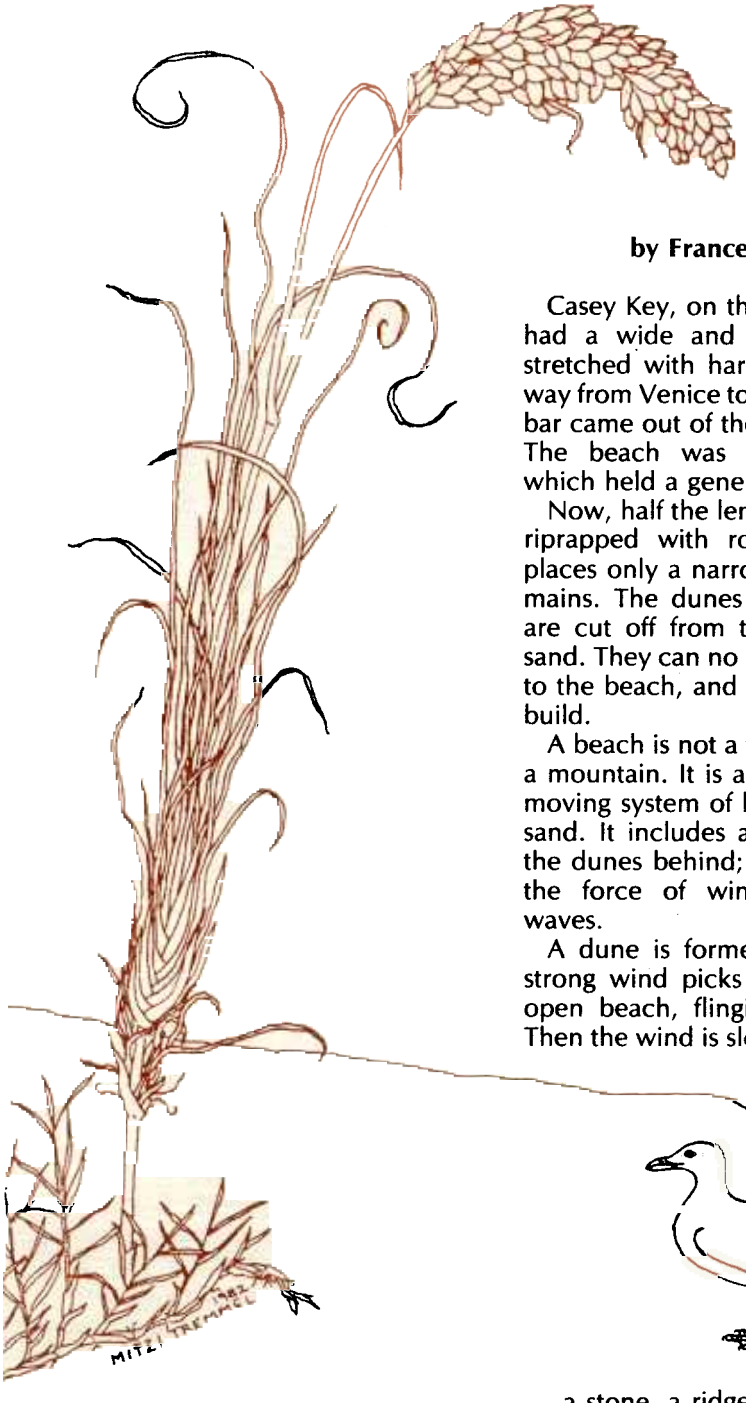
How to Save a Sand Dune



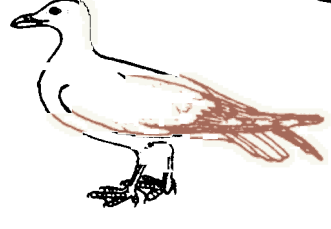
by Frances Howard

Casey Key, on the Gulf Coast, once had a wide and lovely beach that stretched with hardly a break all the way from Venice to Siesta Key. A sandbar came out of the water at low tide. The beach was backed by dunes which held a generous store of sand.

Now, half the length of Casey Key is riprapped with rock, and in many places only a narrow strip of sand remains. The dunes behind the beach are cut off from the natural flow of sand. They can no longer give up sand to the beach, and they can no longer build.

A beach is not a fixed land-form like a mountain. It is a dynamic changing moving system of loose sediment and sand. It includes a bar offshore, and the dunes behind; and it responds to the force of winds, currents, and waves.

A dune is formed by the wind. A strong wind picks up sand from the open beach, flinging it into the air. Then the wind is slowed by something — a stone, a ridge, a piece of debris, but most often by a growing plant. As it slows, the wind drops its burden, and the sand builds up behind the obstruction, beginning the formation of a dune.



Dune Vegetation

Dune plants must be drought resistant, like desert plants, because sand holds very little water.

Pioneer plants that begin the formation of dunes can survive in almost plain sand, just beyond the reach of the waves. They endure salt spray and drought. When buried by sand, they grow up through it. They are perennial, lasting long enough to consolidate the sand. They spread sidewise, so if one branch is washed out, they still survive. They grow tall enough to slow the wind and catch sand. Their root system reaches far out for what little moisture the sand can hold. On Casey Key the three best pioneer plants are sea oats, panic grass, and railroad vine.

The pioneer plants catch sand, consolidate it with their roots, and enrich it with their leaves. They provide soil and shelter for the next group of plants, in what is called the shrub zone. Here, farther up the growing dune, you find iva, inkberry, Spanish bayonet, cactus, sea grape, snowberry, coontie, palmetto, and many others.

The shrubs in turn catch more sand, create more soil and shelter, and make it possible for trees to grow in the forest zone. The chief trees of our forest zone on Casey Key are cabbage palm, southern red cedar, and finally

continued next page

THE PALMETTO
(ISSN-0276-4164)
Florida Native Plant Society
935 Orange Ave., Winter Park, FL 32789

Peggy S. Lantz, Editor
Rt. 3, Box 437 - Orlando, FL 32811

THE PALMETTO is published quarterly by the Florida Native Plant Society under the auspices of The Environmental Information Center and The Florida Conservation Foundation.

Articles on any aspect of Florida native plants are invited. Include drawings or photos, if possible. They will be handled with care, and will be returned if you include a self-addressed stamped envelope. Send to Peggy S. Lantz, Editor., **The Palmetto**, Rt. 3, Box 437, Orlando, FL 32811, 305/299-1472.

SAND DUNE ——————from page 1

live oak. Of course, there are other trees, and herbs and annuals as well.

There is a natural succession as you move from the sea-side of the dune to the back; from the first-formed pioneer zone to the shrub zone to the forest; from bare barren sand to a rich moist soil; from grasses and herbs to shrubs and trees. There is a slice of time in the profile of the dune.

Zones grade into each other. A plant which is a shrub in the front of the dune may grow into a tree at the back. Some plants are found in all three zones.

The dune is built and stabilized by the plants that grow there. To protect the dune we must protect the vegetation. Dune plants, especially pioneer plants, are very vulnerable to traffic, even foot traffic. Their delicate roots spread out far and wide, to suck precious water from the near-dry sand. Walking near them breaks the delicate root-hairs. Vehicles and people should stay at least six feet away from all vegetation. In a washout below a bank I can see the roots of sea oats ten feet away from where the plant itself grows.

Revegetation

At the North Jetty's Park at the south end of Casey Key, there is a good example of beach revegetation. There the beach is building up. The county has built walkovers to protect the growing dune from the public. The beach is heavily used. Beneath and on either side of the walkovers, the county and the 4-H have planted sea oats, panic grass, railroad vine, and other beach builders. Under the Australian pines and behind the dune plantation, they have planted nickerbean. This is the only plant that thrives under Australian pines. It is a thorny tangled legume which some day will deter the public from walking through the sea oats.

Sea Oats *(Uniola paniculata)*

This is the most important of the dune builders. It is the most attractive and the most permanent. If buried, it grows up through the sand to the surface. Once started, it will spread, and seek its best level in the sand.

Sea oats are hard to start from seed. Most of the "oats" have no grain. Seeds must be gathered right after the heads have lost their green color before the grain shatters. The actual seed looks like a light brown grain of rice.

Sea oats are hard to transplant. A division from an established plant should be immediately planted in a large pot, lightly fertilized and well watered. Use a fertilizer high in nitrogen. When it is well rooted and growing you can plant it on the beach, above the reach of the waves, in a large hole so you don't disturb the roots too much, and well buried so it doesn't dry out.

A stem of sea oats, cut low so it contains a pronounced joint where growth begins, can be sprouted in water. This takes a long time and doesn't always work. Then plant the sprout in a pot, as above.

When waves have undercut a bank, you can often get a stem of sea oats, already sprouted. But be sure to have the owner's permission. Often it's better to throw sand on the roots so it can start up again where it is. Sea oats, tumbling down a cut bank, can heal erosion.

Throwing sand on sea oats will encourage it to grow and spread.

Panic Grass *(Panicum amarum* Ell.)

The next best plant for revegetation is panic grass. It resembles sea oats, but it is more scraggly and more limber. It is grayer-green. It is slightly less tolerant of drought and salt. Its seed head is narrow and long, open, with white round seeds. It's not as attractive as sea oats, but it does the job almost as well. It's much easier to propagate, and is common on the Key.

You just cut a stem with a joint and put it in water. Within a week it will sprout. After a rain you can plant it right out on the beach.

A cutting of sea oats with a good joint, put in water with panic grass cutting, is more apt to root than if it were alone.

Railroad Vine *(Ipomoea pes-caprae)*

Railroad vine, or beach morning glory, is the third of the pioneer dune builders. It also roots easily at the joints and can be grown from seed. In the fall, the seed is plentiful and easily gathered. It makes sense to broadcast it over drifts of new sand.

In summer, railroad vine sends long runners down the bare beach. These are almost always washed out. You can bend them back along the bottom of the berm where they may do some good. Or you can make cuttings of them.

Railroad vine is not tall enough to be a real dune builder. But it can protect bare sand and it is an attractive plant. Most any plant is helpful if it will grow on the dune.

Other Common Beach Builders

Iva, or beach elder, is a succulent woody herb, an excellent dune builder, but hard to propagate. Seedlings transplant easily.

Sea rocket *(Cakile fusiformis)* is an annual of the mustard family. It is a bush-like herb that can gather a mound of sand. But it is an annual; it doesn't last. Small seedlings are easily transplanted. It makes a lot of seed which can be broadcast on bare sand.

Beach purslane *(Sesuvium portulacastrum)* is a low, mat-forming plant, a succulent with thick stems and leaves, and a pretty pink flower. It grows far down near the vegetation line. It roots at the joints as so many of the beach plants do. Its runners tumble over a cut bank to help it heal. It's easy to transplant: just cut a piece and bury it partially in the sand.

Distichlis *spicata* is a spikey running grass. It stands up about a foot, and so gathers some sand. It also tumbles over the edge of a bank and helps it heal. It's easy to transplant by cuttings that will root in damp sand.

Sands come and go. We may slowly lose our beach, no matter what we do. But we should hang on; it is to everybody's interest to slow the loss. Wise use of land and the conservation of groundwater will help. So will protecting and planting of beach vegetation.

On a fragile barrier island we must live lightly on the land. □