



# Keālia Pond and Kakahai‘a National Wildlife Refuges

*Planning Update Number 3, March 2011*



*‘Ūtili / © Tom Dove*

## Draft Comprehensive Conservation Plans Coming Soon!

This Planning Update is the third in a series of updates distributed by the U.S. Fish and Wildlife Service (Service) to keep you informed about the development of Comprehensive Conservation Plans (CCP) for Keālia Pond on the island of Maui and Kakahai‘a National Wildlife Refuges (Refuges) on the island of Moloka‘i. This update provides an overview of the results of preliminary draft alternatives. Please feel free to contact Project Leader Glynnis Nakai, if you have any questions. See page 8 for contact information.

### An Update on the Refuges' CCP Development

Since we distributed Planning Update 2, the CCP planning team has continued to inventory and analyze biological data and develop preliminary alternatives for the Draft CCP.

After careful consideration of public comments as well as an internal scoping process, the CCP planning team has developed preliminary management alternatives for the Refuges. Management activities will focus on accomplishing the purposes for which the individual refuges were established, fulfilling the Refuge System mission, as well as providing compatible wildlife-

dependent educational and recreational opportunities to the public.

We will issue another planning update when the Draft CCP is available for review, but please check our website for updates prior to that time or to view previous planning updates at:

<http://www.fws.gov/kealiapond/planning.html> or  
<http://www.fws.gov/kakahaia/planning.html>

Ongoing contacts for CCP questions and comments are located on the last page of this planning update. Thank you very much for your continued interest and support in this important planning process.

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## Keālia Pond NWR Draft Alternatives

### Descriptions Common to All Alternatives

The Refuge is open year-round and visitors have access at the Kanuimanu Ponds and Keālia Coastal Boardwalk for wildlife viewing opportunities. Environmental education programs are provided by non-government organizations under Special Use Permits. Interpretive tours are provided upon request and staff availability. During waterbird breeding season, the Kanuimanu levees are closed to public access to eliminate disturbance to birds.

The new Headquarters/Visitor Center at Keālia Pond NWR (funded by the American Recovery and Reinvestment Act) will be completed late summer 2011. There will be an increase in the number of visitors and educational groups on the Refuge which will require additional resources to ensure the increased wildlife viewing remains compatible with the Refuge's purpose.

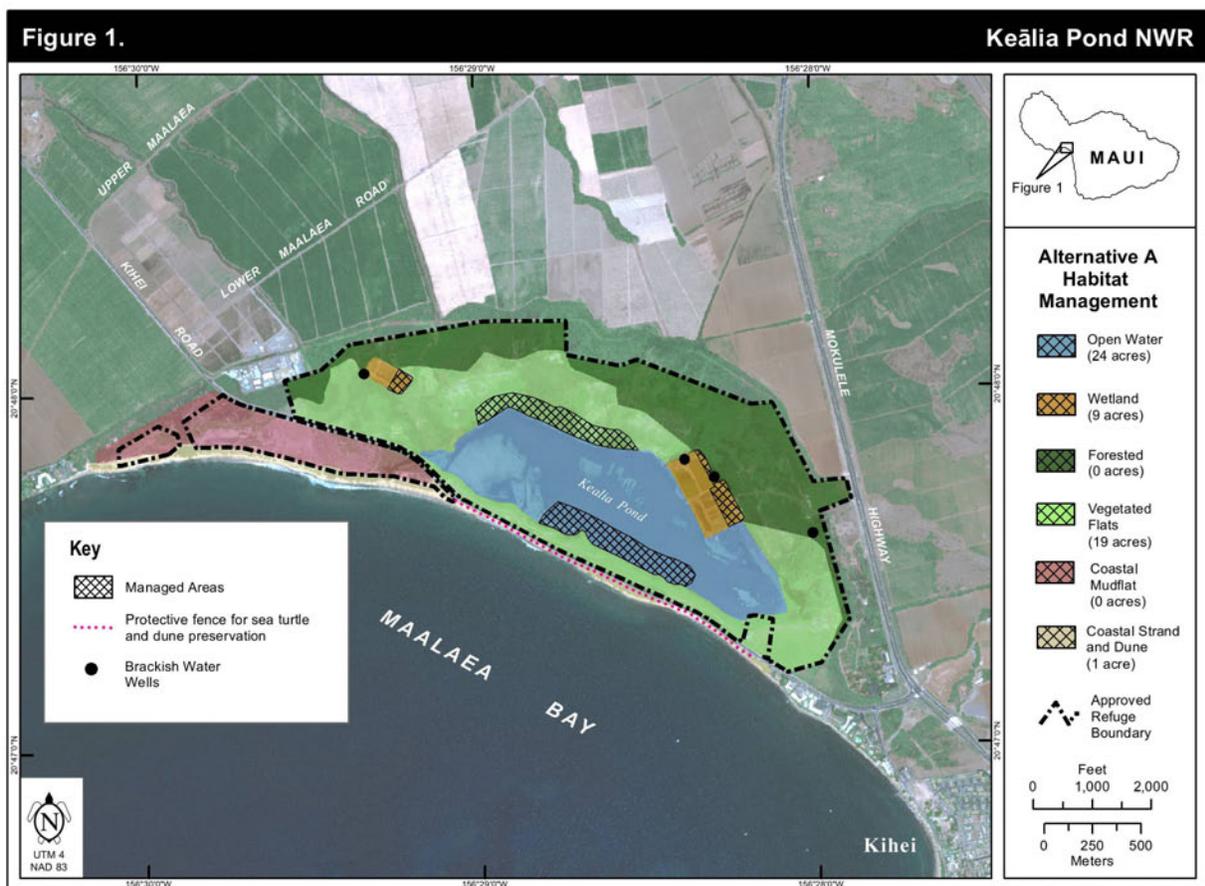
Molokini Islet lands above high-water will be added to the Keālia Pond NWR as an overlay refuge unit. Our management of the seabird colony with no public access will be a continuation of the previous stewards, Hawaii's Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife.

### Alternative A: Continue Current Management (No Action) (Figure 1)

Current management is reliant on the natural flooding that occurs each year with supplemental flooding to provide habitat for waterbirds. Kanuimanu and Baitfish Ponds have independent water sources to flood water into the ponds; however, dewatering in the ponds is limited. The open-water 200-acre Keālia Pond is subject to the natural hydrological cycle represented by high water in winter; receding April-September, and (in some years) complete drying October-November.

There are three nuisance issues on the Refuge that impact downwind neighbors: midges, fish odor, and dust. In extended high-water years, an invasive midge species reproduces multiple times and the resulting swarms are attracted by the adjacent landowner building lights. The Refuge's current method of controlling midges is to treat the main pond with an insect growth inhibitor during peak abundance.

An overabundance of invasive tilapia occurs during extended flood conditions in the main pond. If live tilapia are not removed from the pond, they die when the water recedes and accumulates on the downwind, south side of



pond producing a foul odor. This issue does not occur every year but, when the population is high, fish traps and/or nets set during periods of receding water or the decaying fish must be raked out of the mud to remove the biomass.

The tradewinds tend to disperse pond sediment disperse pond sediment to the south-southeast side of the Refuge. Current control of windblown sediment is accomplished by pumping and sheetflowing water into the main pond with targeted areas along the upper, north edge. These controls have proven to be an effective method for controlling the amount of windblown sediment and also stimulates invertebrate response for waterbird foraging.

The seasonal mudflats at Ma'alaea are not currently actively managed. The mudflats typically have shallow water during the winter but in most years Ma'alaea Flats dries out around mid-June, before ae'o have completed the breeding season.

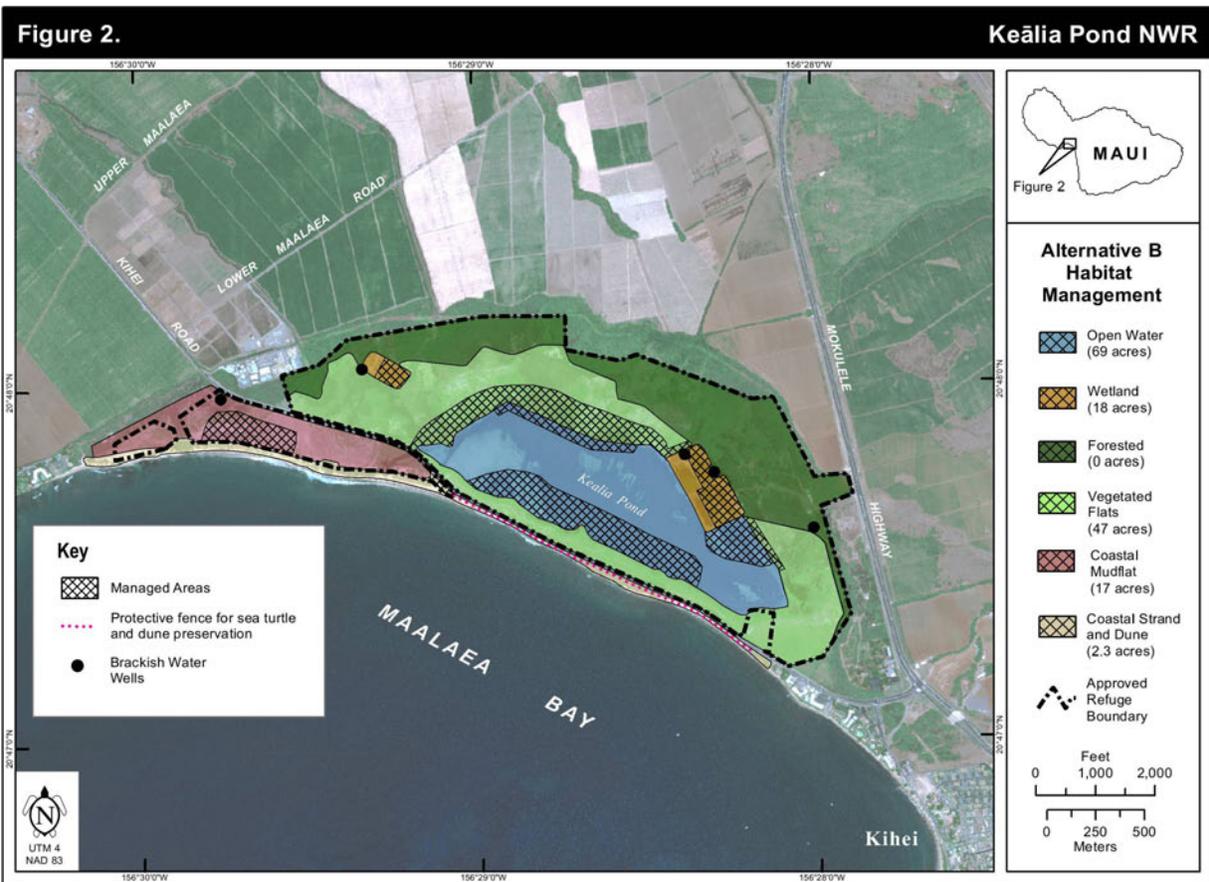
On Molokini Islet, monitoring and banding of seabird chicks would be maintained at the same level of 1-2 visits per year to band chicks. Biological assistance would be collaborative effort with the Hawai'i DLNR.

### Alternative B: Restoration Focus (Figure 2)

Under this alternative, the Refuge would concentrate efforts on identifying and implementing more efficient techniques to control the most aggressive invasive species and prepare a restoration plan and step-down habitat management plan with inventory and monitoring protocol, and identification of alternative water sources. Developing a water source for Ma'alaea Flats would be prioritized to manage the water levels needed to accommodate all life history requirements (foraging, resting, and breeding) of the ae'o. This water management would also provide enhanced wildlife viewing opportunities for visitors on the Keālia Coastal Boardwalk. Providing ae'o habitat along the boardwalk will require additional resources to monitor human activities throughout the year, even if the boardwalk is closed for breeding season. Additional studies will be implemented to evaluate the impacts of visitors on the boardwalk to endangered waterbirds.

Methods to control nuisance issues (midges, fish, windblown sediment) will be similar to Alternative A until the Refuge has maximum capabilities to manipulate water level in the open-water pond.

Monitoring on Molokini Islet will increase to 2-3 visits per year for monitoring breeding and banding chicks.



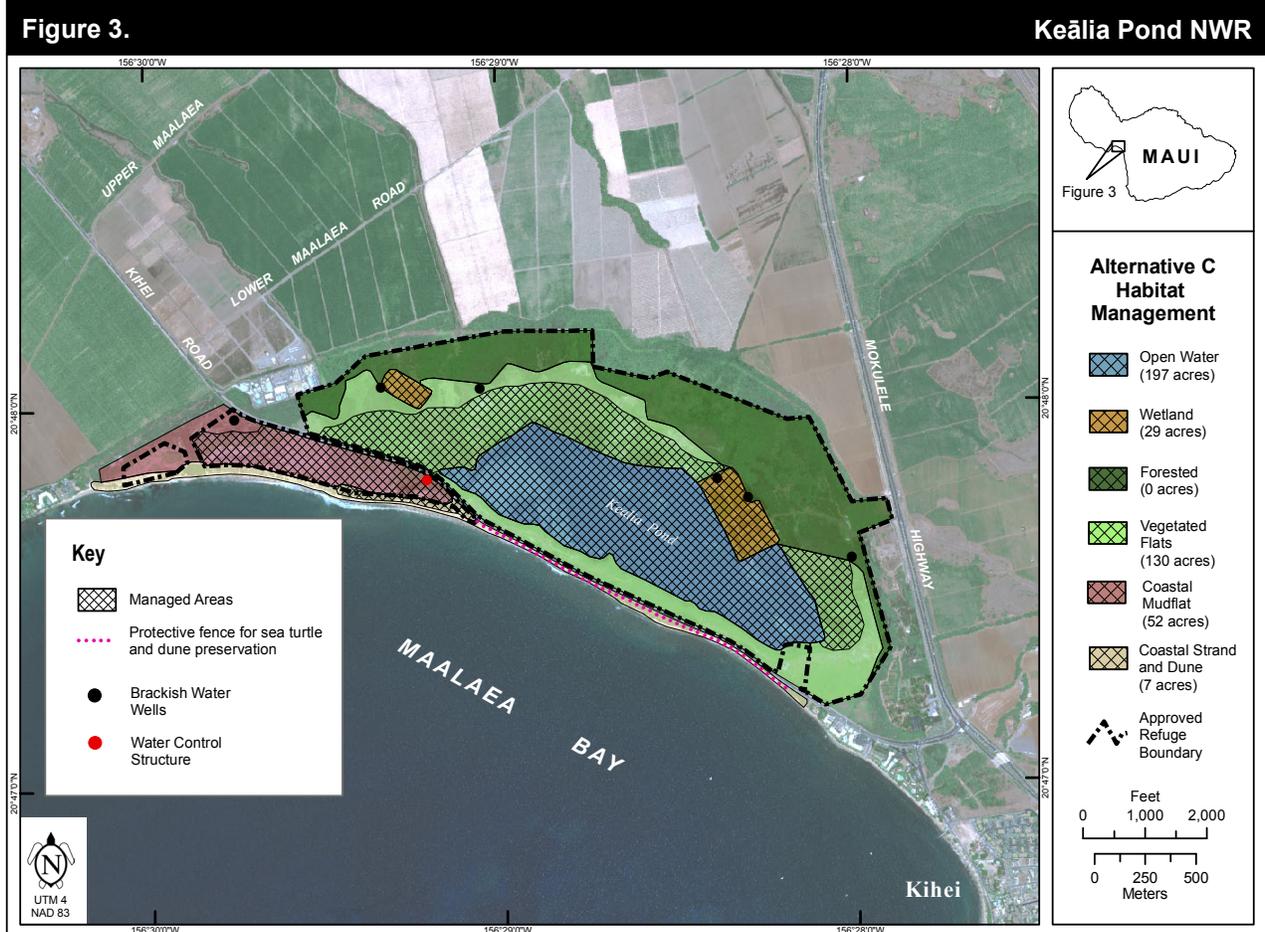
### Alternative C: Wetland Capacity Focus (Preferred Alternative) (Figure 3)

Under this alternative, the Refuge would plan and implement the physical alterations needed to maximize the ability to control water in the main pond and adjacent vegetated mudflats, significantly remove (or attain less than 10% cover) the most aggressive invasive plants, and control larger areas of non-native pickleweed on the flats. Physical restoration includes: construction of a water control structure at the North Kihei Road culvert, additional groundwater sources (wells) to deliver water to target areas, and recontour topography to maintain water on the flats. Under adaptive management, we expect an increased capability to dewater and flood the main pond will enhance our spotted-winged midges and invasive tilapia control efforts.

Visitor services would be similar to Alternatives A and B; however, under this alternative additional efforts would be made to provide vegetated barriers and/or blinds to provide better viewing opportunities. Additional visitor

services staff would increase visitor and educational opportunities, recruit and train volunteers to assist with refuge programs and connect people with the outdoors.

Molokini Islet, after establishment as an overlay refuge, will be managed as a seabird colony ('ua'u kani) with periodic visits to monitor the population and continue the long-term banding effort previously performed by Hawai'i DLNR. The monitoring will include 3-6 visits during seabird nesting season (March-November). Very little information is known about the population of Bulwer's petrels nesting on Molokini, thus, the refuge will begin a monitoring program to determine the population parameters. In addition, the Refuge will initiate a native plant restoration plan for native species, particularly *Portulaca molokiniensis* and a few other species found only on that islet, with a minimum of two visits per year during the non-nesting season (December-February). Volunteers will assist with propagating plants in the Refuge's greenhouse and outplanting will be conducted by Federal and State Biologists under a cooperative agreement with Hawai'i DLNR.



## Kakahai‘a NWR Alternative Summary

### Alternative A: Continue Current Management (No Action) (Figure 4)

This alternative assumes no change in current management programs and is considered the base from which to compare the other alternatives. Wetland management at Kakahai‘a NWR has decreased significantly over the past 10 years due to limited staff and funding. Overgrowth of pest plants, including trees and shrubs on levees, has hindered efforts to manage the habitat on a small scale. Sedimentation from the upper watershed has resulted in a degraded wetland. Failure to provide adequate wetland habitat has resulted in an absence of waterbirds; thus, all predator control activities have been halted. Current management at Kakahai‘a is limited to New Pond and along the fence line with herbicide and mechanical treatments to set back pest plant species. Other management includes maintaining access to staff gages and piezometers; monitoring water levels; and replacing the perimeter fence, as funding permits. The Refuge is closed to visitors.

### Alternative B: Restoration and Biodiversity Focus (Figure 5)

This alternative will restore 10.5 acres of wetland habitat at Kakahai‘a NWR. Development of a water source for 5.5 acres in New Pond would be accomplished with the construction of a well, installation of a pump and water distribution line, and repair of the electric panel. Depending on the capability of retaining and manipulating water level in the pond, this alternative is expected to create foraging and resting habitat for ae‘o and ‘alae ke‘oke‘o, and potential nesting habitat for ae‘o. Water would be used to set back vegetation; however, Integrated Pest Management treatments (mechanical and chemical) would continue to be performed during the dry months (October-December). Water level management in both ponds would also enhance invertebrate abundance.

Removal of 5 acres of invasive vegetation would recreate open water habitat in Old Pond. Continuous pest plant management will be needed to discourage regrowth and allow re-establishment of native sedges.



If feasible, the pond topography will be recontoured in areas where California bulrush have been removed. This hemimarsch will create foraging and nesting habitat for 'alae ke'oke'o. Monitoring of waterbirds and predator control would resume, particularly during breeding season. The perimeter fence will be repaired or replaced to minimize some invasive mammals (e.g., axis deer; pigs, dogs) but not all.

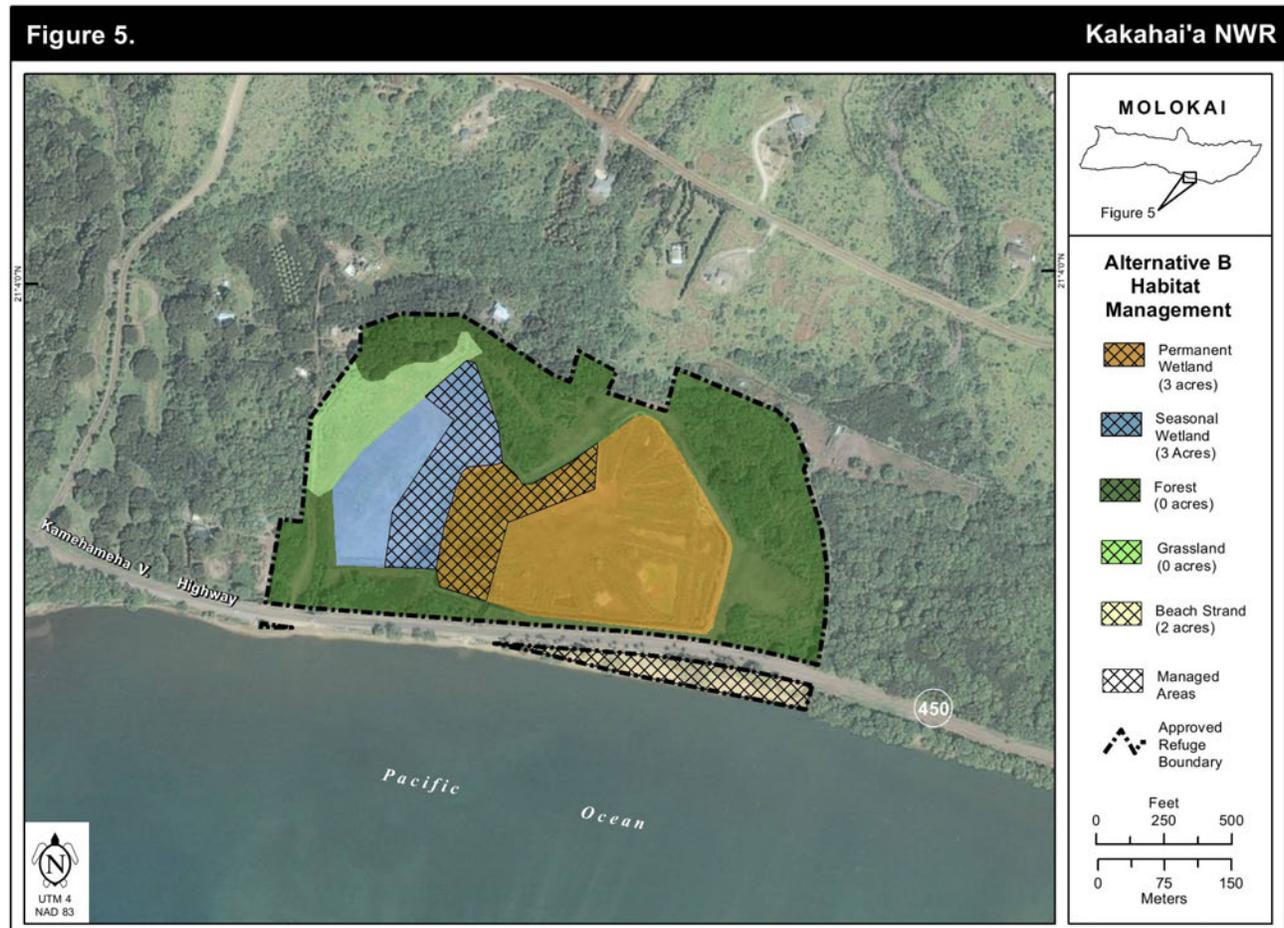
This alternative includes a compilation of available data on the ecology of the wetlands and initiation of research to evaluate the geomorphology, hydrology, and elevation in preparation for a restoration design that would meet the needs of two focal species: ae'o and 'alae ke'oke'o.

The Refuge will remain closed to the public except those authorized through a Special Use Permit for environmental education and interpretation. An earthen platform would be constructed along the road outside the fence for viewing opportunities. Volunteer work groups will be coordinated with refuge staff's visits from Maui.

### Alternative C: Wetland Capacity Focus (Preferred Alternative) (Figure 6)

This alternative would maximize wetland habitat with complete restoration of the 15-acre Old Pond and 5.5 acres of New Pond. Physical restoration of the Old Pond would include: removal of California bulrush and other aggressive non-native species, dredging accumulated sediment, recontouring bathymetry, removal and reconfiguring radial levees, reconstructing perimeter levees, replacing the water control structure, and replacing the pump between the two ponds. Restoration of Old Pond would provide open water and emergent habitat for breeding, foraging, and nesting 'alae ke'oke'o with minimum supplemental water due to the presence of natural groundwater springs.

A well, pump, and water distribution line, and control outlet for New Pond would be constructed and levees would be reconstructed. The capability of flooding and dewatering the ponds will provide semi-permanent and

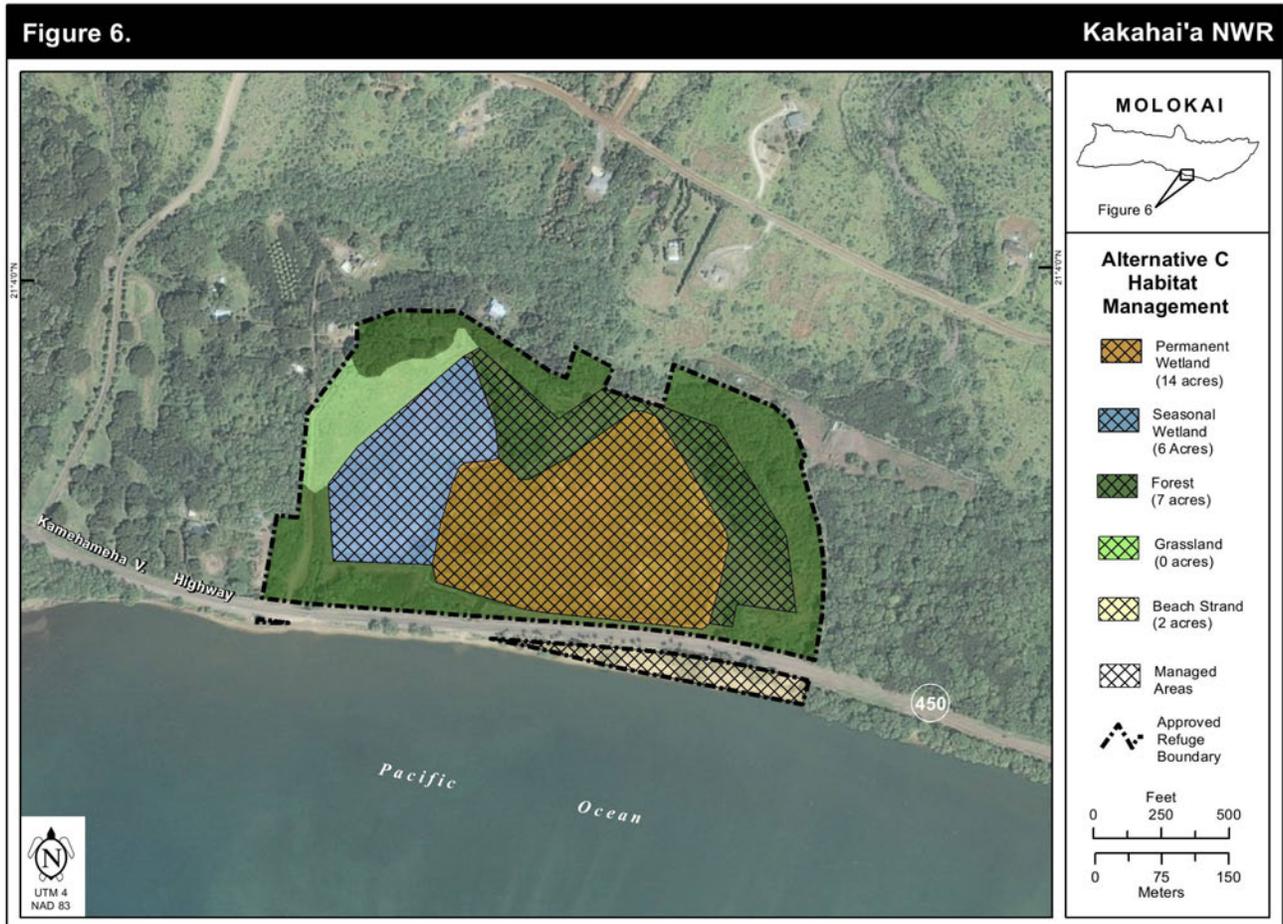


the seasonal habitat for ae'o and 'alae ke'oke'o, and indirectly benefit migratory waterbirds. All monitoring activities would resume with the presence of wetland function. A predator-proof fence would be installed to minimize or eliminate predators from the wetlands. The Service will work with Hawai'i Department of Transportation on planning and design to modify the culvert passing under Kamehameha V Highway to allow water from the upper watershed and periodic dewatering of the wetlands to flow to the ocean naturally without blockage from sand.

Maintaining the wetlands at Kakahai'a NWR will require regular on-site staff presence. The opportunities for visitors to engage in wildlife-dependent recreation may expand depending on staffing, and, at a minimum, a kiosk would be constructed on the earthen mound along the refuge entrance road. Volunteer groups would be coordinated to assist staff with restoration and maintenance activities.

Planning Schedule	
Planning Step:	Target Date:
Planning Update 4 Issued.....	Spring 2011
Draft CCP/EA.....	Spring 2011
Public review/comment on Draft CCP/EA.....	Spring 2011
NEPA Decision.....	Summer 2011
Final CCPs.....	Fall 2011

Schedule dates are tentative and subject to change as CCP planning progresses.





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## How to Contact Us

To provide comments, ask questions,  
or request information, please contact:

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(808) 875-1582

Comments may be faxed to (808) 875-2945 or emailed to:  
[FW1PlanningComments@fws.gov](mailto:FW1PlanningComments@fws.gov).  
Please include "Maui NWR CCP" in the subject line.

Visit the Refuges' Official Websites:  
<http://www.fws.gov/kealiapond>  
<http://www.fws.gov/kakahaia>

*Ae'o / © Tom Dove*