

# Invasive Species Program

## National Wildlife Refuge System

### Update FY 2012

#### Invasive Species Management in the National Wildlife Refuge System

Invasive species continue to alter wildlife habitat and pose challenges to managing the National Wildlife Refuge System (NWRS) lands. Recent climate change information predicts that some invasive species may have more competitive dispersal and survival characteristics than native species as temperature, water availability, and weather patterns change.

In FY2012, there were 2.5 million acres infested with non-native invasive plants within the NWRS of which 257,000 acres, about 10%, were treated. Many refuges have prioritized the treatment of small incipient infestations, early detection species, to protect pristine areas rather than focusing on treating larger established infestations. There are more than 3,800 invasive animal populations residing on refuge lands. Invasive animals and plants can be especially detrimental to island

ecosystems where more than 50% of extinctions are known to be caused by invasive species.

#### Large Invasive Species Competitive Allocation Projects

Annually, one or two large-scale invasive species eradication projects are awarded funding totaling one million dollars. Project proposals are evaluated according to specific criteria by a multi-regional review panel and selections are made by the Refuge Chiefs. Eligibility is based on potential to fully eradicate, rather than control or contain, an invasive species on refuge lands.

#### *Desecheo National Wildlife Refuge*

To protect and restore the island's ecosystem Desecheo NWR was awarded funding to remove non-native, invasive black rats. The refuge is approximately 13 miles west of Puerto Rico. Rats and other invasive species decimated the breeding bird

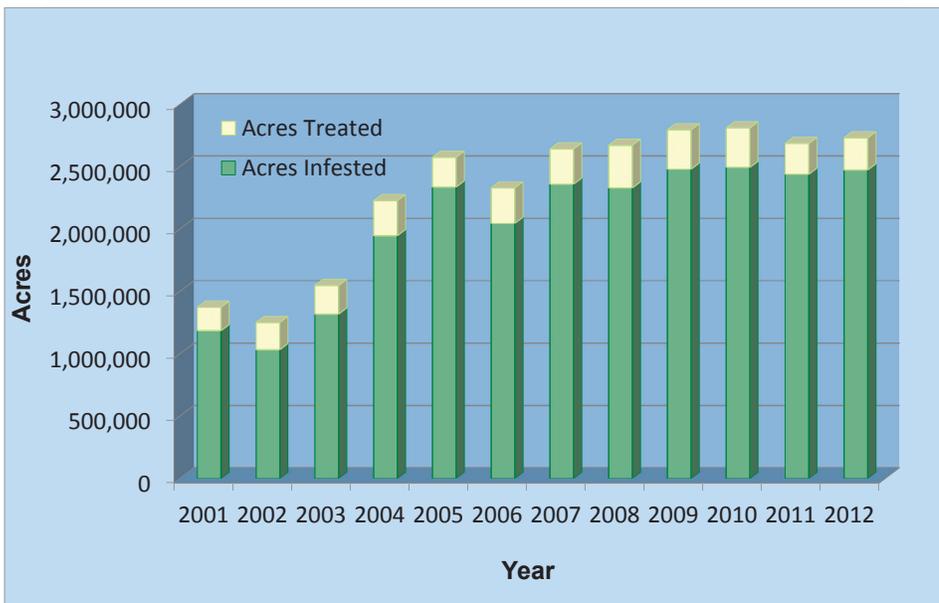
populations (including rare species such as Bridled Terns and Brown Noddies) which have fallen from tens of thousands to virtually none. Rare plants such as the Higo chumbo cactus are also being damaged.

Eradication occurred in March and April, 2012. Island Conservation was contracted to implement the operational plan and apply the rodenticide bait brodifacoum via helicopter and bait stations. Staff on the ground before, during, and after the application implemented monitoring protocols, including bait availability, bait consumption, bait degradation, rodent carcass searches, monitoring for non-target species impacts, carcass searches for shorebird and other non-target species, and seawater sampling. No non-target species such as birds and reptiles were found to be affected by the bait application. Ongoing and opportunistic visits throughout the year will determine the final success of the project. A preliminary report is pending release.

#### *Eastern Island-Midway Atoll National Wildlife Refuge*

Work continued on the five-year invasive plant control and native plant restoration of Eastern Island. Goals include the restoring the function of the insular ecosystem, enhancing native plant biodiversity, and the long-term recovery of the endangered short-tailed albatross and Laysan teal. The target invasive species, golden crownbeard, has reduced nesting cover for these species.

Crownbeard cover is only 0 to 3% in the treatment sectors compared to 34 to 80% in un-managed sectors. Native plants have begun to colonize treated areas. Crownbeard is currently being controlled on 52% of the island. The National Fish and Wildlife Foundation



Number of acres infested and treated on NWRs 2001-2012. Data source: Refuge Annual Performance Plan

provided a much needed one million dollar matching grant for the sole purpose of restoring Eastern Island.



*Golden crownbeard with Laysan albatross by Forest & Kim Starr*

### **Feral Hog Control on National Wildlife Refuges**

Feral hogs are one of the top invasive non-native animals on refuges. Feral hogs prey directly on native plants and animals and they can transmit diseases to humans. Hog rooting kills plants and causes soil disturbance. Disturbed soil can lead to an increase in invasive plants and the loose soil can lead to wetland siltation, and general contribute to erosive conditions. With essentially no predators, feral hogs are increasingly threatening the ability of refuges to meet their conservation objectives. In FY2012 the Service received a special allocation for a Feral Swine Eradication Pilot program.

#### *Hakalau National Wildlife Refuge - Hawaii*

\$500,000 went to Hakalau Forest NWR. The refuge focused on high elevation forest bird habitat. All efforts were directed at five Feral Ungulate Management Units encompassing 7,000 acres. New fencing was built to subdivide a 5,000 acre tract into three smaller areas; fencing was repaired in older units; additional snares and other equipment were purchased to remove hogs; and extra labor was mobilized to increase hog removal from fenced areas. The allocation funds were leveraged with additional funds for a total of \$630,000 contributed towards the project.

#### *Multiple Refuges – Louisiana*

\$373,000 went to five refuge complexes in Louisiana. Projects used various methods including humane harvest via aerial and airboat strike teams, incidental take, and trapping. Funding was used for Interagency Agreements between the FWS and USDA-Wildlife Services to remove hogs through trapping. Creating the partnerships

and strike teams has provided a long-term resource for removing hogs in the future. In Louisiana alone, approximately 1,400 feral hogs were removed.

#### *St. Vincent NWR – Florida*

\$127,000 went to St. Vincent NWR to remove feral hogs on the 12,500 acre island. 340 hogs were removed. A ten person team of USDA and FWS employees used various techniques but trapping accounted for 58% of harvested hogs. At last census, only a few hogs remained, and there had been no documented depredation of sea turtle nests throughout the 2012 nesting season. Removal efforts are to continue after public hunting season ends.

### **Invasive Species Inventory and Monitoring Program on National Wildlife Refuges**

Inventory and monitoring (I&M) are critical components of invasive species management. Accurate inventory data is critical for identification, documentation, and planning. To assist refuges, a pilot project was initiated in 2011 to evaluate the plant inventory process across a diversity of refuge lands, and to inform development of a NWR guide to conducting invasive plant inventories. The project is supported by the NWRS I&M Initiative in partnership with the National Invasives Program. Partners include Utah State University, Colorado State University and IGIS, Inc.

In 2012, inventory, GIS, field mapping, and species occupancy modeling workshops were conducted at San Diego NWR (R8). The total number of acres mapped at San Diego was 1,962 acres. Inventory data analysis and reports are complete, and were provided to the four pilot refuges. Post-inventory interviews with refuge staff were conducted during winter 2012-2013 to gather feedback on the inventory process, and document how the data are being used. A report summarizing findings and recommendations is in preparation. Funding was allocated by the Inventory and Monitoring Initiative to support FY2013 inventories in Regions 1, 2 and 3.

### **Invasives & Volunteers Grant Program Update**

In FY2012, each region was allocated \$100,000 to distribute to the region's refuges. Successful invasive species proposals usually contain all of the

following criteria: early detection and rapid response, mapping, 'Friends' or volunteer participation, and long-term monitoring to ensure success. One of those projects is at Occoquan Bay NWR. A study is being implemented by a non-profit called Earth Sangha. The project area is a 12.5 acre meadow. The experimental plot is mowed once a year by staff to interrupt succession. The project goal is to suppress the invasive species, and steer the monotypic stands of native eastern gamagrass towards a more diverse meadow community. A variety of techniques were assessed including:

- Hand pulling – 18 volunteer field events/152 volunteers/560 hours
- Herbicide – 2.5 acres of the heaviest infestations with future plans to re-plant natives
- Solarization – covering infested areas with tarps for up to two months (~12,000 sq. ft.)
- Hand mowing – a scythe was used to mow ~2.5 acres

In 2013, Earth Sangha will begin to re-vegetate treated portions of the research area with local ecotype seed and/or stock that is native to the lower coastal plain.



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**April 2013**