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STATE PARKS

**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621
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**Testimony of
SUZANNE D. CASE
Chairperson**

**Before the Senate Committees on
WATER AND LAND
and
HIGHER EDUCATION
and
AGRICULTURE AND ENVIRONMENT**

**Friday, March 10, 2017
1:15 PM
State Capitol, Conference Room 224**

**In consideration of
SENATE CONCURRENT RESOLUTION 31/SENATE RESOLUTION 6
URGING THE DEPARTMENT OF LAND AND NATURAL RESOURCES TO
CONDUCT AN EXTENSIVE STATEWIDE PUEO HABITAT INVENTORY**

Senate Concurrent Resolution 31/Senate Resolution 6 urge the Department of Land and Natural Resources (Department) to conduct an extensive statewide pueo habitat inventory in collaboration with the University of Hawaii (UH), nonprofit environmental organizations, and other stakeholders and submit reports to the Legislature, including any proposed legislation. **The Department offers the following comments.**

The Department recognizes the need for a state-wide habitat inventory for the pueo and is working on these efforts as funding and partnerships develop. Specifically, the Department has received funds from two wind farms owned by SunEdison, LLC: Kaheawa Wind Power II on Maui, and Kahuku Wind Power on O'ahu, to mitigate the impacts to pueo associated with these wind farms. The Department, in collaboration with UH, is working on a project to develop standardized survey tools for use in evaluating population size, distribution, and habitat use of the pueo on the island of O'ahu, where this species is listed as endangered by the State. The Department expects this study to begin in April, pending final approval and processing of the biologist selected for the project. The results of this study will have state-wide implications on assessing pueo populations for each island.

Furthermore, a partnership between the United States Fish and Wildlife Service, the Department's Division of Forestry and Wildlife Maui Nui Seabird Recovery Project (administered through the UH Pacific Cooperative Studies Unit), the Kaho'olawe Island Reserve Commission, and the United States Department of Agriculture/Animal and Plant Health Inspection Service/Wildlife Services has initiated a pilot/feasibility study to test capture and marking techniques of pueo on multiple islands including Hawai'i, Maui, Kaho'olawe, and O'ahu. The results of this study are expected to enhance capture and marking techniques for pueo that will lead to further research on the distribution and abundance of the species, and identify limiting factors and management needs of the species.

The Department notes that extensive state-wide pueo-specific inventories, and the analysis of data from field surveys and research, would be both time and cost intensive, and would not be feasible prior to the 2018 Regular Legislative Session as described in these measures. The Department could report on the findings of the current research contract, which will be ongoing by then.

Thank you for the opportunity to comment on these measures.

From: mailinglist@capitol.hawaii.gov
Sent: Thursday, March 9, 2017 1:03 PM
To: WTL Testimony
Cc: michelematsuo@yahoo.com
Subject: Submitted testimony for SR6 on Mar 10, 2017 13:15PM

SR6

Submitted on: 3/9/2017

Testimony for WTL/HRE/AEN on Mar 10, 2017 13:15PM in Conference Room 224

Submitted By	Organization	Testifier Position	Present at Hearing
michele matsuo	Democratic Party of Hawaii Education Caucus and Environmental Caucus, respectively	Support	Yes

Comments: Aloha Chair Rhoads, Chair Kahele, Chair Gabbard, Vice Chair Kidani, Vice Chair Riviere, and members of the Committees! Thank you for this opportunity to testify strongly in support of this measure! My name is Michele Matsuo. As Chair of the Democratic Party Education Caucus, I wanted to let you know that the Education Caucus stands in strong support of this measure. We urge the University of Hawaii to malama the Pueo, the mascot of the University of Hawaii-West Oahu, and do its utmost to preserve the endangered (on Oahu) Pueo and its habitat from being adversely impacted on its lands, including any leased to other entities. Abide by the law. Also, the Environmental Caucus of the Democratic Party of Hawaii has designated me the point person for Endangered Species and Endangered Species Habitat, and the Environmental Caucus is honored to stand in strong support of this measure, in the hopes that it will help to save the Pueo in Honouliuli and Kaloi Gulches and elsewhere. Representing the two caucuses, I request that this measure be amended and passed to specify that the study first address/study the Pueo on Oahu, starting with the Pueo and Pueo habitat in Ewa. We request that this study be of as long duration as is possible in order to finish in the time limits specified by this measure, because the Pueo is elusive and will need months of study, not mere days of study. We urge that DLNR work with traditional practitioners like Kumu Michael Lee of Ewa, who have long studied the Pueo in Ewa in the field. As a member of the board of the Environment, Energy and Resources Section of the Hawaii State Bar Association, testifying as an individual, I am pleased to report a keen interest in the Pueo by our board members and that our EER Bar Section has had OHA present on the unanimously approved OHA initiative to kokua the Pueo. Thank you for all that you are doing to kokua the Pueo. Please pass this measure! I remember Sen. Dan Inouye's efforts to save our endangered birds, and his speech dreaming of the day when their songs would once again ring throughout our forests. Sen. Inouye is gone now, and dearly missed, but we still have this chance to save the Pueo on Oahu and elsewhere in our beloved Hawaii ! With warmest Mahalo

and Aloha Michele Matsuo Democratic Party of Hawaii Education Caucus
Environmental Caucus

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**Conservation Council
for Hawai'i**

Hawai'i's voice for wildlife

Kō Hawai'i leo no nā holoholona lōhiu



Testimony Submitted to the Senate Committee on Water and Land,
Senate Committee on Higher Education, and Senate Committee on Agriculture and Environment
By the Conservation Council for Hawai'i
Hearing: Friday, March 10, 2017 1:15 pm
Room 224

Support for SCR 31/SR 6 Urging the Department of Land and Natural Resources to Conduct an Extensive
Statewide Pueo Habitat Inventory

Chair Rhoads, Chair Kahele, Chair Gabbard, Vice Chair Kidani, Vice Chair Riviere, and Members of the
Committees,

Aloha. The Conservation Council for Hawai'i supports SCR 31 and SR 6, which urge the Department of
Land and Natural Resources to conduct an extensive statewide pueo habitat inventory.

We recommend that the habitat inventory note whether any given habitat is currently or was previously
occupied by pueo, if possible. We also recommend that the presence of pueo be noted during any fields
inventories, and that current and past population estimates be included in the report, if possible.

A survey of occupied and unoccupied suitable habitat is essential to recovering this endangered bird on
O'ahu and maintaining healthy populations on the neighbor islands. We must set aside habitat to be
managed for the pueo. If not, we will wake up one morning and find the pueo extirpated from O'ahu and
possibly the neighbor islands as well.

Bird populations can decline very quickly once they reach a critical small population size. For example,
the bones of the endangered 'ua'u (Hawaiian petrel) are the most frequently found bones in sinkholes and
archaeological sites on the 'Ewa plain and in Kalaeloa today. At one time, there were probably millions of
'ua'u on O'ahu; today, there are none. In a relatively short time, Hawaiian petrels have completely
disappeared from O'ahu as a result of habitat loss, and predators.

Unlike forest birds and nesting seabirds – which occur in protected
watersheds, natural area reserves, and offshore islets – and waterbirds
– which occur in protected wetlands – the pueo's habitat includes
abandoned agricultural lands, native and non-native grasslands in
urban areas, and other sites that are planned for land development.
These pueo habitats may not appear suitable for supporting native
birds, or they support very few pueo, especially on O'ahu, where the
owls are listed as endangered by the State. Nonetheless, these
habitats must be protected if we want to recover the pueo and protect
it for future generations. It's our choice.



We have a limited opportunity to recover the pueo on O'ahu and keep it healthy on the neighbor islands.
Please support SCR 31 and SR 6. Also, please encourage the University of Hawai'i - West O'ahu to follow
the law and help recover the pueo on its land. This institute of higher learning should set the proper
example of protecting our cultural and natural heritage.

Mahalo nui loa for the opportunity to testify.

Marjorie Ziegler

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THE SENATE
TWENTY-NINTH LEGISLATURE
REGULAR SESSION OF 2017

COMMITTEE ON WATER & LAND

COMMITTEE ON HIGHER EDUCATION

COMMITTEE ON AGRICULTURE & ENVIRONMENT

Friday, March 10, 2017
1:15 p.m., Conference Room 224, State Capitol

S.C.R. 31/S.R. 6

Urging DLNR to Conduct an Extensive Statewide Pueo Habitat Inventory

Chairpersons, Vice Chairpersons, and members of the committees, my name is Linda Paul and I am testifying in favor of S.C.R. 31/S.R. 6 as a volunteer, President of and in behalf of the approximately 2000 members of the Hawaii Audubon Society.

Hawaii is known as the endangered species capital of the United States and unfortunately our native species are continuing to go extinct. The Pueo, Hawaii's only native owl, has joined the long list of native birds that are either extinct or are endangered or threatened. Once widely distributed on all the main islands, the Pueo began declining in the early 1900s as a result of the loss of their ground nesting habitat due to sugar and pineapple cultivation. More recently large scale suburban housing developments have reduced their habitat still further. Alien species predation and collisions with wind farms and motor vehicles have also reduced their numbers. In 1982 the State of Hawaii listed the Pueo's Oahu population as endangered.

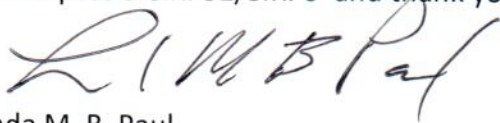
However, Pueo populations on the neighbor islands are also declining as indicated by the Hawaii Audubon Society's Annual Christmas Bird Count. By how much and at what rate we yet don't know. The Pueo is one of the least-studied endemic species and much more data is needed to inform management decisions.

SCR 31/SR 6 urges the Department of Land & Natural Resources - Division of Forestry & Wildlife (DLNR-DOFAW) to conduct an extensive statewide inventory of Pueo habitat so that informed decisions can be made that will prevent yet another of our native bird species from going extinct.

This Resolution also requests DLNR to submit a report regarding the Pueo habitat inventory, including any recommended legislation, to the Legislature no later than 20 days prior to the convening of the Regular Session of 2018.

Attached to this testimony is a very informative article about the Pueo recently published in the Society's journal *Elepaio* that was written by Afsheen Siddiqi, a DLNR-DOFAW ornithologist.

Please pass S.C.R. 31/S.R. 6 and thank you for giving me the opportunity to testify.

A handwritten signature in black ink, appearing to read "Linda M. B. Paul". The signature is fluid and cursive, with the first letters of each word being capitalized and prominent.

Linda M. B. Paul
808-262-6859



'ELEPAIO

Journal of the
Hawai'i Audubon Society

For the Protection of
Hawai'i's Native Wildlife

VOLUME 77, NUMBER 1

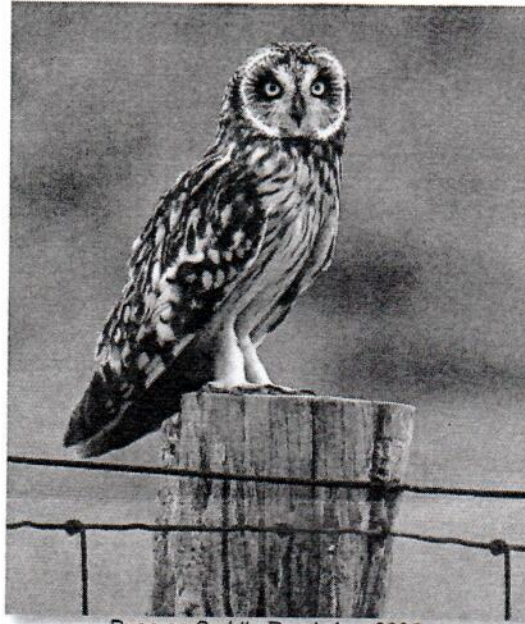
JANUARY / FEBRUARY 2017

A brief review of Hawaii's only native owl, the pueo

by Afsheen Siddiqi, State Seabird and Waterbird Coordinator

State of Hawai'i Department of Land and Natural Resources, Division of Forestry and Wildlife

Although first described in the literature by Bloxham in 1826 (Konig and Weick 2008), the Pueo or Hawaiian short-eared owl (*Asio flammeus sandwichensis*) has long been chronicled throughout Hawaiian folklore and been revered highly to the people of the islands. In Hawaiian mythology, Pueo were worshipped as gods and are still honored as ancestral guardian spirits, or 'aumakua, by Hawaiians today. Hawaiians believe that after the death of one's ancestor, the spirit can still protect and influence the remaining family acting through a body such as that of an owl, shark, or turtle. Each species channeled by the ancestor held unique strengths and the Pueo is described as a special protector in battle or danger (Beckwith 1940). The Pueo is one of the most widely recognized of the Hawaiian 'aumakua.



Pueo on Saddle Road, Aug 2005
Photo: Eric VanderWerf

The Pueo is one of only two owl species found in the Hawaiian Archipelago, the other being the non-native Barn owl (*Tyto alba*). Pueo are considered endemic to Hawai'i and are one of nine subspecies of the North American short-eared owl found throughout the world (Pratt et al. 2009). Pueo are widely distributed across the main Hawaiian Islands, and have likely been established since the Polynesians arrived in the islands, but short-eared owls were probably semi-regularly visitors long before that time (Olson and James 1982, Pratt et al. 2009). Additionally, short-eared owl sightings in the Northwestern Hawaiian Islands and Johnston Atoll have been documented but are likely migrant owls from North America or Asia rather than the Hawaiian sub-species (Mostello 1994).

Found from sea level to 8,000-foot elevations, Pueo tolerate a wide variety of climatic conditions, ranging from open grasslands, shrublands, montane habitats, and agricultural areas to rain forests and urban settings (Pratt et al. 2009, Hawai'i DLNR 2015). As suggested, Pueo may not have established until Polynesians discovered the Hawaiian Islands, linking their residence to the anthropogenic changes to a more open habitat and mammalian prey introduction such as rats (Pratt et al. 2009). Pueo diets consist pri-

marily of rodents, but they are also known to eat birds and insects (Snetsinger et al. 1994).

Once widely distributed on all the main islands, Pueo were observed to be declining in the early 1900's with declines attributed to the increase of cultivated land and partly because they were being shot as they were thought to be killing young chickens (Hershaw 1902, Perkins 1903). Although population numbers for Pueo have not been estimated, data from the Hawai'i Audubon Society's Christmas Bird Count indicate a decline since the 1960's and decreases on other islands since counts were started in the 1970's (Mostello 1994). Fewer and fewer sightings of the owls have led many to believe that the species is in decline which led the State of Hawai'i listing the Pueo as an endangered species on the island of O'ahu in 1982 (Hawai'i Administrative

Rules Chapter 13-124, Exhibit 2). The species is not currently listed by the Federal Endangered Species Act, but is still afforded Federal protections under the Migratory Bird Treaty Act.

Currently, extensive loss of habitat owing to development, and conversion of large tracts of undeveloped pasture land to agricultural, residential, and recreational uses are thought to be contributing to population declines (Hawai'i DLNR 2015). In addition to habitat destruction, the introduction of mammalian predators including cats, dogs, pigs, and mongoose are considerable threats to the species. As ground nesting species, young owlets are particularly vulnerable to predation threats. Trauma due to vehicle collisions also threatens the survival of the Pueo (Aye 1994, Work and Hale 1996).

Comprehensive statewide surveys designed to derive population estimates, specifically for Pueo, are needed and may require significant effort to obtain accurate results. As with many of the endemic bird species of Hawai'i, research and data are invaluable to inform best management decisions. Pueo in particular are one of the least-studied endemic species and necessitates long-term studies to begin to understand their life history traits, abundance and demographics. The few studies that have been attempted to address the Pueo's

biology, ecology, and life history have proved challenging due to the scarcity of the species and current methodologies, as gathering such information requires capturing animals to tag them in order to monitor them closely. A 1994 study conducted on Pueo was successful in observing only one nest and resulted in a brood size of three (Mostello 1994). This one observation is in line with information from short-eared owls in other regions of the world that lay between two and seven eggs (Aye 1994). If Pueo are similar to other short-eared owls, nesting is dependent on food supplies, hatching is asynchronous, incubation of eggs is about 26 days, and chicks leave the nest between 12 to 17 days (Aye 1994).

There is much to learn about our resident short-eared owl and an upcoming project collaboration between the U.S. Fish and Wildlife Service, the Department of Land and Natural Resources Division of Forestry and Wildlife (Division) Maui Nui Seabird Recovery Project through the University of Hawai'i Pacific Cooperative Studies Unit, Kaho'olawe Island Reserve Commission, and the U.S. Department of Agriculture Wildlife Services is expected to start at the end of 2016. The results of this study are expected to enhance capture and marking techniques of Pueo that will lead to further research on the status, range per island, and management needs of the species.

Additionally, the Division has received funds from two wind farms owned by SunEdison, LLC: Kaheawa Wind Power II on Maui and Kahuku Wind Power on O'ahu to mitigate the impacts to Pueo associated with these wind farms. The Division is currently working with the University of Hawai'i at Mānoa to initiate a Pueo research study with these funds. The work which is anticipated to begin early 2017 is expected to provide information on the Pueo population for the island of O'ahu. Specifically, the Division is seeking to improve survey methodology for the species, model Pueo distribution and abundance, understand habitat utilization, estimate population size on O'ahu, and engage a citizen science project.

The Division anticipates that these projects will provide useful information to better manage and ensure the survival of the Pueo. The Division further hopes that the citizen science project will excite the public to become engaged with research and data acquisition for conservation. Effective citizen science relies on good outreach. In the case of Pueo, this relies on the proper identification of our native species. The Pueo is often times confused with the more common non-native invasive Barn owl. Both species are active during crepuscular periods, but Barn owls are mainly nocturnal while the Pueo is most often observed during the daytime. Some key attributes that differ between these species is size, color, and nest/roost site. Pueo are darker in color, smaller, and nest on the ground where as Barn owls will use trees and structures for nests. The public can help accelerate our knowledge on Pueo distribution throughout the islands and citizen science allows data to be collected on a scale that would otherwise be impossible to gather.

Afshen Siddiqi is a Wildlife Biologist with the Department of Land and Natural Resources Division of Forestry and Wildlife. She is the State Seabird and Waterbird Coordinator and previously held the Conservation Initiatives Coordinator position working on endangered species issues. Afshen has been with the State for over 5 years.



Note the white, heart-shaped face of the larger Barn Owl, *Tyto alba*.
Photo: Airwolfhound, Flickr, <https://flic.kr/p/eixyfR>, creative commons license.

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Position Announcement: Post Doctoral Fellow Hawaiian Short-eared Owl

Postdoctoral fellowship available for a Hawaiian Short-eared Owl distribution modeling project on O'ahu. Research will include estimating population size on O'ahu and relative abundance in various habitat types. Data collection may be conducted on both lowland and mountainous sites in rough or uneven terrain and variable weather conditions. Contact Dr. Melissa Price, UH-CTAHR Dept. of Natural Resources and Environmental Management for additional information, email: pricemel@hawaii.edu.



Hawaii's Thousand Friends

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Senator Gil Riviere

SCR 31/SR 6

URGING THE DEPARTMENT OF LAND AND NATURAL RESOURCES TO CONDUCT AN
EXTENSIVE STATEWIDE PUEO HABITAT INVENTORY

March 10, 2017

Chair Rhoads, Chair Kahele, Chair Gabbard
Vice Chair Gabbard, Vice Chair Kidani, Vice Chair Riviere
Committee Members

While Hawaii's Thousand Friends supports SCR 31 and SR 6, which calls on DLNR to conduct an extensive statewide pueo habitat inventory we request that the inventory begin on Oahu.

We understand that U.S. Fish and Wildlife Service and DOFAW will be conducting a statewide inventory of pueo but the Oahu pueo is the only pueo listed by the State as endangered under the Endangered Species Law HRS chapter 195D. Therefore, there is an urgency to begin and concentrate an inventory on Oahu.

Endemic to the Hawaiian Islands Oahu's pueo population is believed to be declining and considered very rare due to loss of nesting habitat, loss of foraging habitat, and reduced prey availability from urbanization of open grasslands.

Under the Endangered Species Act HRS Chapter 195D the pueo are only protected from a 'take' which is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect an endangered species. The Act does not protect pueo habitat or foraging areas.

The endemic pueo is protected under the U.S. Fish & Wildlife Service Migratory Bird Treaty Act but unfortunately this Act also does not protect habitat or foraging areas.

Pueo mainly eat small rodents; live in wet and dry forests, grasslands and shrub lands and nest on the ground. They lay three to six white eggs over a span of several months, which hatch at different times.

Pueo have been seen flying in the grasslands of Honouliuli and around the UH West Oahu area but there have been only two pueo sightings reported in the Ka`ena Point Natural Area Reserve in the last ten years. So how many pueo are there on Oahu?

There is a need for a statewide inventory because there are no population estimates, no population trend estimates, no movement data and little is understood of the general ecology, especially breeding, of the pueo. But that inventory must begin on Oahu where the pueo population is the most vulnerable and in the most danger.



Photo: Jack Wolford

From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, March 7, 2017 8:53 PM
To: WTL Testimony
Cc: rkailianu57@gmail.com
Subject: *Submitted testimony for SR6 on Mar 10, 2017 13:15PM*

SR6

Submitted on: 3/7/2017

Testimony for WTL/HRE/AEN on Mar 10, 2017 13:15PM in Conference Room 224

Submitted By	Organization	Testifier Position	Present at Hearing
Rachel L. Kailianu	Individual	Support	Yes

Comments:

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