

Appendix I.

Wildlife Education and Observation Program

Purpose	To educate project employees and other on-site personnel in the observation, identification and treatment of wildlife
Approach	<p>In conjunction with regular assigned duties, all personnel will:</p> <ul style="list-style-type: none"> ⤴ attend wildlife education briefings conducted in cooperation with DOFAW and USFWS; ⤴ monitor wildlife activity while on the site; ⤴ identify key species when possible (Hawaiian Petrel, Newell's Shearwater, Hawaiian duck, Hawaiian stilt, Hawaiian coot, Hawaiian moorhen and Hawaiian Hoary Bat); ⤴ document specific observations with the filing of a Wildlife Observation Form; ⤴ identify, report and handle any downed wildlife in accordance with the Downed Wildlife Protocol, including filing a Downed Wildlife Monitoring Form – Incidence Report; ⤴ respond and treat wildlife appropriately under all circumstances.
Notes	All personnel will avoid approaching any wildlife other than downed wildlife; avoid any behavior that would startle or harass any wildlife; and not feed any wildlife.

Descriptions and Photographs

Follow

Hawaiian Petrel

Description	16 inches, 36-inch wingspan. Head, wings and tail are sooty-colored, contrasting with slightly paler back. Forehead and underparts are white; tail is short. Feet are bi-colored pink and black. Downy chicks are charcoal gray.
Voice	Distinctive call heard at breeding colonies is a repeated moaning “ooh-ah-ooh.” At their burrows, birds also produce a variety of yaps, barks and squeals.
Habits	The Hawaiian Petrel is generally seen close to the main Hawaiian islands during breeding season; otherwise, it is a pelagic species. The flight is characterized by high, steeply-banked arcs and glides; the wings are long and narrow. Breeding extends from March to October. One white egg is laid within deep burrows or under rocks. Adults arrive in colonies well after dark. As the chicks develop, parental care becomes less frequent and adults leave the colony each year two to three weeks before the chicks. Adults feed on squid, fish and crustaceans, and pass food to chicks by regurgitation. Predation by introduced rats, cats and mongooses is a serious threat to this species.



HNP/C. Hodges



HVNP/W. Banko

source: <http://pacificislands.fws.gov/wesa/uau.html>



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source: <http://www.birdinghawaii.co.uk/xHawaiianPetrel2.htm>

Newell's Shearwater

Description	12 – 14 inches, 30 – 35-inch wingspan. Black above and white below. The white extends from the throat to the black undertail coverts. Sharp contrast of dorsal/ventral color is more distinct than in larger, more common Wedge-tailed Shearwater. Bill, legs and toes are dark; webbing between toes is pink.
Voice	Around nesting colony, a variable, jackass-like braying and crow-like calling.
Habits	The flight of the Newell's Shearwater is characterized by rapid, stiff wingbeats and short glides. This species occurs in Hawaiian waters during the breeding season (April to November); it flies to nesting colonies only after dark, departing before dawn. Birds are highly vulnerable to predation by rats and cats. Many fledglings departing the colonies in late fall are attracted to urban lights and fall on highways or other brightly-lit areas.



Painting by Sheryl Ives Boynton

source: <http://pacificislands.fws.gov/wesa/ao.html>



source: <http://audubon2.org/webapp/watchlist/viewSpecies.jsp?id=141>



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source: <http://www.birdinghawaii.co.uk/XNewells2.htm>

Hawaiian Stilt

Description	16 inches, both sexes are visually similar; extension of black around eyes and head, traveling down sides of neck. Long, pink legs; black bill. Males have a glossy black back while female backs are tinged with brown. Chicks are downy and tan with black speckling. Immature stilts have similar coloring as the North American breed, with a brownish back and a white cheek patch.
Voice	When disturbed in flight or on the ground, a loud, sharp “kik-kik-kik” call is heard. While resting, stilts may voice a soft, muted call. Immature birds give a distinct peeping call.
Habits	The Black-Necked Stilt can be found singly, in pairs or groups in wetland habitat, usually marshy areas, mudflats, and ponds. They nest in loose colonies close to the water on mudflats. Shallow depressions lined with twigs, stones, and other debris are used as nesting areas. Stilts consume fish, worms, aquatic insects, and crabs. The standard clutch is four eggs. Hatchlings will leave the nest to feed with the adults. Aggressive defenders of their territories, adults often feign injury as a distraction for predators that are near nesting sites and offspring.



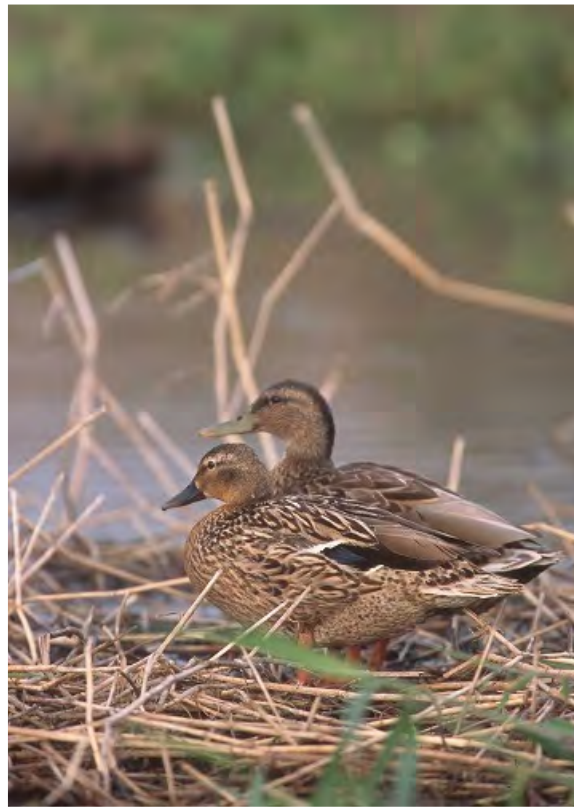
source: http://en.wikipedia.org/wiki/Image:Black-necked_Stilt.jpg
<http://en.wikipedia.org/wiki/Image:Bnstiltpair.jpg>



source:

Hawaiian Duck or Koloa Maoli

Description	Males are 19-20" in length while females are slightly smaller at 16-17". Although both sexes have a mottled brown coloring, males have darker heads and necks with bright orange feet and olive colored bills. Females have bills that are more orange and their feet are a dull orange. The secondary wing feathers of the koloa maoli are greenish-blue, with white borders.
Voice	The koloa has a quack like a mallard, but are quieter and less vocal.
Habits	Generally found in wetland habitats such as river valleys and mountain streams, the Hawaiian duck are usually seen in pairs. Clutches are from two to ten eggs with in incubation period of less than 30 days. Nests are commonly on the ground and near water.



Source: http://en.wikipedia.org/wiki/File:Hawaiian_duck.jpg

Hawaiian Coot or 'Alae Ke'oke'o

Description	This small waterbird measures 14" in length for both male and female. Other similarities between sexes include a pointed white bill and bulbous frontal shield. The body color of adult birds are slate gray with white undertail feathers; feet are lobed instead of webbed and are greenish-gray.
Voice	Calls are scratchy clucking noises and include a variety of short, harsh croaks.
Habits	Their environment consists of brackish and freshwater marshes and ponds. Hawaiian coots feed on tadpoles, insects, fish as well as the seeds and leaves of aquatic plants. Nesting usually occurs between March and September with the construction of a floating nest on wetland vegetation using aquatic plants. Four to ten eggs are laid. Chicks are capable of swimming shortly after hatching.



Source: http://en.wikipedia.org/wiki/File:Fulica_alai.jpg

Common Moorhen or 'Alae 'Ula

Description	Endemic to the islands of Oahu, Kauai and Molokai, both sexes measure 13” in length and are slate-gray in color and darker gray on the head and neck. This waterbird has a white streak on its’ flanks, a white undertail and the frontal shield and base of bill are red with yellow at the tip of the bill. Adolescent moorhens are olive brown to grayish brown in color with a brown or pale yellow bill.
Voice	The ‘alae ‘ula emit cackling calls and croaks similar to that of a chicken and higher in pitch than the coot.
Habits	The common moorhen can be found in freshwater marshes, wet pastures, wetland agricultural areas, reservoirs, and reedy margins of water courses. This species are able to sustain themselves on aquatic insects, mollusks, grasses, water plants, and algae. Six to nine eggs are found in the nest which is often built on folded reeds.



source: http://upload.wikimedia.org/wikipedia/commons/2/2b/Kokoszka%28Grzecho_Lukasik%29.jpg

Short-Eared Owl

Description	Buffy brown plumage with dark streaks on the chest, abdomen, and back. Females are darker in color than males. 13-17 inches in length; female wingspan is 107cm while male wingspan is 105cm. Eyes are yellow and circled with black and set in buffy white facial disks which are surrounded with a brown ring. Their feet and legs are feathered.
Voice	Generally quiet creatures; their call is similar to a muffled bark. During courtship, low hoots will be accompanied by loud yapping and wing clapping. If excited near the nest, both sexes squeal, bark, hiss, and squawk.
Habits	At dawn and dusk, the Short-Eared Owl is active. They hunt mainly at night and during the morning and late afternoon searching for insects, rodents, and other birds. Nests are built on the ground; normally a clutch of three to six white eggs are laid. Prey is usually carried in their talons as opposed to their beak.



source: <http://en.wikipedia.org/wiki/File:Asio-flammeus-001.jpg>

Hawaiian Hoary Bat	
Description	Weighs 5 to 8 ounces, has a 10.5 – 13.5-inch wingspan. Females are larger than males. It has a heavy fur coat that is brown and gray, and ears tinged with white, giving it a frosted or "hoary" look.
Voice	Like most insectivorous bats, this bat emits high frequency (ultrasonic) echolocation calls that detect its flying prey. These calls generally range from 15 – 30 KHz. Their lower frequency social calls may be audible to humans. The low frequency “chirps” are used to warn other bats away from their feeding territory.
Habits	<p>The Hawaiian Hoary Bat is nocturnal to crepuscular and eats insects. Little is known about its biology, distribution, or habitat use on the Hawaiian islands, though it is thought to be most abundant on the Big Island. It occurs primarily below 4,000 feet elevation, although it commonly is seen at 7,000 to 8,000 feet on Hawai`i and at 10,000 feet on Haleakala.</p> <p>On Maui, this bat is believed to primarily occur in moist, forested areas. In spite of this preference, though, it has been seen in Lahaina and near Mopua, both of which are dry, and on the dry, treeless crest of Haleakala. During the day, this bat roosts in a variety of tree species and occasionally in rock crevices and buildings; it even has been recorded hanging from wire fences on Kaua`i and has been seen leaving and entering caves and lava tubes on Hawai`i.</p>



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source:

<http://pacificislands.fws.gov/wesa/hrybatindex.html>



source:

http://www.honolulu zoo.org/hawaiian_bat.htm

Wildlife Education and Observation Program
Kahuku Wind Power
Observation Form

Observer's Name:			Date:	
Temperature:	Wind Direction:	Wind Speed:	Precipitation:	Cloud Cover:

Species Observed	
Location	
<i>Proximity to Turbine</i>	
<i>Approximate Altitude</i>	
<i>Direction Traveling</i>	
Other Species in Area	
Comments	