



U.S. Fish & Wildlife Service

News Release

Pacific Islands External Affairs Office

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Rare Fossils Discovered at Pearl Harbor National Wildlife Refuge

Recent coastal habitat restoration work at the Pearl Harbor National Wildlife Refuge-Kalaeloa Unit, located on the 'Ewa Plain, has uncovered numerous fossilized bird bones. The unexpected discovery of these avian fossil remains, including several extinct species, provides scientists with an opportunity to learn more about the ancient wildlife that once occupied this part of O'ahu.

The fossilized bird bones were discovered while scientists of the U.S. Fish and Wildlife Service were restoring several small tidal pools known as anchialine pools. Over the past century these rare pools had been filled in with rubble, rocks and debris by agricultural, military, residential and commercial activities. The discovery of the fossils is important because they provide a more complete picture of the natural bird diversity of a coastal dryland forest on O'ahu.

"These fossils of extinct birds give us a glimpse of an earlier time on O'ahu when the lowlands teemed with native birds, insects, and plants," said Helen James, Research Zoologist and Curator of Birds, Smithsonian Institution. "To me, it is excellent news that important fossil sites can still be discovered on an island that has experienced so much economic development. Lamentably the birds cannot be brought back to life, but by studying their bones we at least gain an appreciation of O'ahu's rich natural heritage."

To date, scientists have uncovered fossilized bones of an extinct hawk (first time reported as a fossil on O'ahu), long-legged owl, Hawaiian sea eagle, petrel, two species of crow, Hawaiian finches, Hawaiian honeyeaters, and the moa nalo (a turkey-sized, flightless goose-like duck—largest of the native Hawaiian birds). Further work is needed to confirm the identification of each species.

The ages of the fossilized bones are unknown at this time and require further testing using radiocarbon analysis. However, avian bones found at similar sites on the 'Ewa Plain date back from 1,000 to 8,000 years ago. "The discovery of these ancient bird bones, including several species now extinct and maybe even new species not known before, is a great reminder of the truly unique history and wonderful diversity of Hawai'i's birds and the need to protect what is still left," said David Ellis, refuge manager, O'ahu National Wildlife Refuge Complex.

The U.S. Fish and Wildlife Service is working with representatives from the Smithsonian Institution and Bernice P. Bishop Museum to properly clean, store, and preserve the bones. The Smithsonian is also providing technical assistance to Bishop Museum and the Service to properly

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identify and catalog the recently discovered fossils. Interest is high among all involved to continue with a more in-depth paleontological study of the area but further work is dependent on the availability of funding.

The Kalaeloa Unit was once part of the former Barbers Point Naval Station and was added to the National Wildlife Refuge System in 2001 to protect native plants, including two endangered species – the ‘akoko and the ‘Ewa hina hina. Kalaeloa (long point) is an area of ancient raised limestone coral reef and has the last remaining coastal dryland plant communities that were once widespread throughout the ‘Ewa Plain.

In January 2008, the U.S. Fish and Wildlife Service began a project to restore 12 anchialine pools on the Kalaeloa Unit. Service personnel, using small equipment, pumps and hand tools removed coral rubble and soil that had been used to fill in the pools. This work successfully restored natural tidal fluctuations in the pools which allowed native anchialine pool shrimp to quickly recolonize this unique habitat. While removing the debris, Service personnel began to encounter the fossilized bones – some never before seen. The restored anchialine pools provide habitat for native shrimp as well as native dragonflies. The Service also hopes that the restored pools will attract a species of rare Hawaiian damselfly.

Anchialine pools are common worldwide, especially along neotropical coastlines where the geology and aquifer system are relatively young, and there is not much soil development. Such conditions occur notably where the bedrock is limestone or recently formed volcanic lava. Water levels in anchialine pools often fluctuate with tidal changes due to the coastal location and the connection with the ocean. Currently, the state of Hawai‘i has more than 650 anchialine pools, approximately 90 percent of which occur on the island of Hawai‘i. On O‘ahu most pools have been destroyed and lost forever by development and other land disturbances. Due to the sensitive need to protect and restore endangered plants, the Kalaeloa Unit of Pearl Harbor National Wildlife Refuge is not open to the public but is available on a limited basis for guided school groups which can use the area for an outdoor learning opportunity.

To find out more about this and other environmental projects the public is encouraged to visit the Hawai‘i Conservation Conference. The conference - held at the Hawai‘i Convention Center - will be open to the public on Wednesday, July 29 from 12-9 pm. The Exhibit Hall (Room 313ABC), which includes a poster on this project, will be open from 5:30 -7 pm.

The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people. We are both a leader and trusted partner in fish and wildlife conservation, known for our scientific excellence, stewardship of lands and natural resources, dedicated professionals and commitment to public service. For more information on our work and the people who make it happen, visit www.fws.gov.

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Note to Editors: Images are available by calling Ken Foote at 808 792 9535.