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History of Sea Turtles at Polihua Beach on Northern Lanai

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The only site in the main Hawaiian Islands with a well-documented history of nesting sea turtles is Polihua, a mile-long white sand beach on the northern shore of Lanai, just east of Kaena Point (Fig. 1). This is also the only location where the traditional Hawaiian place name is descriptive of eggs on a beach (Poli-hua, literally "eggs in bosom," Pukui et al. 1976). The available information suggests that Polihua was an important breeding site for the Hawaiian green turtle, *Chelonia mydas*, until the late 1800's or early 1900's. At present, very little nesting has been reported there or anywhere else in the main Hawaiian Islands. Most of the extant nesting by green turtles in Hawaii takes place at French Frigate Shoals, 300 miles to the northwest of Kauai. Green turtles seasonally migrate to this small isolated site from resident coastal foraging pastures throughout the Hawaiian Archipelago (Balazs 1980). Before 1786, French Frigate Shoals appears to have been unknown, and therefore unexploited, by the people of Hawaii. The area is currently protected as a National Wildlife Refuge. The hawksbill, *Eretmochelys imbricata*, is a second species of sea turtle that nests in the Hawaiian Islands, but solely in the main islands, in small numbers, on a few black sand beaches (Balazs 1978).

There are no reports summarizing the existing knowledge about Polihua and sea turtles, although the significance of the beach has been pointed out in recent publications (Balazs 1975, 1980). In view of the protected status of sea turtles under the U.S. Endangered Species Act, a synthesis of historical information about Polihua and the adjacent coastline of northern Lanai may be helpful to the recovery of the Hawaiian stock. For example, Polihua could prove to be one of the best places in Hawaii to do experimental restocking of green turtles aimed at reestablishing a nesting colony.

Hawaiian Folklore

Hawaiian folklore relates that Polihua played a key role in the arrival of sea turtles to Hawaiian waters. Beckwith (1970) tells the legend of Aiai, the fish demigod, "marking" a stone at Kaena, the northwestern point of Lanai. This stone then turned into the first Hawaiian sea turtle, thereby explaining why turtles come to nearby Polihua to lay their eggs (see also Pukui et al. 1976). Tabrah (1976) lists part of an ancient Hawaiian chant as "Ua ono o Pele i kana i'ia o ka honu o Polihua," which is translated as "Delighted, the Fire Goddess (Pele) feasts on flesh of turtles from Egg-nest Cape." The lines of this chant are said to "... celebrate the fame of the turtles who lay their eggs at that point of the coast called Polihua" (see also Emerson 1915; Fornander 1919-1920; Emory 1924). A traditional hula based on this ancient chant has recently been composed by Elaine Kaopuiki, a native resident of Lanai.

Pukui (1983) records the Hawaiian proverb "Na honu ne'e o Polihua," translated as "The moving turtles of Polihua."

Archaeology

Emory (1924) describes two archaeological sites on the east side of Polihua Valley that are believed to be fishermen's shrines (koa). Except for their proximity to the beach and ocean, no direct evidence was given to relate either of these stone structures to sea turtles. At Kaena-iki, just south of Kaena, Emory (1924) lists a religious stone platform (heiau) said to be one of the largest of its kind on Lanai. Emory (1924) was unable to determine a name for the heiau, since no one had lived in this region of the island for many years.

Exploitation

A series of Hawaiian newspaper articles by Kahualelio (1902), later translated into English by Mary K. Pukui, contain information about Polihua from the mid-to late-1800's, following abolition of the Hawaiian "kapu system." The relevant sections of the Kahualelio (1902) account are as follows:

"Polihua at Lanai was a very famous place for turtle catching. The natives catch them on the sand shore if they need meat. Strangers do too, when they want to visit and see for themselves and if they wanted some to eat. It was a good thing to see this famous fish of the birthplace of my beloved mother who has preceded us yonder when your writer was but a wee child. This was the fish that Pahulu asked the gods not to allow it to have any irritation in its flipper or tail. ... Yes, when you get to Polihua to catch turtles, you need all your strength. It is done thus—go to

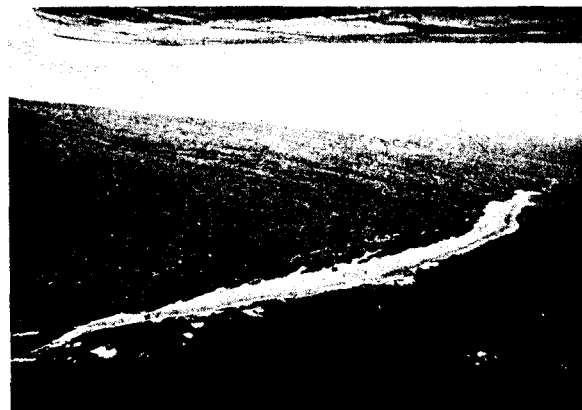


Figure 1. Aerial view of Polihua taken in July of 1977.

Photo by G. H. Balazs

Polihua in the evening and sleep there and in the early morning, in the twilight, draw close to the edge of the clumps of grass adjoining the sands and there you will see large female turtles returning to the sea. Run as fast as you can to reach a turtle and turn the turtle over with your hands with all your might. If you succeed in turning it over, you are going to eat some turtle meat but if you fail, you'll find yourself in the sea. Your writer has been accustomed as he went to sea frequently to seeing turtles gathered close to the reef. At the time that you see the turtles coming up to breathe, paddle softly until you are very close. The turtle will dive downward and then you'll distinguish it clearly. Dive down and catch it, turn it over as quickly as possible and it becomes very light and easy to land on the canoe. This seems to be the method used by most of the people who relish the greenish luau meat in a turtle. Still the easiest way to catch a turtle is by spearing it and if one speared them at Polihua one caught several times four of them."

Species Confirmation

A description of turtles at Polihua is also given in Gay (1965) for the early 1900's. Gay (1965) states: "Polihua is located near Kaena Point on the northwest coast of Lanai. It was there that the turtles laid their eggs in the sand above the high-water mark. I have seen turtles that weighed in excess of five hundred pounds on this beach and were capable of carrying three medium-sized persons."

It is important to confirm that the species nesting at Polihua was the green turtle, since this is not clearly stated in the historical literature cited above. Evidence for the green turtle includes the chant quoted by Tabrah (1976) and proverb by Pukui (1983) referring to "honu", the green turtle, as opposed to "honu'ea", the hawksbill (Pukui and Elbert 1971). In addition, Kahaulelio (1902) and Gay (1965) mentioned the large size of the turtles at Polihua. This description is consistent with the known size of the adult green turtle, but not the smaller adult hawksbill. Kahaulelio (1902) also said that the turtles at Polihua were captured for food, a practice not usually carried out in Hawaii with the hawksbill since this species was considered poisonous (Malo 1951).

Current Information

Since 1972, I have been able to gather various unpublished material about Polihua through personal correspondence and interviews with several longtime residents of Lanai. The names of these informants are kept anonymous herein to help insure a continuing flow of information, and also because some aspects may be culturally sensitive. The individuals involved include native Hawaiians, as well as other reliable members of the Lanai community. The following information comes from these sources.

The stone image of a "turtle god" is reported to be at Polihua. At one time, the exact location was known by at least one elderly person, but windblown sand has apparently covered up the stone. Efforts have been made to locate the stone in recent years since shifting sand may periodically expose it. The success of these efforts is unknown. There are also reports of a turtle petroglyph located at Polihua, on or near a rocky point at the east end of the beach. Sand was also reported to shift back and forth over this site. It is possible that the stone "turtle god" and the turtle petroglyph are, in fact, one and the same. However, stone "fish gods" (kuula) in the Hawaiian culture usually consisted of a smooth upright movable stone. In contrast, petroglyphs were mostly inscribed on large boulders or

other stationary rock. Two of the best known Hawaiian petroglyphs depicting sea turtles appear on a boulder at Luahiwa in the interior of Lanai (Emory 1924).

Two persons recalled from memory the catching of turtles on Polihua Beach during the 1920's. The sharp decline in nesting during subsequent years has been attributed to the construction of roads, increases in traffic to the north shore, and easier access for taking turtles on the beach. A dirt road now leads directly to Polihua. Other possible adverse factors to nesting, which have also been speculated upon, include changes in coastal vegetation and heavy erosion at higher elevations (Balazs 1975).



Adult female Hawaiian green turtle.

Photo by G.H. Balazs

Known or attempted nesting during recent years are listed below. It is possible that some of these reports involve turtles hauled out to bask, rather than to nest. Terrestrial basking is common in the Northwestern Hawaiian Islands, especially at French Frigate Shoals, but rare in the main islands of Hawaii and most other areas of the world (Whittow and Balazs 1982). It should also be noted that several unpublished sightings exist for the Hawaiian monk seal, *Monachus schauinslandi*, both ashore and in the coastal waters of northern Lanai.

- In 1954, a "turtle eggs nest" was reportedly seen at Polihua "behind a large sand dune near a keawe tree."
- In 1968, a turtle was seen "up on a north shore beach."
- In 1971, a turtle was seen right at the water's edge at Polihua.
- On November 23, 1977 at 1000 h, two large green turtles were seen mating in the sea off Laehi, on the northeastern shore of Lanai.
- On July 31, 1981 at 1300 h, two "very large turtles" were seen at Polihua "20-30 yards up the beach" near some boulders. No eggs were seen. The observer tried to turn the turtles over, but they proved to be too heavy. "Lots of turtles" were seen offshore. No signs of turtle tracks or digging could be found when the site was examined several days later. This, again, may have been due to the effects of windblown sand. It should be noted that the basking behavior previously mentioned almost always occurs on shore within a few yards of the water, and never 20-30 yards inland.

—In the spring of 1983, a large turtle was seen during the early morning hours returning to the water at the west end of Polihua. The turtle's tracks were traced up the beach to a mound of sand (presumably a nesting site). The area was left undisturbed by the observer. A subsequent report indicated that a helicopter service from Maui used this same area of the beach to land tourists. The person who communicated the above information stated he is "convinced" that turtles are again nesting on Lanai.

—During early August of 1983, a large turtle was seen during the daytime in the intertidal shoreline at Awalua, about 2 miles east of Polihua. The observer left the site to tell a nearby companion, but the turtle was gone when they returned.

Foraging Pastures

Rich coastal foraging pastures for green turtles are believed to occur along the northern and northeastern shores of Lanai. Gay (1965) mentioned that when he lived on Lanai, "turtles were plentiful along the windward side of the island." As quoted earlier, Kahaulelio (1902) said that: "... if one speared them at Polihua one caught several times four of them."

During the 1960's and early 1970's, green turtles were intensively captured off Lanai and Molokai for the restaurant trade and other commercial markets on Maui. Persons involved in this fishery commuted in small boats between Maui and the mostly remote coastal areas of Lanai. In 1968, a fisherman wrote on his monthly commercial catch report: "This area in 1948-1950 I used to catch at least 100 in 4 to 5 days fishing—for some reason there are no turtles there now." Another fisherman recently stated in a telephone interview that turtles caught during past years off Molokai could be recognized as having been ashore on Lanai's beaches by the tar stains on their undersurfaces.

Major algal food sources used by green turtles in Lanai's foraging pastures consist of *Amansia glomerata*, *Acanthophora spicifera*, and *Sargassum polyphyllum* (sometimes called "limu honu"). The sea grass, *Halophila hawaiiiana*, has also been identified from the stomach of a 96.5-cm adult female green turtle speared by a fisherman in November 1978. This same animal was found to have large pieces of black and white plastic bags packed throughout its intestines (Balazs 1980).

On October 28, 1982, divers from Molokai visited Laewahie on Lanai's northern shore. An aggregation of green turtles was seen in about 6 m of water just west of a prominent ferroconcrete shipwreck. One of the turtles, a 56.5 cm juvenile, was captured by hand while it was sleeping under a ledge. The turtle was double tagged (No. 6569, 6570) and released (Bill Puleloa, pers. commun.).

The coastal foraging pastures of northern Lanai appear to be attractive habitat for the recruitment of young green turtles. For example, a 9-month old, 33-cm green turtle reared in captivity and released in 1974 off Oahu was speared 11 months later off northern Lanai. It was found with a group of others similar sized turtles. When the fisherman swam into view, all of the turtles fled except the captive-reared one (Balazs 1980).

Recommendations

No systematic surveys have been undertaken to ascertain the present status of sea turtles on the beach or in nearshore habitat of Polihua and the adjacent coastline. The effect of shifting sands from normally brisk tradewinds may be masking a greater level of nesting

than is now being reported from chance sightings. Periodic nighttime searches by a trained observer need to be made from May through August to accurately quantify nesting activity. A series of scuba diving surveys should be carried out to gain a better understanding of the distribution and numbers of turtles dependent upon northern Lanai's nearshore habitat.

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