

# The Mangrove in Hawaii

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The bridge is surrounded by mangrove trees that thrive in the swamp that occupies 35 acres of what used to be taro land and then rice paddies.

The mangrove with its tangled roots is a major factor in forming new islands along the Florida coast and in other tropical or subtropical areas. It has also been changing parts of Hawaii's ecosystem since its introduction early in this century.

Some of these changes are described in a paper, "The Impact of Mangroves on the Hawaiian Littoral Zone", by Lyndon L. Wester of the University of Hawaii's geography department.

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Mangrove is also helping destroy important Hawaiian cultural sites, particularly the fishponds that dot the leeward coast of Molokai.

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A photograph used with Wester's paper shows how mangroves are filling more and more of Kipapa Fishpond, Molokai.

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"Unfortunately, many hundreds of others are likely to pass from view as a result of sedimentation and wall dismemberment which has been greatly speeded by the invasion of mangroves," Wester writes.

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swamp, 70 acres in extent, in the delta where Waikale Stream flows into West Loch, Pearl Harbor. The delta was formed by sediment from Oahu Sugar Co.'s mill being discharged into the stream and thus being taken to West Loch.

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It now stretches for miles along the Molokai coastline. This mangrove, the most common in Hawaii, was purposefully taken to Oahu but has volunteered to many sites, spreading to Kauai, Lanai, and the Big Island. As far as is known, it is not on Maui.

Four mangrove species were brought from the Philippines and planted in mudflats around Oahu in hopes of reclaiming them. *Bruguiera gymnorrhiza* is well established in Heeia Swamp, but has also spread to a few other places. The swamp also has the American or red mangrove.

The American mangrove has also spread to channels dug to drain marshes or surface runoff, such as along the Ala Wai, at Ala Moana Park, at the airport and several other areas.

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He also comments: "The effect of the mangrove on marine food chains and the value of the swamp as a nursery for fish and crustaceans might warrant further investigation."

## Nature Walk

AN EXCELLENT LITTLE booklet, "A Nature Walk to Ka'ena, O'ahu", has recently been published under a project jointly funded by the Office of Sea Grant and the Hawaii Committee for the Humanities.

Ed Arrigoni, a Kaiser High School teacher with wide experience leading field trips, is the principal author, although he points out he was helped by a number of others. Ray Tabata is the editor.

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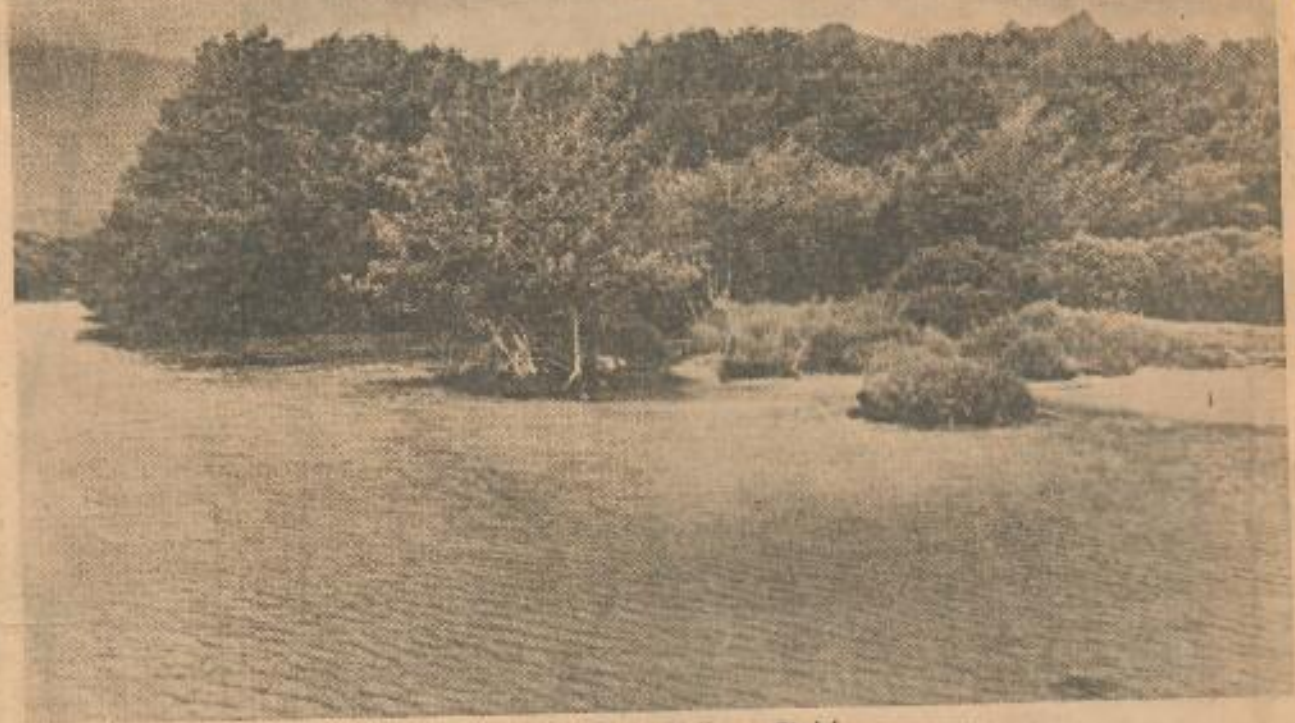
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## Rare Plant

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MAY 16, 1977 5-B MONDAY



*Mangroves at Bellows Field*

— a nice gift from  
the mangrove swamp

HONOLULU ADVERTISER 6/12/94

**M**angrove swamps are not a native forest type found naturally in Hawaii.

The mangrove, like most of the plants we see around our islands on a daily basis, was introduced to Hawaii by its residents.

Like many other of our introduced plants, mangrove — or to lei-makers, *kukuna o ka la* (the rays of the sun) — is treasured by some people.

The fast-spreading mangrove is taking over the walls of old Hawaiian fishponds and *multiwai* (areas near the mouths of river), turning them into the type of mangrove swamps found in Florida and elsewhere.

This particular mangrove is native to an area ranging from Malaysia to India to southern China. It and some other mangroves were introduced into Hawaii in 1922. It is known in Latin as *Bruquiera contigata* and is in the *Rhizophoraceae* family.

Lei-makers treasure this "weed" for its gorgeous and durable flower-like bracts.

I recently got to help at the 67th annual City and County Lei Day contest and show. One of the rarest lei that I saw was offered by a young lei-crafter named Moki Andres.

His lei were finely and tightly crafted in the *poepoe* (round) style. Fragile, yet richly colored blossoms of the *kolomona*, too delicate and crushable for most lei-makers to handle, were cradled in the center of the *kukuna o ka la*.

He had created a "new flower" through his lei. Lei-makers who go to collect this flower must be bold adventurers, unafraid of getting wet feet.

They must venture deep into the murky depths of the mangrove swamp and collect their prizes, hidden and then revealed by the rising and falling tides and waves, at the water level. This neat lei-maker at Lei Day had hoped to enter it as a theme lei.

The theme this year was *mauka* (inland), so the plants had to be reminiscent of the



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**HAWAII GARDENS**

By Heidi Bornhorst

uplands.

Andres said he was taking a chance with his theme lei, but reasoned: "It looks like it washes down from up *mauka* and grows at the water's edge."

For his sake I wished it were true, and it does seem logical, but actually mangrove seeds spread via the ocean.

They drop off from — and sometimes even sprout on — the mother plants at the ocean's edge. The long seeds drift along on the ocean currents, then wash up on a promising site.

Like our native Hawaiian *naupaka kahakai*, the seeds can float in the ocean water for a very long time, and still sprout once they reach a good spot, like a Hawaiian wetland, or a stream mouth.

You can see them trying to get started in lots of places: along the reef runway, at Keehi Lagoon, all along the Windward side, and especially around Heeia Kea.

While it is a great lei-making plant, it changes the habitat for many native Hawaiian plants and animals like the *'o'opu*, *hihiwae* and *opae*. They need our clear-running, open-to-the-ocean Hawaiian streams to live and breed in.

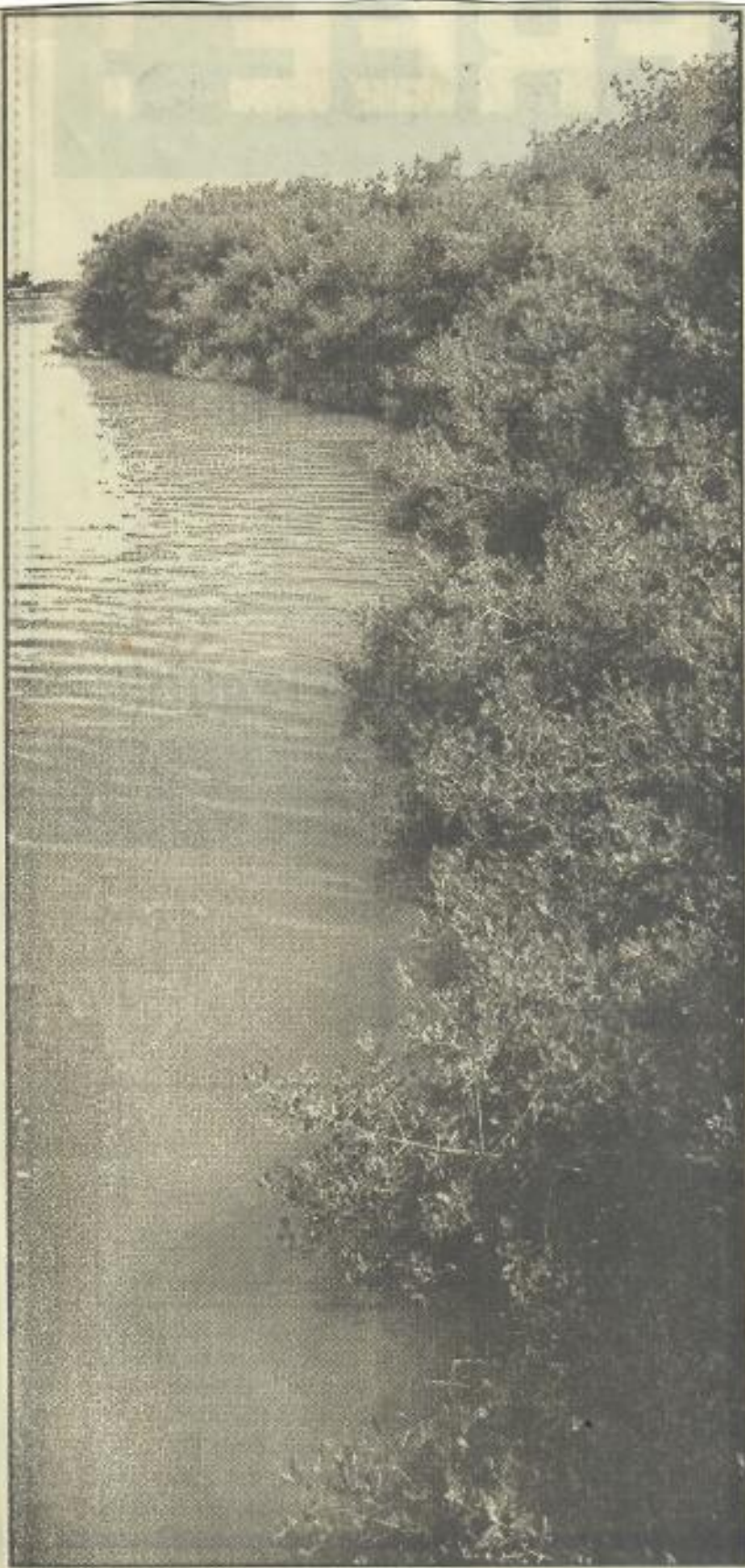
The mangrove turns these areas into silt-catching swamps that are good habitats for creatures where mangroves are natural.

So making a lei out of mangrove seeds is an environmentally correct thing to do, since it keeps the seeds from spreading.

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Heidi Bornhorst is a local horticulturist with broad experience in the "green industry." You can write to her c/o The Home Section, The Honolulu Advertiser, P.O. Box 3110, Honolulu, HI 96802.





*Advertiser photo by Richard Ambo*

The mangrove pictured here at Keehi Lagoon is native from Malaysia to India to southern China. It and some other mangroves were introduced into Hawaii in 1922.



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Honolulu Star-Bulletin

16 MAY 1977 Monday



# Molokai mangrove stands may

By Jan TenBruggencate  
Advertiser Staff Writer

Centuries of human use of the lands of west Molokai are believed to have caused erosion of silt that chokes the inner reefs of the island's south side.

That silt has developed into beds that host dense stands of mangrove, an introduced tree that is treasured as a shoreline protector in some parts of the world, but has been seen as a pest in Hawaii.

The mangrove may, however, be less of a pest than has been believed, said Sherwood Maynard, director of the University of Hawaii's Marine Option Program.

"The thick root systems may actually keep sediment from traveling as far out onto the reef as it otherwise might, and those roots also make a good nursery area for small fish," Maynard said.

A team of eight undergraduate students from four University of Hawaii Marine Option Program campuses will fly to Molokai tomorrow for two weeks of coastal surveys that will include gathering data on the mangrove.

They will be under the direction of Keith Bigelow, of the University of Hawaii Department of Oceanography, Walter Ritte, the Department of Business and Economic Development representative for Molokai, and Bill Puleloa, state aquatic biologist as-



signed to Molokai.

Maynard said the mangroves are being viewed as a potential forest resource. The hard wood of the trees has been used in fenceposts, and in some parts of the world is used as a termite-resistant construction material. The student group will map the mangrove thickets west of Kaunakakai. They will also try to determine their value in enhancing fishery resources.

The mangroves have nearly completely engulfed many of the Molokai

fishponds, most of which have long been abandoned. But others of those fishponds have also accumulated eroded silt without mangroves.

The siltation over the years has also filled many of the more than 100 fishponds along Molokai's southern coast to the point that they are little more than mud flats. Yet the fishpond walls, which once enclosed very productive fish farms, remain, and there has been interest in restoring some of them.

The Marine Option Program stu-

## be valuable

dents will make specific surveys in the Ualapue pond as the beginning of a pilot project to see if the pond can be rehabilitated without undue difficulty as a potential economic resource for the job-starved island.

"They will measure the water quality, try to assess sediment accumulation and see what fish are there. The water is probably too murky for standard diving surveys, so they will probably do netting," Maynard said. There is also some mangrove intrusion into Ualapue, which links the mangrove with the fishpond work.

Hawaiian fishponds were labor-intensive ventures, Maynard said. If they can produce enough fish and limu to provide jobs and cover costs, they could be a boon to the island, whose pineapple industry has collapsed and many of whose residents commute to Maui for work.

The Marine Option students also will conduct a survey of the marine life in the popular, small east Molokai bay, Moanui. Maynard said there are concerns of overfishing. The students will count fish, corals and other resources as the baseline data to be used if a management program for Moanui is developed by the state.

The Marine Option students and staff will camp at the Queen Liliuokalani Children's Center outside Kaunakakai.