Region 1 FY 2014 Invasive Species Control Program Proposal Format

Refuge/complex name: Hakalau Forest National Wildlife Refuge.

Project title: Control of English Holly.

Total amount requested: $36,860

Project description: English holly (*Ilex aquafolia*) was identified as a highest priority target invasive plant species in the Hakalau Forest National Wildlife Refuge (Hakalau) 2010 Comprehensive Conservation Plan (CCP). It is a tall shrub or small tree that can spread via seeds or vegetatively and can out-compete native species. Holly was originally planted around ranch buildings located in this area prior to establishment of the refuge. Hakalau area is one of few places where English holly is found in Hawaii, so eradication here is crucial not only for the refuge, but for other native ecosystems in the state. Through previous Fish and Wildlife Service and U.S. Forest Service grants we have gotten the upper hand on control of English holly. We propose to conclude these efforts by eradicating holly from remaining areas of the refuge.

Comment [BF1]: Thank you for saying so. As discussed with Steve Kendall, this will be the last year for these funds for English holly.

Distinct project with well-defined objectives (10 points): In FY12, we received an Invasive Species Management with Volunteers (IDMV) grant ($9,000) for control of English holly. Using these funds we organized several expeditions for holly removal. We continued volunteer removal efforts in FY13 with additional expeditions and seasonal volunteer. However, we realized efforts by volunteers would not be sufficient for eradication. In FY13 we increased control efforts by hiring contractors with funds from an Invasive Species Control Program (ISCP) grant ($35,724). Through these efforts we have eradicated English holly from core concentration areas. However, young plants remain dispersed across a larger area (~ 1,000 acres) outside of this core. To complete eradication of this species on the refuge, these plants need to be controlled before they reach maturity and produce seeds. We are seeking funds to hire contractors to search and remove holly from peripheral areas surrounding the treated concentration center, with a goal of complete eradication on the refuge.

Potential for maximum control (10 points): We estimated the area of highest holly concentration to be approximately 500 acres in the SW portion of the refuge. Previous efforts have nearly eliminated holly from this area. However, it has spread beyond this area. We seek funding to complete eradication efforts conducted with IDMV and ISCP funds and with U.S. Forest Service Forest Health Protection (FHP) funds. We have requested FHP funds for FY14, primarily for Florida blackberry control but efforts would include limited holly control when conditions are not favorable for spraying blackberry. With ISCP funds we will add hours to the FHP funded contract to expand holly control efforts. In FY13 we modified controls methods to be more effective: cutting large trees and treating stumps with herbicide (Garlon 4) along with mechanical removal of seedlings and smaller trees. Follow-up evaluation has shown these methods to be highly successful, so they will be utilized on future control efforts.

Comment [BF2]: This adequately answers my questions about technique, but not lingering questions about whether the contractors will traverse and find all of the extant holly locations (or at least an estimate of what portion of the area/plants they will find).

Biological benefit to priority species or BIDEH (10 points): Hakalau Forest NWR established to conserve endangered forest birds and their habitats. Since establishment of the refuge there has been significant progress in forest restoration leading to increasing populations of native

Comment [BF3]: Good point about increasing forest birds. In addition to what is placed here, I will also give points for the mention of English holly as one of the only locations in Hawaii. This is an important ED/RR and overall Hawaii health issue, as well. That said, this doesn't necessarily say what is so damaging about English holly, besides that it is not native and that it crowds out native plants. Also, this does not justify preservation of a unique or rare overall habitat or ecosystem.

forest birds. However, these gains are threatened by invasion of exotic plants, animals and disease. The refuge supports a diversity of native plants and birds, including 27 which are listed under the Endangered Species Act. Management actions thus far have led to stable or increasing populations of most forest bird species, documented in annual forest bird surveys. Hakalau is one of the few places in Hawaii where native forest bird populations are increasing. This is the result of improvements in forest habitats and expansion of native and endangered plant species. Proliferation of alien plant species, such as English holly, can have detrimental effects on restoration efforts as these plants out-compete beneficial native species. Endangered plant and animal species, as well as other native Hawaiian species, depended on a healthy, native forest. Removal of English holly, in conjunction with on-going management of other invasive plant and animal species will help ensure the gains made thus far are not lost.

Sustainability (10 points): We expect that with this proposed phase of control, English holly will be essentially eradicated from most of refuge lands. However, some viable seeds are likely to remain as well as a few plants outside of refuge boundaries. Through annual monitoring and other activities on the refuge, we would identify areas of resurgence. With the population greatly reduced, control would be feasible with refuge staff and volunteers. We typically have several volunteer groups each year that are looking to support the refuge doing just this type of work. We will continue to use equipment purchased with previous grant funds to support volunteer invasive species control efforts.

Comment [BF4]: GREAT answer!

Monitoring to document and evaluate project success (10 points): The current distribution of holly has been determined and mapped using data from annual weed surveys and more intensive surveys targeting holly. Contractors will track treatment areas using a GPS to ensure 100% coverage. Post-treatment monitoring will be achieved through the annual weed surveys and more intensive surveys focusing on the relatively small area where holly occurred prior to treatment.

Comment [BF5]: Mapping of extent – good.
Mapping of treatment – great.
I wish I had a little more information on what the annual weed surveys and intensive surveys entail. Nevertheless, good stuff.

Budget:

Budget item	ISCP funds	USFWS match
Contract for alien plant control (600 hours @ $56/hr)	$33,600	Staff time for oversight and post-treatment monitoring (biologist and operations manager) Housing for contractors
Herbicide (Garlon 4 - 20 gal@ $119.50/gal)	$2,390	
Surfactant (Crop Oil -5 gal @$18.00/gal)	$90	
Dye marker (Turf Trax 20 gal @ $39.00/gal)	$780	
TOTAL:	**$36,860**	

Matching support will be achieved by several means: We have request funds from the U.S. Forest Service for invasive plant species control in FY14 (they have provided funding since 2001). Most of these funds will be used for blackberry control, but a portion will be dedicated to holly. Multiple partners will provide personnel to assist with the Hakalau weed surveys, including USGS, local watershed partnerships (Mauna Kea Watershed Partnership and Three Mountain Alliance), USFWS Invasive Species Strike Team and State of Hawaii resource management agencies. A portion of a 3 year SSP grant is also being used to support the weed monitoring efforts at the Hakalau. We anticipate 3-4 volunteer expeditions for invasive plant control, including holly, coming to the refuge in FY14. Volunteer groups scheduled thus far include Friends of Hakalau Forest and several Boy Scout Troops.