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Wetland Conservation in Hawai'i and the Need for Flagship Species

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Figure 1: Cultural practitioners, conservationists, educators and other members of the public celebrate World Wetlands Day at Keawawa wetland and Hāwea Heiau, in Maunaloa, O'ahu on February 3, 2018.

ABSTRACT

Wetlands represent a unique and important part of Hawai'i's ecological and cultural history, mediating the interactions of terrestrial and marine ecosystems and providing diverse food and other resources to traditional societies. Wetland loss and degradation on the Hawaiian Islands have been severe since European colonization and subsequent landscape change has altered the interactions of terrestrial and offshore marine ecosystems, with negative impacts of cultural and economic importance. Wetland conservation and restoration may be key to reducing these impacts as well as adapting Hawai'i's cities to future climate change. Unfortunately, public interest in wetland conservation appears limited compared to that in other ecosystems like coral reefs and forests. I propose that the conservation profile of Hawaiian wetlands could be increased using flagship species, and that Hawai'i's endemic waterbirds, especially the 'Alae 'ula (Hawaiian

gallinule, *Gallinula galeata sandvicensis*, formerly *G. chloropus sandvicensis*), Ae'o (Hawaiian stilt, *Himantopus mexicanus knudsenii*), and 'Alae ke'o ke'o (Hawaiian coot, *Fulica alai*) are excellent candidate species because of their endemism, identifiability, accessibility for viewing, and cultural connections with traditional Hawai'i. Such flagship species could contribute to building a movement for wetland conservation in Hawai'i, which in turn has major implications for climate adaptation and the health of marine coastal systems in the state.

Wetlands in Hawaii – Links to the Past

On February 3, 2018, the Livable Hawaii Kai Hui, in collaboration with Wetlands International, convened a diverse group of conservation organizations, landowners, and members of the local community at the Keawawa wetland and Hāwea heiau in Maunaloa to foster collaborative efforts around wetland conservation in Hawai'i (Figure 1). This public event, part of global World Wetlands Day celebrations, recognized the cultural and ecological value of wetland habitats in Hawai'i, with a focus on their importance for the future sustainability of Hawai'i's cities. Wetlands, with their powerful links to local hydrology, are among the most well-recognized and economically valuable providers of ecosystem services (MEA 2005), including shoreline stabilization, groundwater recharge, flood control and attenuation, and runoff filtration (reviewed in Clarkson *et al.* 2013). Freshwater wetlands have linked terrestrial and marine ecosystems throughout the ecological history of the archipelago (Stone and Stone 1989; Ziegler 2002; Figure 2) and were an important part of land tenure and food production for native Hawaiians (Devick, 2007). Marshes, estuaries, floodplains, and other *muliwai* (river mouths, or lentic water bodies fed by streams; Krauss 1993) were managed and enhanced as the *makai* (lowland or coastal) portion of Hawaiian *ahupua'a* (watershed-based land management units). Managed wetlands like taro *lo'i* (flooded fields) and

fishponds were largely responsible for much of the agricultural production of societies on O‘ahu, Kaua‘i, and Molo-ka‘i, and have been credited with providing the food resources needed to support the vibrant and populous Polynesian societies that developed in Hawai‘i (Vitousek *et al.* 2004).

Wetlands in Hawaii – The Present and Future

Changes in land management after the arrival of Europeans led to the draining and filling of many freshwater wetlands and channelization of streams, eliminating many floodplains and other transient wetland ecosystems (Callies 1985; Meier *et al.* 1993). Coastal and estuarine wetlands were lost to navigation projects and the development of ports, military installations, tourist venues, and residential development (Henry 2006). Wetland losses were as high as 65% on O‘ahu (van Rees and Reed 2014), and 75% of remaining wetlands are badly degraded, with impaired ecological function (Henry 2006). Climate change—especially sea level rise—is anticipated to have adverse effects on Hawaiian wetlands through salinization, erosion, and flooding during storm events (Kane *et al.* 2015; van Rees and Reed, 2018), putting these valuable ecosystems at even greater risk.

The loss of these ecosystems is especially concerning given that wetland ecosystems are considered a key part of urban sustainability and climate resilience (Kumar *et al.* 2017), especially on oceanic islands (Wallsgrrove and Penn, 2012). As Hawai‘i’s political, economic, and population center, the island of O‘ahu is especially vulnerable to losses from sea level rise, but has lost most of its wetland ecosystems around densely urbanized areas, where their protective services are needed most (van Rees and Reed, 2014, 2015). Waikiki, a world-famous tourist hub, was formerly an extensive wetland along O‘ahu’s southern coast, but its reclamation was viewed as exchanging mosquito breeding grounds for a multi-million dollar boost to the state economy (Lum and Cox 1991; Wiegel 2008). Recent climate resilience initiatives on O‘ahu have focused on trying to restore hydrological dynamics for flood and pollution control, with an emphasis on permitting some flooding beyond the Ala Wai canal (Okamoto 2016). O‘ahu’s supply of freshwater is an additional concern for future sustainability, given Honolulu’s burgeoning population, dependence on groundwater, and reductions of aquifer replenishment due to landscape change (Ridgley and Giambelluca, 1991; van Rees and Reed, 2015). Wetlands’ potential to increase groundwater recharge may thus further increase their relevance to the future sustainability of Hawaiian cities. Although uncertainty is central to any discussion of future climate scenarios, the relevance of wetland conservation to Hawai‘i’s climate future may be attracting some attention. In 2016, the City and County of Honolulu established the Office of Climate Change, Sustainability and

Resiliency, dedicated exclusively to addressing climate change risks on the island. Notably, the Office was represented at the 2018 World Wetlands Day event.

Wetland loss in Hawai‘i has likely also exacerbated land-based impacts on coral reefs and offshore waters, ecosystems of major cultural and economic importance for the islands (Friedlander 2004; HCA 2015). Urbanization, accompanied with wetland loss and stream channelization, has led to downstream flooding and faster drainage, ultimately causing contamination of coastal waters with sediment, nutrients, pesticides, and heavy metals (Banner 1974; Lapointe and Bedford 2011). This runoff contaminates recreational fisheries and coastal waters (Hunter *et al.* 1995; McCarthy *et al.* 2008) and increases mortality in corals (Fabricius 2005). Public concern over the degradation of these resources is becoming increasingly apparent through stakeholder-based research (HCA 2015), and the enormous monetary value of Hawai‘i’s coral reefs (Cesar and Beukering, 2004) adds serious economic implications to these continuing threats. As a key intermediate in the exchange of materials between terrestrial and marine systems, intact wetlands could counteract offshore runoff effects by reducing flooding and flow rates, metabolizing nutrients, and allowing heavy metals and sediments to settle before they can reach the ocean (Engelhardt and Richie 2001).

Creating a Wetland Conservation Movement – Flagship species

Despite their evident importance, wetlands appear to receive relatively little public attention when compared to other Hawaiian ecosystems. Out of all 1,200 abstracts from the last 5 Hawaii Conservation Conferences (2012–17), 40 (3.3%) referred to wetland and estuarine systems or their dependent biota, while 184 (15.3%) and 135 (11.25%) pertained specifically to forest and coral reef ecosystems, respectively. The words “coral”, “reef”, and “forest” appear in these abstracts 749, 830, and 1,248 times, while the word “wetland” appears 127 times. It is difficult to reconcile the cultural and economic value of wetland ecosystems—and their ability to protect other imperiled habitats—with their lack of recognition by even the most conservation-conscious members of the Hawaiian community. This bias is not limited to Hawai‘i; a recent global review found that conservation research on terrestrial and marine ecosystems vastly overshadows work on their freshwater counterparts (Jucker *et al.*, 2018). An emerging development in conservation science, conservation marketing (Wright *et al.* 2015) suggests that social marketing may be the problem: the myriad benefits of wetland ecosystems are insufficiently recognized because they are not being



Figure 2: Kawainui marsh, one of the largest remaining freshwater palustrine wetlands in Hawai‘i. Wetlands like these are an important intermediary between the terrestrial and offshore ecosystems of the Hawaiian Islands, and their restoration may be an important part of protecting coral reefs and making Hawaiian communities resilient to climate change.

properly communicated to the public.

Flagship species (charismatic or recognizable species that can draw attention and funding to more widespread environmental issues) are a valuable tool for conservation marketing (Caro and O’Doherty 2001). Evidence of the efficacy of flagship species abounds in conservation case studies, which include flagship carnivores and rodents (White *et al.* 1997), turtles (Frazier 2005), and primates (Dietz *et al.* 1994). Hawaiian forest and coral reef ecosystems likely benefit from attention paid to charismatic species that depend on them (e.g., I‘iwi, *Drepanis coccinea*; Palila, *Loxioides bailleui*; Humuhumunukunukuāpua‘a, *Rhinecanthus rectangulus*; Kīkākapu, *Chaetodon lunula*), but Hawaiian wetlands lack a well-advertised “face” to represent them to the public. The name of Hawai‘i conjures up images of beaches, coral reefs, and staggering mountains, but rarely marshes or estuaries, which have a reputation for breeding mosquitoes, having offensive odors, and being mucky and undesirable (Nagle 2008). Lack of public recognition of Hawai‘i’s wetlands represents an erasure of its ecological and cultural past, and limits economic and personal investment in conserving these ecosystems and their endemic flora and fauna.

A recent study on Hokkaido (Japan) found strong evidence for the ability of wetland-breeding birds (Red-crowned cranes, *Grus japonensis*) to raise attention and funding for wetland restoration projects (Senzaki *et al.* 2017). Hawai‘i’s endemic waterbirds may be equally

effective for raising the profile of wetland restoration in the archipelago. The authors explained that the prominence of Red-crowned cranes in local culture, and their national recognition made them effective ambassadors for a wetland restoration initiative that had other ecological and societal benefits. Additional criteria for effective flagship species include endemism, at-risk conservation status, existing symbolic usage, role in traditional knowledge, and having a name in the local language (Home *et al.* 2009).

Hawaiian Waterbirds as Flagships for Wetland Restoration

Among Hawaiian waterbirds, the ‘Alae ‘ula (Hawaiian gallinule, *Gallinula galeata sandvicensis*), Ae‘o (Hawaiian stilt, *Himantopus mexicanus knudsenii*), and ‘Alae ke‘o ke‘o (Hawaiian coot, *Fulica alai*) share the flagship characteristics identified in Senzaki *et al.* (2017), making them an untapped resource for marketing wetland conservation in the state. They have distributions spanning multiple islands and inhabit open, visible habitats where they are easy to distinguish from other bird taxa. They are listed by both the state and federal government as endangered (Hawaii DOFAW 2015; USFWS 2011). All three species have Hawaiian names, and the two ‘Alae feature prominently in several Polynesian legends (Kalakaua 1887; Westervelt 1910). They also have contemporary recognition through, among other examples, a restaurant (Mudhen Water) and street (Waialae Avenue) on O‘ahu. The proximity of wetland habitats to human settlement means that frequent first-hand viewing of Hawaiian waterbirds is possible for a wide portion of the public. As evidenced by urban wetlands such as Hamakua Marsh on O‘ahu, these birds can persist in viable numbers in easily accessible locations, living out their life cycles before human observers. ‘Alae ‘ula in particular can become tame with frequent human interaction (for example, at Keawawa wetland and Waimea Valley on O‘ahu) and may act as valuable ambassadors for wetland conservation in general through their close interactions with the public. The limited, discrete distribution of Hawaiian wetlands makes waterbirds easy to locate and subsequently visit, and because they are obligate wetland breeders and highly territorial (Chang 1990), their distributions are predictable and they can reliably be found in the same locations across time. This increases the potential for repeated visual encounters and the establishment of positive associations with the birds among the public. The gradual but steady recovery of these waterbird taxa throughout the last 50 years (Reed *et al.* 2011) is also a marketable conservation success story; such positive messages are known to have a greater impact on public thinking and behavior (Kim and Kim 2014) and have become a major focus in

modern conservation (Balmford and Knowlton, 2017).

The restoration of Hawaiian wetlands is an under-recognized conservation priority with special importance for linking Hawai'i's past with its climate-uncertain future. To mitigate the ecological damage done to these and other important ecosystems with which they interact, and to protect Hawai'i's coastal population from the pressures of a changing climate, conservationists must use every tool available to increase the profile of wetlands in the eyes of the public and major political decision-makers. I suggest that Hawai'i's endemic waterbirds could constitute a major part of a winning strategy for "selling" wetland restoration in the state and reaping the multifarious benefits such actions will have for the islands.

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An endangered Hawaiian Stilt seen at James Campbell National Wildlife Refuge on Oahu.
Photo credit Rich Downs.

Proposed Changes to Endangered Species Act Threatens Hawai'i Birds

The below discussion refers to the *Endangered Species Act: Findings, Purposes, and Policy* following article.

The Endangered Species Act (ESA) is our nation's most powerful tool for protecting wildlife. Protections provided by the Act have succeeded in preventing the extinction of 99% of the species listed, and benefitted many other species that depend on the landscapes it's helped to protect. Today the law currently protects about 100 U.S. bird species, including the Hawaiian Black-necked Stilt, Hawaiian Coot, Nene, 'Alala, 'Io, Oahu 'Elepaio, Palila, Akepa, Po'o-uli, Hawaii Creeper, 'Akiapola'au, 'Akohekohe, Laysan Duck, Nihoa Millerbird, and Nihoa Finch. The law prohibits harm to listed species, designates "critical habitat", and requires a recovery plan with population goals and specific management activities.

Yet despite the law's stellar track record and widespread popularity, there are concerted efforts to weaken it—from a suite of bills in the U.S. House to proposed regulations by the administration. The most important measure of any proposed change to a bedrock environmental law, however, is whether it enhances science-based decision-making as well as air, water, or wildlife conservation. By this measure, the net impact of both congressional and administrative proposals fails to meet these standards. Key provisions put forward by the administration and in legislative proposals fail to address the needs of imperiled birds and would undermine the ESA's purpose and effectiveness. Some of the most concerning proposals would remove automatic protections for species that are newly listed as "threatened", allow publication and analyses of economic impacts that distract and detract from the law's dependence on science, and make it harder to designate unoccupied habitat as "critical habitat" and easier to avoid designating "critical habitat" at all.

The U.S. Fish and Wildlife Service and NOAA Fisheries are jointly proposing revisions to regulations that implement portions of the Endangered Species Act (ESA). Comments are due September 24, 2018. These changes will profoundly impact our ability to protect the many threatened and endangered species in the Hawaiian Archipelago. Hawaii Audubon Society will be sending in comments in behalf of our members. However, we urge you to send in comments electronically as well.

To send comments:

- 1) Go to U.S. Fish & Wildlife Endangered Species website at:
https://www.fws.gov/endangered/improving_ESA/regulation-revisions.html
- 2) Click on the link to the proposal* you would like to comment.
- 3) Click on the "Comment Now!" button.

* ESA regulation revisions available for public comment:

1. Revision of the Regulations for Listing Species and Designating Critical Habitat
2. Revision of the Regulations for Prohibitions to Threatened Wildlife and Plants
3. Revision of Regulations for Interagency Cooperation

ENDANGERED SPECIES ACT: FINDINGS, PURPOSES, AND POLICY

(a) FINDINGS.—The Congress finds and declares that—

- (1) various species of fish, wildlife, and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation;
- (2) other species of fish, wildlife, and plants have been so depleted in numbers that they are in danger of or threatened with extinction;
- (3) these species of fish, wildlife, and plants are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people;
- (4) the United States has pledged itself as a sovereign state in the international community to conserve to the extent practicable the various species of fish or wildlife and plants facing extinction, pursuant to—(A) migratory bird treaties with Canada and Mexico; (B) the Migratory and Endangered Bird Treaty with Japan; (C) the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere; (D) the International Convention for the Northwest Atlantic Fisheries; (E) the International Convention for the High Seas Fisheries of the North Pacific Ocean; (F) the Convention on International Trade in Endangered Species of Wild Fauna and Flora; and (G) other international agreements; and
- (5) encouraging the States and other interested parties, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs which meet national and

ENDANGERED SPECIES ACT: FINDINGS, PURPOSES, AND POLICY (continued)

international standards is a key to meeting the Nation's international commitments and to better safeguarding, for the benefit of all citizens, the Nation's heritage in fish, wildlife, and plants.

(b) **PURPOSES.**—The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section.

(c) **POLICY.**—

(1) It is further declared to be the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.

(2) It is further declared to be the policy of Congress that Federal agencies shall cooperate with State and local agencies to resolve water resource issues in concert with conservation of endangered species.

****As amended by P.L. 94-325, June 30, 1976; P.L. 94-359, July 12, 1976; P.L. 95-212, December 19, 1977; P.L. 95-632, November 10, 1978; P.L. 96-159, December 28, 1979; P.L. 97-304, October 13, 1982; P.L. 98-327, June 25, 1984; and P.L. 100-478, October 7, 1988; P.L. 107-171, May 13, 2002; P.L. 108-136, November 24, 2003.**



Endangered 'Apapane. Photo by Lucas Behnke

Upcoming Events and Field Trips

EVENTS

Hawai'i Island Festival of the Birds

When: September 14 - 17, 2018

Where: Sheraton Kona Resort and Spa at Keauhou Bay

Description: Third annual Hawai'i Island Festival of Birds. The 2018 theme is "Back from the Brink: Hawai'i's Battle Against Extinction." The program will highlight the ongoing efforts to protect the most rare bird species found in the Aloha State. The schedule includes a community fair, film festival, bird excursions and presentations by Hawai'i naturalists and bird experts. There will also be evening events and entertainment such as the "Brews, Birds and Binos," featuring a street food-inspired menu, craft beers, live music and the festival's signature auction.

Information: www.birdfeshawaii.org.

Hawaii Audubon Members will receive 10% off birding tours and 15% off Film Festival/Opening Reception and "Brews, Birds, & Binos".

Give Aloha: Foodland's Annual Community Matching Gifts Program

When: September 1 - 30, 2018

Where: Foodland Stores across Hawaii (Foodland, Foodland Farms, Sack N Save)

Description: While shopping at any Foodland store during the month of September, please make a donation to the Hawaii Audubon Society. A portion of your donation (up to \$249) will be matched by Foodland Hawaii. Use your Maika'i Card (you can sign-up at register) and name Hawaii Audubon Society as the recipient of your donation. Thank you!

Upcoming Events and Field Trips

EVENTS (continued)

Hawaii Audubon Society's Annual Meeting and Members Dinner

Wednesday, Nov. 28, 2018, 6:00 PM – 9:00 PM
Waikiki Yacht Club

This event is open to the public.

Please join the Hawaii Audubon Society's Board of Directors for a delicious buffet dinner, no-host cocktails, and a fascinating presentation by local journalist and author Susan Scott.

Susan will discuss writing her latest book, "Hawai'i's White Tern, Manu-o-Kū, An Urban Seabird", and also describe a compelling grass-roots effort in her talk entitled: "It Takes a Hui: How citizen scientists, researchers, government employees, educators, wildlife groups, writers, photographers, tree trimmers, birders, office workers, condo dwellers and others have come together to help Honolulu's White Tern." Susan's book will be on sale at this event.

Advance ticket sales only. No tickets will be sold at the door. Information regarding ticket purchase will be available soon. Check the Hawaii Audubon Society website for current information about this event.

The Waikiki Yacht Is located at 1599 Ala Moana Blvd (at the Waikiki end of Ala Moana Park Drive). Free parking is available in public parking lots in Ala Moana Park or along Ala Moana Park Drive.

FIELD TRIPS

Sunset Walk on Maui's Coastal Boardwalk Kealia Pond National Wildlife Refuge, Maui

When: Thursday, September 6, 2018, 5:30 PM

Where: Kealia Pond National Wildlife Refuge, Maui, at the Kealia Coastal Boardwalk and Viewing Area on North Kihei Road (south side of North Kihei

Road, Route 31). You can only enter the small parking lot driving eastbound from Ma'alaea or West Maui. From Kihei or South Maui, you will need to pass the boardwalk and come back from the other direction.

Leader: Yolanda Solorio (HAS volunteer)

Description: The tour will explain the purpose of the Kealia Pond National Wildlife Refuge, why it exists and what birds and other wildlife are benefiting from its protection. Bring comfortable shoes, water, binoculars, cameras and lots of curiosity for an informative walk among Maui's wildlife!

Information: Meet at the boardwalk parking lot. This is an easy hike on the boardwalk through the refuge area. Please note that there are no restrooms at this location. There is limited parking in the parking lot, but additional parking is located along the highway.

RSVP: Please RSVP with Yolanda at yolandaonmaui@gmail.com.

Welcome Home Shorebirds: Paikō Lagoon Wildlife Sanctuary Low Tide Walk, O'ahu

When: Saturday, September 8, 2018, 8:00 AM

Where: Paikō Lagoon Wildlife Sanctuary, O'ahu

Leader: Alice Roberts (HAS Board Member)

Description: Visit Paikō Lagoon at a low tide (0.1') and learn about the many native plants at the water's edge and observe shorebirds, a resident pair of Hawaiian stilts, 'iwa, egrets, herons, ducks, and other urban birds.

RSVP: Please RSVP with Alice Roberts with your name and phone number at (808) 864-8122.

Upcoming Events and Field Trips

Field Trips (continued)

Birds of Kapiolani Park Walk

When: Saturday, September 15, 2018, 7:00 AM

Where: Dillingham Memorial Fountain on Kalakaua Avenue

Leader: Keith Swindle

Description: Join us to discover the wide variety of birds that call Kapiolani Park home!

Request for Nominations

The HAS Board is requesting nominations be sent to hiaudsoc@pixi.com for the following:

Environmental Education & Environmental Journalism Award

Will be presented at the 2018 annual meeting. Please provide online links to stories that pertain to journalism nomination.

New Directors for 2019 HAS Board

Nominees and those nominating need HAS membership or pending membership. In addition, nominees need written consent by Board. Nominating Committee consists of HAS Board members of Wendy Johnson, Rich Downs, and Wendy Kuntz.

READ YOUR 'ELEPAIO MAILING LABEL

Please check that your HAS membership is current and your address is correct. Your membership expiration date is printed on the address label. Expired members have a 6 month "grace period" before the 'Elepaio will stop being mailed to them. Please renew promptly to ensure uninterrupted service/delivery.

To **renew** please do **one** of the following:

- Detach and fill out the "Hawaii Audubon Society Membership/Donation Form" (below) and mail to us with payment.
- Visit www.hawaii-audubon.org/renewals and select the best-fit membership and pay online.

Hawaii Audubon Society Membership/Donation Form

The mission of the Hawaii Audubon Society (HAS) is to foster community values that result in the protection and restoration of native ecosystems and conservation of natural resources through education, science and advocacy in Hawai'i and the Pacific. Founded in 1939, HAS is an independent non-profit 501(c)(3) organization and does not receive dues paid to the National Audubon Society. Thank you for supporting your local Hawaii Audubon Society.

☐ \$25 Hawaii Audubon Society Regular Member

☐ \$15 Hawaii Audubon Society Student Member

☐ \$40 Hawaii Audubon Society Family Membership

☐ \$100 Hawaii Audubon Society Supporting Member

☐ \$_____ Donation

Donations are tax-deductible and greatly appreciated.

International Membership:

☐ \$28 Canada & Mexico

☐ \$33 Other

Name: _____

Address: _____

Phone: _____ Email: _____

☐ E-mail me the 'Elepaio ☐ Mail me the 'Elepaio ☐ E-mail me volunteer opportunities, updates, & field trips.

Please make checks payable to **Hawaii Audubon Society**.

Mail form and payment to Hawaii Audubon Society, 850 Richards St., Suite 505, Honolulu, HI 96813.

Phone: (808) 528-1432, Email: hiaudsoc@pixi.com, <http://www.hawaii-audubon.org>, <http://www.facebook.com/hawaii-audubon-society>

Mahalo for your concern and commitment to protecting Hawaii's native wildlife and ecosystems.



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'Elepaio Journal Available Online

The 'Elepaio has been electronically archived and issues from 1939 to the present are now available!

To access archived issues:

1) Become a Hawaii Audubon Society member or subscribe to the journal at www.hawaii-audubon.org or mail a check to 850 Richards St., Suite 505, Honolulu, HI 96813 with checks payable to **Hawaii Audubon Society**.

2) Email hiaudsoc@pixi.com to receive password.

3) Enter password at
<http://www.hawaii-audubon.org/elepaio-journal>

Table of Contents

Wetland Conservation in Hawai'i and the Need for Flagship Species.....	37
Proposed Changes to the Endangered Species Act Threatens Hawai'i Birds.....	42
Endangered Species Act Findings, Purposes and Policy.....	42
Upcoming Events and Field Trip.....	43
Request for Nominations.....	45

'Elepaio ISN 0013-6069
Managing Editor: Jennifer Stahl
Scientific Editor: Glenn Metzler

The 'Elepaio is printed on recycled paper and published six times per year.