

# Compatibility Determination

## Title

Compatibility Determination for Environmental Education and Interpretation, Hulē‘ia National Wildlife Refuge.

## Refuge Use Category

Environmental Education and Interpretation

## Refuge Use Type(s)

Environmental education (NWRS staff and authorized agents).  
Interpretation (NWRS staff and authorized agents).

## Refuge

Hulē‘ia National Wildlife Refuge

## Refuge Purpose(s) and Establishing and Acquisition Authority(ies)

Refuge Purpose(s):

“... to conserve (A) fish or wildlife which are listed as endangered species or threatened species...or (B) plants...” (Endangered Species Act of 1973, as amended [16 U.S.C. 1531-1544]))

Establishing and Acquisition Authority:

Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544)

## National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System, otherwise known as Refuge System, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

## Description of Use

Is this an existing use?

Yes. This Compatibility Determination (CD) replaces and expands upon the CD for Environmental Education (1994).

## What is the use?

Environmental education (EE) includes on-refuge activities conducted by NWRS staff or authorized agents/partners that use a planned process to foster awareness, knowledge, understanding, and appreciation in students about fish, wildlife, plants, ecology, natural sciences, and refuge management.

Interpretation includes on-refuge activities for refuge visitors conducted by NWRS staff or authorized agents/partners that are designed to foster an understanding and appreciation for natural and cultural resources, and associated management.

## Is the use a priority public use?

Yes

## Where would the use be conducted?

EE and interpretive activities would be conducted on approximately 35 acres of the Refuge. There would be two primary areas of use: (1) within the wetland management units; and (2) within the Refuge lands surrounding the Alakoko Fishpond, 'auwai (freshwater ditches), upland watershed restoration areas adjacent to the fishpond, and the riparian areas along the Hulē'ia River and Punawai Stream.

### **Wetland Management Units:**

EE and interpretive activities within rotational wetland management units (WMUs) are focused on a walking loop around the largest WMU 'A5' that begins at the base yard parking area (Fig. 1). This loop has historically been used for special Refuge-guided hikes and limited Refuge-led EE programs. There is also a small demonstration wetland where students learn through interactive experience.

### **Fishpond, 'auwai, upland, and riparian restoration areas:**

EE and interpretive activities would be conducted within the Refuge lands surrounding the Alakoko Fishpond, 'auwai (freshwater ditches), upland watershed restoration areas adjacent to the fishpond, and the riparian areas along the Hulē'ia River and Punawai Stream (Fig. 2).

The restoration project is a multi-partner effort that encompasses 33 acres, 25 of which are on Refuge lands and waters. The remaining 8 acres within the restoration footprint are owned by Mālama Hulē'ia, a nonprofit Native Hawaiian Organization. The project area is currently dominated by invasive plant species such as red mangrove and non-native grasses. Management is targeted at controlling the mangrove and grasses to help restore native wetland habitat and function (e.g., hydrologic connectivity).

## When would the use be conducted?

In coordination with Refuge biologists, Hulē'ia NWR may be available for EE and interpretation year-round during daylight hours. Availability of certain areas will vary to avoid bird breeding and molting cycles in the different units. Nēnē (Hawaiian goose) and ae'ō (Hawaiian stilt) breed seasonally. However, koloa maoli (Hawaiian duck), 'alae 'ula (Hawaiian moorhen), and 'alae ke'oke'o (Hawaiian coot) species peak during their breeding season but can breed year-round (Figure 3). Limited evening or early morning programs may be offered dependent on staff or partner availability.

## How would the use be conducted?

Hulē‘ia NWR is currently open to limited Refuge-guided EE programs but closed to all other public uses. The Refuge is closed to self-guided public access to protect threatened and endangered birds, and this status is not proposed to change. We propose to expand environmental education and interpretation opportunities, by establishing an EE and interpretation program for Hulē‘ia NWR. The Refuge would remain closed to all other public uses. Visiting groups may perform restoration or monitoring activities in conjunction with EE and/or interpretation. These activities would be overseen or led by Refuge personnel, a volunteer, partner, or other Refuge-authorized agent.

### **WMUs:**

The EE programs centered around the WMUs would serve at least 60 local elementary school students annually. Environmental education activities at the Refuge would use temporary facilities, including pop-up shelters, viewing blinds, and portable restrooms. Permanent improvements for EE may be made in the future when other facility changes are made at the Refuge (access road improvements, bus parking, and storage for educational equipment and supplies). Guided hikes, conducted quarterly, could accommodate approximately 60 people per year (up to 15 people per hike).

These WMU EE programs would occur primarily in conjunction with Friends of Kaua‘i Wildlife Refuges activities and/or during special events (National Wildlife Refuge Week, Migratory Bird Day, World Wetland Day, etc.). Guided hikes would be developed thematically to relay information about the Refuge purposes, programs, habitats, and management, as well as existing partnerships.

### **Fishpond, ‘auwai, upland, and riparian restoration areas:**

The EE program for the Alakoko Fishpond and associated riparian restoration areas would primarily be conducted by partners in the Mālama Hulē‘ia organization, in close coordination with the Refuge. Mālama Hulē‘ia EE would include the following topics: ecosystem restoration; native fish, wildlife, and plants; Hawaiian cultural values and practices; and loko i‘a (native Hawaiian fishponds), and typically the programs would all have a component of volunteer or service work. In general, groups would be split into thirds and participate in a rotation of three stations:

1. Station 1 - Loko i‘a learning focus - an educational tour learning about Hawaiian loko i‘a, ecosystems, and history.
2. Station 2 - Restoration focus - learning about the native plant communities, the importance of the hydrological connections to fresh, brackish, and salt water, the interconnections of species from the microscopic to the large keystone species, and how it all relates to restoring Alakoko and Refuge habitat.
3. Station 3 - Management focus - Learning about the needs to restore and maintain a native ecosystem through weeding and learning about invasive species.

During the school year, up to four school groups could visit the Mālama Hulē‘ia property and the adjoining Refuge per week. Summer programs with up to 35 participants per week, special events (up to 4 times per month), and monthly community workdays (15–100 participants each). Notification will be coordinated with the Refuge. In total, up to 1,400 students and 1,200 volunteers would potentially access the Refuge restoration areas for this EE and interpretation program annually.

Parking would be on Mālama Hulē‘ia property or another off-refuge site and access to the Refuge would occur primarily by foot via the main access road that follows along the Alakoko Fishpond, or by traversing the fishpond wall (owned by Mālama Hulē‘ia). While the entirety of the proposed restoration area adjacent to the fishpond is available for EE and interpretation, focus would be in the areas closest to the fishpond.

While on Refuge lands, EE and interpretive hiking group size (including students, teachers, parents, and others participating in the activity) would be limited to 25 individuals per group and would need to be guided by Refuge personnel or Refuge-authorized agents/partners who are fully trained on the biology and behaviors of federally listed species and sensitive habitats, as well as safety.

Programs accessing refuge lands must be led by Refuge-authorized agents/partners, advance notice of groups and sizes will be provided to the Refuge Manager at least 14 days prior to the event. A Special Use Permit (SUP) with stipulations will be issued for this organization’s education, interpretive, and restoration program.

**Why is this use being proposed or reevaluated?**

Environmental education and interpretation are identified as priority public uses in the National Wildlife Refuge Administration Act of 1997 (16 USC 668dd).

**Availability of Resources**

The Refuge currently has adequate facilities, budget, and staff to support the annual costs associated with the proposed EE and interpretation on the Refuge. Mālama Hulē‘ia and other partner activities on Refuge lands and waters will be managed via SUP.

Table 1. Costs to Administer and Manage EE and Interpretation

Category and Itemization	One-time Cost	Recurring Annual Expenses
Pop-up shelters/ viewing blinds	\$1,000	--
Portable restrooms	--	\$1,000
Staff time (LE/admin)	--	\$16,000
Maintenance	--	\$6,000
Biological Monitoring	--	\$4,000
Total one-time expenses	\$1,000	
Total recurring annual expenses		\$27,000

## Anticipated Impacts of the Use

There are no anticipated effects to air and water quality, geology, soils, floodplains, visitor use and experience, wilderness, socioeconomics, or refuge management and operations. Therefore, impacts to these resources will not be considered further. The endangered 'ōpe'ape'a (Hawaiian hoary bat) is nocturnal, active only from sunset to sunrise when the Refuge is closed, therefore daylight EE and interpretation would have no effect to this species.

### Potential impacts of a proposed use on the refuge's purpose(s) and the Refuge System mission

The Refuge supports the recovery of threatened and endangered Hawaiian waterbirds as well as the conservation of migratory birds and native flora and fauna. Groups of people using the Refuge for EE and interpretation have the potential to disturb listed waterbird species, and associated habitat, for which the Refuge was established to protect (see short-term impacts below). However, we propose measures to monitor the use and minimize impacts to listed species. Environmental education and interpretation would be expected to increase participants' understanding of and appreciation for native Hawaiian wildlife, and therefore support both Refuge purposes and the mission of the Service. In addition, restoration or monitoring activities conducted in conjunction with EE and interpretation would assist in fulfilling the Refuge purpose of protecting listed species by creating suitable habitat for nēnē and waterbird species within and adjacent to the Refuge.

### Short-term impacts

Short term impacts to endangered waterbirds and other bird species may occur when visitors and birds are present at the same time. Nēnē, ae'o, and 'alae ke'oke'o appear to be tolerant of some disturbance during nonbreeding periods. However, they are all more vulnerable to disturbance when breeding or in heavy molt. Koloa maoli and 'alae'ula flush or move quickly into dense cover when disturbed (Gutscher-Chutz 2011). Although individual birds may vacate the immediate area when disturbed, they would only be temporarily displaced due to the presence of suitable and abundant habitat in the vicinity. It is unlikely the birds would relocate.

Participants could also cause trampling of native plants, erosion, and introduction or spread of exotic species, including invertebrates, plants, and pest species. All of these impacts would adversely affect native fish, wildlife, plants, and their habitats. Litter from EE participants' snacks and lunches may attract invasive rodents or insects and exacerbate current threats to ground nesting birds and chicks (e.g., invasive ants have been observed eating soft parts and killing seabird chicks nearby). Eating would only be allowed inside buildings, inside buses, or off-refuge, so this potential impact would be minimal. The degree of actual effects upon reproduction, survival of individuals, and diversity and abundance of native species (community health) would depend on specific circumstances, timing, frequency, and location of these uses.

Refuge personnel or other Refuge-authorized agent(s)/partners would lead visits or oversee special events. They would ensure that groups will be kept far enough away to avoid disturbing the birds (ideally more than 100 feet) and would retreat if birds show any signs of agitation. Any potential impacts to threatened and endangered

birds will be minimized by stipulations outlined within this compatibility determination and associated SUPs, and by including clear maps depicting areas of authorized access.

Hulē‘ia NWR is rich in pre-contact and historic resources. Extensive and unregulated public use has the potential to adversely affect these resources. As noted above, Refuge personnel, volunteer(s), or other Refuge-authorized agent(s)/partners would lead visits or oversee special events. They would make special efforts to ensure that impacts to cultural resources from their visits, activities, and events were avoided. It is not expected that, by themselves, environmental education and interpretation activities would have negative effects on cultural resources. Any potential impacts to cultural resources will be mitigated by stipulations outlined within this compatibility determination and associated SUPs and by including clear maps depicting areas of authorized access.

### Long-term impacts

Long-term impacts to wildlife resources may include altered behavior, vigor, productivity, or death of individuals; altered population abundance, distribution, or demographics; and altered community species composition and interactions. Disturbance can cause nest desertion and affect survival of individual birds, their eggs, nestlings, or broods and alter behavior of nonbreeding waterbirds. Habituation to some types and levels (intensity and frequency) of human disturbance appears to vary among species, within species, between resident and migratory populations, and potentially between inexperienced and experienced breeders. Wildlife is often less disturbed by routine human activities that repeatedly occur along defined routes (e.g., trails), especially frequent disturbance that does not involve direct contact or other threat, compared with those activities that occur irregularly and outside predictable paths (Blanc et al. 2006). As noted above, nēnē, ae‘o, and ‘alae ke‘oke‘o appear to be tolerant of some disturbance during nonbreeding periods, whereas koloa maoli and ‘alae‘ula are much less tolerant (Gutscher-Chutz 2011). We therefore would expect that nēnē, ae‘o, and ‘alae ke‘oke‘o would tend to become habituated to disturbance that occurs in a predictable area, whereas koloa maoli and ‘alae‘ula would be more likely to move to areas of the Refuge that are not used by groups engaging in EE and interpretation.

## Public Review and Comment

Refuge staff met in person with Mālama Hulē‘ia to coordinate development of this document. The draft compatibility determination was available for public review and comment for 15 calendar days between December 12–27, 2024. The public was advised of this comment opportunity through local news media and emails to adjacent landowners. State natural resource agencies and Native Hawaiian Organizations were provided notice of availability. No comments were received from the public.

## Determination

Is the use compatible?

Yes

## Stipulations Necessary to Ensure Compatibility

1. All participants in environmental education and interpretation programs must be accompanied by Service personnel or Refuge- authorized agents. Self-guided activities are prohibited.
2. EE and interpretation guides will not approach, feed, or disturb threatened and endangered (T&E) species. Groups will be kept far enough away to avoid disturbing the birds (ideally 100+ feet). If the birds show any sign of agitation as a result of human presence, the group will quietly and slowly retreat until the birds no longer appear disturbed.
3. A 100-foot buffer will be established and maintained around all active nests and /or broods until the chicks/ducklings have fledged. No potentially disruptive activities, vehicle or foot traffic, or habitat alteration may occur within this buffer.
4. The Refuge will monitor the effects of participant activities on wildlife and re-evaluate the program annually, with a larger discussion and revision of this document as needed.
5. EE and Interpretive hike groups must remain on designated roads, parking lots and trails and are prohibited from straying outside the areas depicted on the map and beyond the closed area signs.
6. For programs led by Refuge staff, teachers would be required to contact the Refuge at (808) 828-1413 to schedule programs at least 45 days prior to a proposed visit. Visitor services staff will set up schedules at the beginning of the school year.
7. For programs led by Mālama Hulē‘ia or any other partner, an SUP with stipulations will be issued for this organization’s overall education program. An annual calendar of planned EE, interpretation, and volunteer work groups must be provided to refuge management at the time of SUP request. The names of adult participants, number of participants, location(s) of planned activities, and dates and times of requested access for school or other work group activities on Refuge lands would be submitted for approval confirmation from refuge management at least 2 weeks in advance of the planned access or activity. A meeting will be held at least annually to review the SUP, partner programs, and/or partnership agreement.
8. EE, interpretive, and restoration work groups entering the Refuge (including students, teachers, parents, and others participating in the activity) would be limited to 25 individuals per group (including students, teachers, parents, and others participating in the activity) at various workstations or locations to minimize disturbance and/or take of T&E species and would need to be guided by refuge personnel or refuge-authorized agents/partners.



9. The Refuge will help coordinate information sharing sessions for volunteers and partners to obtain Refuge-authorization. Refuge-authorized agents will be required to attend an initial mandatory training, where they will be provided information about the Refuge System, the Refuge, its purposes and goals, natural and cultural resources of concern, rules and regulations, T&E species avoidance and minimization measures, and any hazardous conditions. Mālama Hulē'ia and other partners conducting EE and interpretation on the refuge will provide information and share knowledge with Refuge staff to enhance the partnership between organizations. Additional training will be provided for any updates or policy changes as needed.
10. The Refuge would be available for guided EE and interpretation activities during daylight hours only, unless pre-approved in writing by Refuge Manager in advance of scheduled program.
11. To reduce harassment, disease, and/or death of native wildlife, or transport of exotic or pest plant parts, insects, parasites, other undesirable species, or diseases, visitors participating in EE or interpretive hikes will undertake biosecurity measures (i.e., boot brush station and sanitization protocols to reduce seed and other invasive pest movement).
12. Participants to programs are prohibited from bringing dogs, cats, or other pets with them to the Refuge. An exception is a service animal, as defined under Title II and Title III of the American Disabilities Act (1990). The service animal must be on a leash.
13. Construction of new or maintaining existing structures on the Refuge is prohibited except with prior written approval of the Refuge Manager.
14. Visitors are prohibited from collecting and removing any archaeological or historic artifacts, abiotic or biological specimens or samples, or mementos from the Refuge.
15. Littering, dumping refuse, abandoning equipment or materials, or otherwise discarding any items on the Refuge is prohibited.
16. Visitors are only allowed to bring water into the Refuge and are restricted to eating snacks and lunches off the Refuge, inside buildings, or inside buses.

No exceptions may be made to any of these stipulations without written approval of the Refuge Manager. In addition to the stipulations listed above, visitors are required to comply with Refuge System and other applicable laws, regulations, and policies. The Refuge reserves the right to add to or otherwise modify the stipulations listed above to ensure the continued compatibility of this use.



## Justification

The stipulations outlined above would help ensure that the use is compatible on Hulē'ia National Wildlife Refuge. Environmental education and interpretation, as outlined in this compatibility determination, would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the refuge. Based on available science and best professional judgement, the Service has determined that EE and interpretation at Hulē'ia NWR, in accordance with the stipulations provided here, would not materially interfere with, or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose of the Refuge. Appropriate and compatible EE and interpretation at the Hulē'ia NWR can help the public develop an appreciation for wetlands, wildlife, and habitats that the U.S. Fish and Wildlife Service works to protect.

## Signature of Determination

Refuge Manager Signature and Date

## Signature of Concurrence

Assistant Regional Director Signature and Date

## Mandatory Reevaluation Date

2040

## Literature Cited/References

Blanc, R., M. Guillemain, J-B. Mouronval, D. Desmonts, and H. Fritz. 2006. Effects of Non-Consumptive Leisure Disturbance to Wildlife. *Rev. Ecol. (Terre Vie)* Vol. 61, 117-133.

Gutscher-Chutz, J.L. 2011. Relationships Among Aquatic Macroinvertebrates, Endangered Waterbirds, and Macrophytes in Taro Lo'i at Hanalei National Wildlife Refuge, Kaua'i, Hawai'i. Master's Thesis. South Dakota State University, SD.  
<http://openprairie.sdstate.edu/etd/448>

Smith-Castro, J.R. and A.D. Rodewald. 2010. Behavioral responses of nesting birds to human disturbance along recreational trails. *Journal of Field Ornithology* 81(2):130-138.

(USFWS) U.S. Fish and Wildlife Service. 2011. Recovery Plan for Hawaiian Waterbirds, Second Revision. Oct 28, 2011



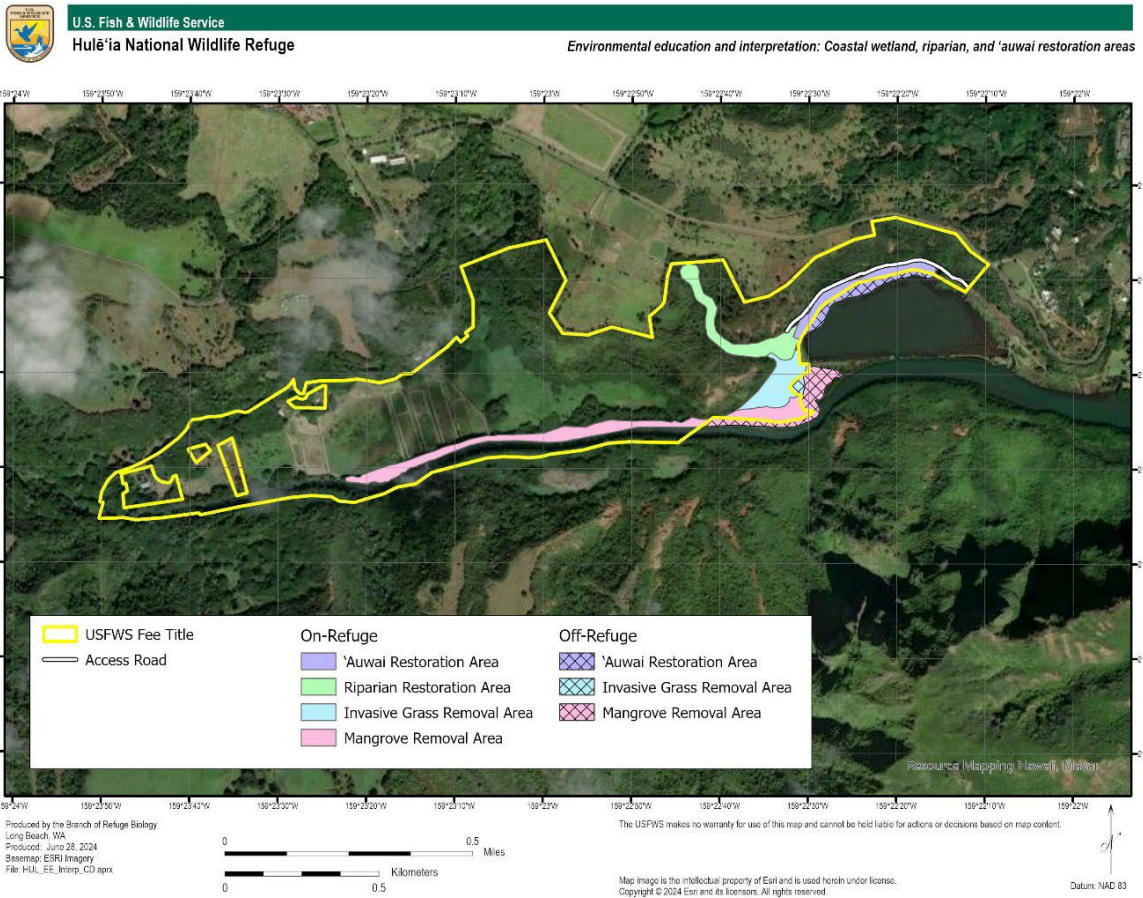
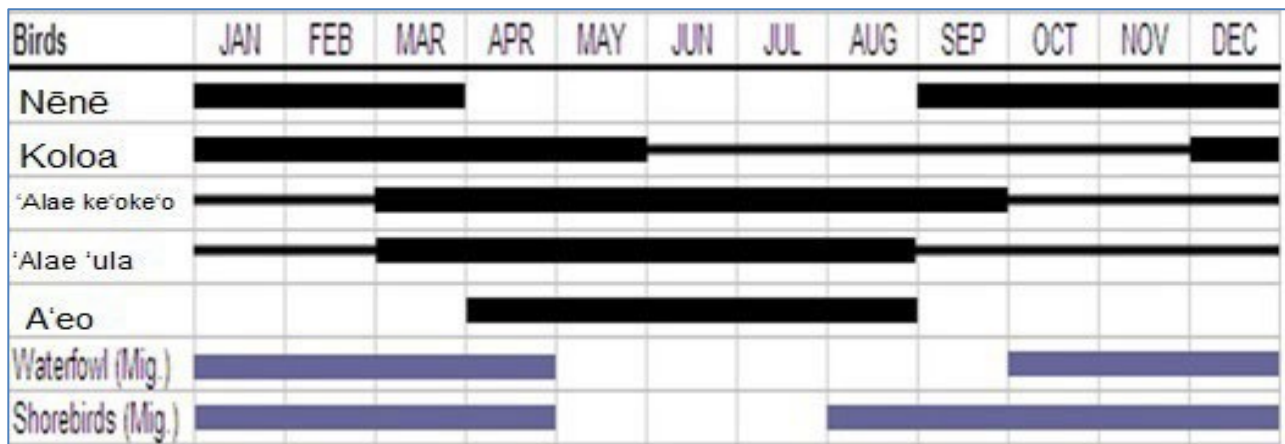


Figure 2



Breeding periods of focal species of threatened and endangered Hawaiian waterbirds

Figure 3