with various state and Federal agencies to increase the use of biological control agents to reduce herbicide use and costs at training sites.