

**Cyanotech Corporation Conservation Plan for
Hawaiian Stilt (*Himantopus mexicanus knudseni*)
Annual Report for 2009**



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Abstract

This annual report covers data collected August 2008 to July 2009 for the Conservation Plan for Hawaiian Stilt (*Himantopus mexicanus knudseni*) at Cyanotech Aquaculture Facility. The nesting habitat and Ducks Unlimited raceway continued to be maintained in a manner unusable to the stilts. Cleaning the *Spirulina* production raceways reduces the invertebrate food source. The total amount of Hawaiian Stilt incidental take at Cyanotech was zero. There were no nests at the Cyanotech facility or in the lava field of Keahole International Airport.

Facility Management

Nesting Habitat

Mylar deterrents have been placed in the habitat. Three 90-watt floodlights are above the nesting habitat and illuminate the habitat at night. The floodlights were positioned on the North side of the habitat and operated by a photocell switch turning the lights on at sunset and off at sunrise. No stilts have been observed at the former nesting habitat. The former habitat is monitored daily.

Raceway Cleaning

An aggressive method of removing the invertebrate food source was to drain the production raceways, allow them to dry, and sweep out the sediment and invertebrates. Draining and cleaning the raceways is part of the normal operation and maintenance of *Spirulina* Production. Raceways have been cleaned on average of twice every 12 months. Raceway cleaning is based upon visual inspection of each raceway. Raceways with the most invertebrates are taken out of production for cleaning.

Property Outside of Cyanotech Boundaries (Lava Field of Keahole International Airport and ‘Opae’ula pond)

The lava field adjacent to the Cyanotech facility, where stilts had nested in past years, was monitored weekly for nesting activity. Surveys were conducted every Saturday during the nesting season. A Nikon 20 x 60 Fieldscope and Zeiss 10 x 40 binoculars were used to survey the lava field. There were no instances of stilts being observed in the lava field.

Additionally, as part of the conservation plan, Cyanotech funds predator control efforts at ‘Opae’ula pond. ‘Opae’ula pond is a 3.24 hectare coastal wetland located in the North Kona district of Hawai‘i Island. The wetland is utilized for foraging by migratory waterbirds and shorebirds as well as for nesting by endangered Hawaiian Stilts (*Himantopus mexicanus knudseni*) and Hawaiian Coots (*Fulica alai*). The coastal area mostly consists of dry scrub, non-native vegetation. The vegetation around the perimeter of wetland consists mostly of Kiawe trees (*Prosopis pallida*) and other non-native scrub type vegetation.

Predator control was implemented in an effort to increase survivorship of all life stages of nesting Hawaiian Stilts and Hawaiian Coots, by reducing densities of Small Indian mongooses (*Herpestes auropunctatus*), Rats (*Rattus spp*), and European House Mouse (*Mus domesticus*). Predator control efforts consisted of utilizing 27 tamper-resistant bait boxes around the perimeter of the wetland baited with Diphacinone rodenticide. The predator control work and wildlife surveys were conducted on the second and forth Monday of each month.

In 2009, to date there have been two stilt nests with one fledgling and one hatchling at the time of writing remaining at Opae’ula pond.

Stilt Counts, Nesting, Hazing and Incidental Take

Stilt Counts

There were no stilts observed on any of the weekly surveys.

Stilt counts are conducted weekly throughout the year. Past hazing efforts have been successful in reducing the numbers of stilts frequenting the facility and also resulted in no nesting at the facility. The stilts have become conditioned to the point that merely driving in their vicinity is enough to have them leave the facility with minimal if any use of either the laser or the pyrotechnics. It is known that stilts do still frequent the facility at night, the numbers are fewer than ten and a few nights of late night hazing is enough to deter them from returning for several months.

Nesting

There were no nests at the Cyanotech facility or in the lava field of Keahole International Airport. There were stilt nests reported at the Keahole Airport wastewater facility. Tim Ohashi of USDA Wildlife Services was contacted to follow up on the report.

Hazing

Hazing efforts consisted of utilizing mylar tape in areas previously utilized by stilts and driving the facility in golf carts. While it is known that stilts will at times frequent the facility late at night, noting the reluctance of the stilts to stay in the area and the low number of individuals (under ten) at the facility, the need to utilize the laser and pyrotechnics hazing devices was not warranted.

Incidental Take

As per the Conservation Plan, surveying for incidental take was conducted twice per week during the nesting season and once per week during non-nesting season. However, monitoring for injured or dead stilts was conducted daily as part of normal operations of the production raceways. Surveying the raceways for debris was conducted daily in an effort to protect the mechanical and harvest systems of the production raceways. Surveying the raceways visually is conducted first thing in the morning, before the paddlewheels were turned on.

The total amount of incidental take at Cyanotech for 2009 was zero.

Recommendations and Requests

Continue to modify and improve current deterrent measures as well as identify and research new deterrent measures for the facility.

Continue to modify and improve methods of reducing the invertebrate food source in the production raceways.

It is recommended that Cyanotech operate at 100% of production capacity during the stilt-nesting season (March-August). If this is not possible, idle raceways should be filled with seawater to prevent stilts from nesting in the idle raceways.

Cyanotech requests that the Wildlife Agencies continue to work cooperatively with the Cyanotech staff to provide technical assistance on policy and conservation issues, as well as biological expertise (e.g., compliance, adaptive management, bird deterrents, etc.).

References

Evans, K. and Uyehara, K. 2001. A Conservation Plan for Hawaiian Stilt at Cyanotech Aquaculture Facility Keahole Point, Hawaii. Ducks Unlimited Inc. 76 p.

Waddington, J.S. 2008. Cyanotech Corporation Conservation Plan for Hawaiian Stilt (*Himantopus mexicanus knudseni*) Annual Report for 2008. August 25,2007. Cyanotech Corporation. 4 p.