

COASTAL GEOLOGY – BEACH VEGETATION

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Now we are on the beach face, facing the Gulf of Mexico. And remember, we're on a barrier island. And indeed, most of the beaches in Florida are on barrier island systems. So it's a natural system, important to the animals that live here and the plants, but it's also important for humans, because recreationally, we really, really enjoy coming to the beach for a number of reasons.

So we're going to start our first activity by actually looking at the plants and the role of plants on the beach. We will spend some naming the plants and looking at their adaptations. But our number one question is, how are the plants helping to stabilize the beach? That is, to hold the sand in place and keep it from not blowing off the beach either being washed away by water or blown by the wind.

So we're going to look at how each plant's adapted to living in sand. So it has to catch water quickly. It has to deal with wind, both low and high speed winds. It has to deal with salt spray. And it has to deal with continuous sunlight. So Dr. Lodge is going to take us around and show us the plants that are here at the beach-- the front of the beach on the dune and also behind the dunes. We're going to start our exploration behind the dunes, so we'll catch up with you in just a second.

I'm Angela Lodge, and I'm with the Education and Outreach Program at USF, College of Marine Science. We're behind the dunes now where it's very hot, less sun spray, less salt, less weight.

Right now, I'm standing here by the prickly pear. And this is a plant that is able to survive, because it's very succulent. It's able to retain the water, and so it's not as affected by the sun as plants that are not as succulent.

Moving along, right over here, we have the beach croton. The beach croton, as you can see, is not that succulent as the prickly pear, but it's also adapting to life on the beach. It's growing lower. Plants that grow lower are able to resist the winds. And also, it has these thick woody stems, which again helps to resist the wind. It has fuzzy type leaves. And what these leaves do, they help to trap sap.

Moving right along, we're over here. And we have a mimosa . The stems, again, they're very strong. They can resist the winds very well. And if you notice something about these plants on the beach, they are very thin. They're growing vertical. And that's because they're trying to keep down as much of their surface area covered by the sun.

It's like when you go to the beach to get a tan. If you want a good tan, you're going to spread out, right? But if you don't want to get all burnt up, you're going to kind of get your body in a [INAUDIBLE]. So this is what they're doing. They're keeping down the amount of sun that's hitting their surface area.

So here we have a beach primrose. The beach primrose as you can see, it's growing low to the ground. And that's what we say plants do as one of the adaptation features. They grow low into the ground. They're more protected by the wind. It has very fuzzy hair-like leaves, and that's because it's trapped in the sand. And that's another way they survive.

They lay low. They trap the sand, but that's a good thing, because by trapping the sand they're helping keep the beach in place, which is what all plants on the beach do. And that's why we need them.

Also birds need them for food. You know. What comes first, the chicken or the egg, the plants or the birds? I'd say the plants come first, and then the birds follow. So now we're at the top of the dunes, where we have more plants. And of course, on top of the dunes, they're going to have to resist more wind, more salt spray.

Right over here, we have a beautiful sea oat. I think it looks healthy. It's been raining a lot in Florida. And sea oats, as you can see, they're vertically aligned. Like I said, plants on the beach, they like to get vertical, less surface here to be hit by the sun. But they also have very strong stems. And they resist the wind very well. One thing you need to know. It's very important. Sea oats are protected in Florida. Therefore, don't go walking around and snapping them. You could get a ticket from our ranger.

And over here, we have the inkberry. The inkberry is a very strong woody plant. Of course, it needs to be, because it has lots of wind to resist. Another thing with the leaves of the inkberry, it's very waxy, very waxy and pretty succulent. This plant, you will know it is an inkberry, because there are little berries on it. Right now, they are green. But as they get older, they're going to get really, really dark.

There's a little flower on it. And the cool thing is that there's always half a flower. It's not going to get bigger. It's not going to get fuller. That's the inkberry. It is a half a flower. And the inkberry, really as you can see, helps to hold the beach in place-- very strong rooting system.

So right now, we're moving down towards the beach. But before we get there, I want to stop and show you this plant. This is called a morning glory. There are two types of morning glories. There is the regular leaf morning glory. That's usually a purple. And then there is the fiddle-leaf morning glory that's usually white flowers.

And what's important and why they survive so well on the beaches is because of these specialized roots. They're called rhizome roots. So everywhere you see one, it's connected, connected. So when you have like a hurricane, heavy storm, big over wash, they might be covered, and you think they're dead, but they're not. The rooting system is right there, and it's staying alive. And as soon as we get some good rain, and it washes all that sand away, here they come,

Also, the sea oats that I showed you before, it also has rhizome roots. But the roots go down very deep, very wide. And so sometimes, you'll see these not growing horizontal, but it's not dying, it's spreading out. The root to the system is spreading out. So that's why after a storm, you come back, and you see so much, because they have been growing under. And as soon as they are able to hit the sunlight, get more, they just bloom.

So we have come from the back dune. And now we are on the beach face. And I like I said, the plants on the beach face have to have those specialized roots that prevents them from being washed away.

And this one right here is called the sea purslane. Sea purslane is very interesting. It has those rhizome roots mentioned before. It grows a flower. And one thing about the sea purslane is that it's also edible. So if you ever get caught on an island, know this plant, because you can eat it and survive.

So right here we have the sandspur, or sandbur. This is one of the plants that you'd love to hate, but you should really care about it, because you realize that it is also helping to hold our beaches in place. They are trapping these flooring or the prickly part traps the sand. And this is holding, so it also has those rhizome roots we mentioned. R-H-I-Z-O-M-E, rhizome roots. And these are specialized roots that hold these plants in place that when there's high over wash and sand spray, they do not get blown away or washed away.

So this is a saltwort. And you know it's a saltwort because it has these various succulent stems, leaves, very strong, resist the wind very well. And the sand spray, it resisted very well. And because of the succulence, it can stay and survive and loses the sun. Because the plants here have a lot of sun that they have to deal with.

So today, I hope you learned a lot or something that you didn't know about plants and their importance for our beach, their importance of our ecosystem. And I hope you had a good time and see you on the beach next time. Bye.