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A Pink-Footed Shearwater in Hawai'i

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The Pink-footed Shearwater (*Puffinus creatopus*) is a common and fairly widespread shearwater of the eastern Pacific Ocean. It is an endemic breeder on three Chilean islands. Isla Mocha, 35 km off the coast of Region IX, is the primary colony with 20,000-25,000 nesting burrows, about half that number reside 700 km northwest on Isla Santa Clara and Isla Masatierra, in the Archipiélago Juan Fernández (Guicking et al. 2001, Hodum et al. 2004, Birdlife International 2008). They disperse north during the austral winter to the northeast Pacific Ocean off western North America (Harrison 1983, AOU 1998). The Pink-footed Shearwater can be locally abundant at favored stopover and wintering locations throughout its range and readily associates with other seabirds in feeding flocks over dolphins, fish, and other marine mammals in the eastern Pacific Ocean (Guicking et al. 2001, pers. obs.).

The primary migration route of the Pink-footed Shearwater appears to be coastal, as there are few previous records beyond 1000 km from the west coast of the Americas (*cf.* Pitman 1986); however, there are sight reports from New Zealand and Australia (Marchant and Higgins 1990, Onley and Scofield 2007). King (1967) collected a Pink-footed Shearwater near 7° N 152° W, about 1,400 km SSE of Hawai'i Island, 14 Oct 1964 (USNM 494191), and mentioned several other observations in this area, and Pitman (1986) reported at least two observations 750-1000 km S of Hawai'i Island. These reports appear to be the basis for some references (e.g., Harrison 1983, Marchant and Higgins 1990, Onley and Scofield 2007) to their occurrence at or near the Hawaiian Islands, but prior to our observation there were no substantiated records within the US Exclusive Economic Zone (EEZ), territorial waters that extend outward from shore to 370.4 km (200 nautical miles), and form the boundary on which official state bird lists are based (Pyle and Pyle in prep). A description accompanying a sight report of three Pink-footed Shearwaters 21 km E of Hilo 6 Aug 1994 is equivocal (Pyle and Pyle in prep).

On 24 August 2006, while conducting a seabird survey aboard the NOAA ship *McArthur II* about 444-222 km southeast of South Point (Ka Lae) Hawai'i Island, MPF saw a Pink-footed Shearwater in a mixed seabird feeding flock. The flock, consisting of about 50 Sooty Terns *(Onychoprion fuscata)* and 80 dark morph Wedge-tailed Shearwaters (*Puffinus pacficus*), appeared to be focusing its attention on a small patch of water, presumably hunting small shoaling fish just below the surface. The flock remained at this position as the ship steamed past, providing sufficient time to study the Pink-footed Shearwater using 20x60 prism stabilized binoculars. The bird was under observation for approximately one minute as it meandered around low over the water beneath the wheeling terns about 400 to 600 m away. Characters observed that easily separate it from light morph Wedge-tailed Shearwater (the species with which it can be most likely confused) were: larger size, thicker, more "barrel-chested" body, broad, more rounded tail, broader wings held straight out from the body, and a thicker, fleshy-pink bill with a well defined black tip. The bulky body impression was reinforced by the bird's relatively slow and lazy wing beats and slightly labored flight style compared to Wedge-tailed Shearwaters' narrower, slightly angled wings with the outer part typically held more forward than the inner part, and often more-hurried flight. Several members of the on-duty marine mammal observer team also saw the bird. The location, 18°08.8' North, 153°29.1' West, was 296 km (160 nautical miles) from South Point, the nearest point of land, putting it within the US EEZ, and thus constituting the first for this species for the Hawaiian Islands.

During the ship's 30 day August 2006 transit from San Diego to Honolulu, Pink-footed Shearwaters were fairly common in the central equatorial Pacific Ocean as far west as 142° West Longitude. Forty-six were seen, five of them west of 140° West Longitude; four were seen west of 140° West Longitude on the return leg about two weeks later, albeit on a slightly more southerly route. On previous NOAA-sponsored marine mammal and seabird research cruises through this area at approximately the same time of year, Pink-footed Shearwaters were rarely encountered in Equatorial regions west of about 140° West Longitude (cf. Pitman 1986). In 1999 a wide scattering of individuals or small groups, almost all associating with mixed seabird feeding flocks over dolphins and/or fish suggest this species was pushing westward equatorially at that time. Most of these were east of 140° West Longitude although one was seen as far west as 146° West Longitude (about 1380 km southeast of South Point). Broadly speaking, both years were unremarkable oceanographically, being neither warm nor cold water years. The vast majority of these birds were in feeding flocks over Spotted and Spinner Dolphins and/or fish. These flocks were numerically dominated by Sooty Terns and dark morph Wedge-tailed Shearwaters.

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The sighting of a Pink-footed Shearwater in Hawai'i was thus not completely surprising in light of this species' tendency to wander westward in the equatorial Pacific Ocean. Pink-footed Shearwaters favor ocean areas with high productivity such as coastal upwelling zones; meanwhile, large areas of the equatorial and sub-equatorial Pacific are unsuitable for Pink-footed Shearwaters. However, local upwelling associated with the equatorial current systems has long been known to be important for foraging seabirds. A combination of proper oceanic conditions and Pink-footed Shearwaters' proclivity to join mixed species feeding flocks leads to a high likelihood of future occurrences in Hawai'i.

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The Black-Crowned Night-Heron: The Bad and the Good

By Ron Walker

Although the ʻAukuʻu is an indigenous bird and fully protected by both Federal and State law, it sometimes has negative connotations because of its predation on the young of the Black-necked Stilt and Common Moorhen in Hawaiʻi (Andrews, 1991; Walker, 2008). Yet, as a species, it is an integral part of the web of life in Hawaiian wetlands and has been for centuries.

The scientific name of the Black-crowned Night-heron is *Nycticorax nycticorax*, which is Latin from the Greek meaning "night raven" (Wikipedia Foundation Inc. 2008; Terres, 1980). It goes by many common names including:

Black-capped Night Heron (International. Del Hoyo et al. 1992)

Quark (Falkland Islands. Davis et al. 1993)

Bihoreau a couronne noire (Canada. Davis et al. 1993)

Yaboa Real, Guanaba (Puerto Rico. Davis et al. 1993)

Guaco (Venezuela. Davis et al. 1993)

Quock, Qua-bird (North America. Allen, 1961. Terres, 1980)

ʻAukuʻu-kahili, ʻAukuʻu-kohili, Fish Hawk (Hawaiʻi. Titcomb et al. 1976)

This heron is of worldwide distribution except for Australia, Antarctica, and taiga and tundra belts on continents (Anonymous, 2008; Udvardy, 1977). It is found from British Columbia to Tierra del Fuego in the Americas, in Europe, Southeast Asia, the Orient, and both north and south of the equator (Del Hoyo et al. 1992). It breeds from sea level to over 4800 meters. In certain climates it may breed year-round, and in temperate climates it migrates to complete its life cycle. Having few predators except the mongoose (in Hawaiʻi), owls and their own kind, night-herons may live from 15-20 years (Davis et al. 1993). They have adapted to a variety of habitats including wetlands, freshwater streams, lakes, fishponds, sewage treatment plants, aquaculture ponds, and golf course water hazards. It eats almost any animal matter it can fit down its gullet (Shallenberger, 1977).

On of the earliest known night-herons, *Nycticorax fidens*, was described from an 8 million-year-old deposit in Florida (Davis, et al. 1993). The ʻAukuʻu is here to stay, and its habit of preying on Hawaii's endangered water birds is an important consideration in the management of wetland habitats.

The first mention of Black-crowned Night-herons in Hawaiʻi was in 1899 when a Dr. Stejneger determined the bird as indigenous to the Hawaiian Islands based on a specimen sent to him by a Mr. Knudsen on Kauaʻi (Wilson et al. 1899). Early in the 1900s, H. W. Henshaw wrote, "Upon Oʻahu, a considerable number of these herons are killed by the Portuguese under the name 'fish hawks' and eaten, and their rank flesh is highly esteemed" (Henshaw, 1902). William Alanson Bryan in a report to the Bernice P. Bishop Museum related a sighting of an ʻAukuʻu preyed upon by a mongoose in a mountain stream on Molokaʻi (Bryan, 1907). The remains of a Black-crowned Night Heron was found on Green Island of Kure Atoll in 1966 (Clapp, et al. 1968). Robert Shallenberger made 13 sightings of the heron flying in the crater of Manana Island off Oʻahu. He noted that they were feeding mostly on crabs in the tide pools and not on seabirds (Shallenberger, 1970). Bob Pyle noted that ʻAukuʻu were increasing around Nuʻupia and Kaluapuhi ponds on the Marine Corps Base in Kaneʻohe. He flushed 40 of the birds in the air at one time near the Hawaiian Stilt nesting area north of Nuʻupia Pond (Pyle, 1976). As many as 56 adult and juvenile night herons have been seen at Kealia Pond on Maui (Udvardy, 1975).

An adult Black-crowned Night Hern makes off with an ʻAlae ʻula chick at Kaʻelepulu Wetland Preserve. Photo by Ron Walker

In addition to being well adapted to a variety of habitats, this heron is a master of the art of preying. Although it would appear that armed with that formidable bill it could merely spear a fish or a frog, it does not do so; it grasps its prey. It uses eight of 38 known bird feeding behaviors: (1) standing and waiting, (2) bill vibrating in the water (to attract prey), (3) standing motionless and "fly-catching", (4) walking slowly, (5) hovering, (6) plunging, (7) feet first dive, and (8) swimming-feeding (Davis, et al. 1993. Worasing, 1981).

On 17 October 2008 at the Kaʻelepulu Wetland Preserve on Oʻahu, I observed an ʻAukuʻu perched in a bottlebrush tree (*Callistemon sp.*) ten feet above a canal bordering the wetland. A Common Moorhen with three newly hatched chicks emerged from the paspalam (*Paspalum vaginatum*). The heron flew down, grabbed a hatchling by the head in its bill and flew 150 yards up the canal to an exposed mudflat. It landed with the feet of the chick dangling and then with a jerk, swallowed it whole (see photograph). Depending on the number of herons inhabiting a wetland, the impact of this kind of predation by

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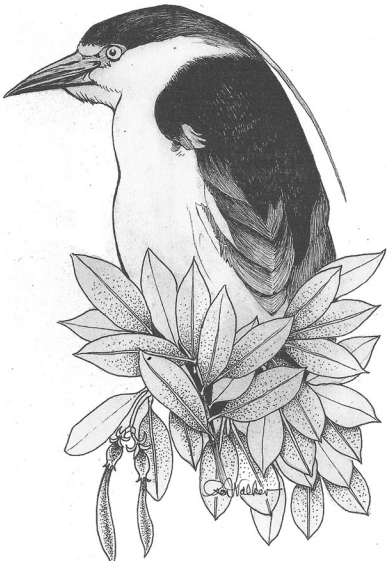

The ʻAukuʻu resides on all main Hawaiian islands and can be found near the water feeding on crustaceans, fish, frogs, mice, insects and the downy chicks of other water birds. Immature ʻaukuʻu are brown with white streaks and spots and yellow irises that turn red with age.

Drawing by Ron Walker

the Black-crowned Night Heron could be significant. Only with aggressive control of the other predators by wetland managers can the impact be mitigated.

A major controversy arose in the 1980s involving a proliferation of Black-crowned Night Herons surrounding aquaculture ponds at Kahuku on Oʻahu (Worasing, 1981). The numbers varied from 271 in 1985 to over 500 in 1986. The economic losses to the aquaculture businesses were staggering. In one year, 1983, it was estimated that, at one farm, 11,300 pounds of prawns valued at $56,500 were lost to heron feeding. The aquaculture ventures petitioned the State for permits to control the birds. This presented a problem as the herons were fully protected by both State and Federal law (including the Migratory Bird Treaty Act). The pond operators tried a number of techniques to deter herons including cracker shells, whistle bombs, gas cannons, shotgun noise, radio-controlled model aircraft, and monofilament lines strung over the ponds. None of these worked so, again, permits to use lethal means were requested. Eventually, in 1986, an emergency rule was passed by the State and, with U.S. Fish and Wildlife Service concurrence, a permit to use lethal means, within prescribed limits, was issued (Anonymous, 1981-1987). The problem persists to this day.

The "bad" in terms of predation on native water birds and the adverse impacts on aquacultural operations by herons have been well documented. Other possible negatives associated with the ʻAukuʻu include harboring parasites and salmonella which might be transmitted to native birds (Sawa, 1980; Alicata, 1964). The "good" which can be attributed to the heron could involve its eating of alien species such as insects, reptiles, amphibians, rodents, and non-native fish which sometimes overpopulate and become fish die-offs. The extent to which the heron feeds on bullfrogs, themselves predators on the young of native water birds, constitutes a major benefit of heron presence in freshwater wetlands. The ʻAukuʻu is also known to feed on garbage, refuse, and carrion and in doing so performs a scavenging role.

In a perfect Hawaiʻi, there would be no rats, mongooses, cats, dogs, barn owls or bullfrogs associated with wetlands. In this framework, the degree of predation by the heron on chicks of the Aʻeo, ʻAlae ʻula, ʻAlae keʻokeʻo and perhaps Koloa would be "acceptable" in terms of ecosystem balance and probably have no major impact on reproduction. But in reality, the control of all non-native predators in wetland habitats is absolutely necessary to minimize the loss of young of the four endangered water birds and the eventual recovery of these species.

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Please bring water, hiking boots, light rain gear, hat, sunscreen, binoculars and mosquito repellent. We look forward to hiking with you! Check out www.hawaiistateparks.org/hiking/oahu/index.cfm?hike_id=26 for more trail details and directions.

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HAS Program Meeting

Program Meetings are sponsored by HAS and the UH Biology Department, and are held at UH Mānoa's St. John lab building (Botany Building) in room 011 (ground floor auditorium). The address is 3190 Maile Way. Attendance is free and open to the public.

Monday, August 17, 6:30 - 8:30 p.m.
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Kim Uyehara, wildlife biologist with USGS will be flying in from the Big Island to give a talk on Koloa. Learn about the difference between Koloa and feral Mallards and hybrids, what we can do to prevent the extinction of true Koloa, and results of recent genetic studies on this fascinating and beautiful bird.

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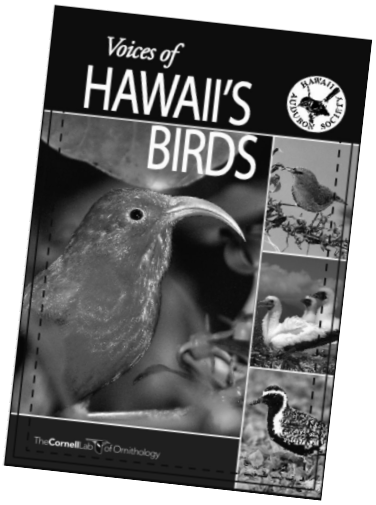

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Calendar of Events

Saturday, August 15
HAS Field Trip: Waʻahila Hike *See page 43*

Monday, August 17
HAS Program Meeting
Koloa, with Kim Uyehara *See page 44*

Month of September
Give Aloha at Foodland
Matching donations for HAS *See page 40*

Saturday, September 19
HAS Field Trip: Paikō Lagoon *See page 43*

Saturday, September 19
International Coastal Cleanup *See page 40*

Thursday, October 1
HAS Research Grant Applications Due *See page 43*

Monday, October 19
HAS Annual Awards Dinner *See page 44*

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