Big Cypress

National Park Service
U.S. Department of the Interior

Big Cypress
National Preserve

Courtesy, J. Shirey NPS/VIP

Epiphytes

The epiphytes of South Florida leave the visitor with a sense of beauty and wonder. They help to create the idyllic landscape representative of the Big Cypress Swamp. They also evoke a sense of wonder in that they grow in ways that seem so foreign to most. With the protection that Big Cypress National Preserve affords, there is little doubt that these epiphytes will continue to impress for many years to come.

Epiphytes are some of the most distinctive plants in the world, yet most people are not familiar with their natural beauty. Many are aware of parasites, which require a host to live, while extracting nutrients from that host. Epiphytes are similar in that they need a host to survive, but take nothing from the host. Derivative of a Latin term meaning "upon plants," epiphytes can be found on many native trees. In South Florida, there are many examples of epiphytic plants that can be found throughout Big Cypress National Preserve.

Air Plants

The most visible of all epiphytes in South Florida are the air plants, or bromeliads. Looking like bird nests in the trees, bromeliads are unique in the way they grow. Most plant root systems have evolved to extract water and nutrients from the ground, but air plants do not. The root structure of an air plant is designed to form an anchor point to attach itself to a tree. Since the roots do not extract water, air plants collect water in a holding "tank" in the center of the plant. The shape of the leaves direct all water to this reservoir. Dead insects and other detritus also gather in this area, allowing nutrients to leach into the water, aiding the growth of the air plant. The pineapple is a well known bromeliad; however, it grows on the ground instead of on trees.

Feeding on Lightning

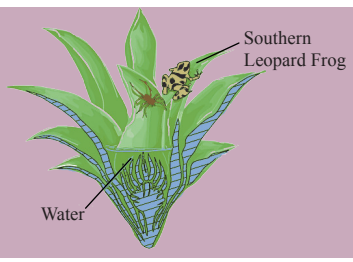
Air plants also gather nutrients from a very unique source—lightning. South Florida has the highest percentage of cloud to ground lightning strikes than anywhere else in the country. The heat released from a ground lightning strike is hotter than the sun and stimulates a chemical process that creates nitrogen. The nitrogen combined with the high humidity in South Florida allows air plants to extract nitrogen directly from the atmosphere. This "feeding" process does not exist anywhere else in the country.

Orchids

Some of the most well known and ornate epiphytes in South Florida are orchids. Of the 22,000 species of orchid found worldwide, 127 species exist in Florida. The vast majority of orchids in the Big Cypress swamp are epiphytic,

Anatomy of an Air Plant

Lacking roots, air plants rely on collecting rain water through their cup shaped leaves and storing it in a central resevoir. The plant provides a habitat for small animals such as frogs and insects that seek shelter, nutrients, and water within the plant.



and each has a unique growing style. For example, the cowhorn orchid (*Cyrtopodium punctatum*) has evolved a massive spongy base, where its roots attach to the host; in this spongy region, water can be stored for later during the dry season. Similarly, the ghost orchid (*Polyrrhiza lendenii*) grows stout thick roots, which draw moisture directly out of the atmosphere as needed by the plant. These two distinct growing styles showcase the amazing ways in which orchids have adapted to living in the swampy surroundings.

Hungry Plants

Many orchids feed on nutrients in much the same way. They extract nutrients from the decaying matter that falls into their watering areas. Many ghost orchids can be found on downed or dead trees, where the orchid can gather enough nutrients from the rotting organic matter. In some extreme cases, orchids use the droppings of passing birds to fertilize the plant and ensure a healthy growing season.

Strangler Figs

The strangler fig is one of the most haunting and beautiful plants in the Big Cypress swamp. Its ability to grow around the host tree has given it the name, "strangler," but also it is the only epiphyte that will affect the host in which it grows. The strangler fig grows very slowly as it matures, extracting water and nutrients directly from the atmosphere. As the plant gets larger, it may grow both up and down the trunk of the host tree. Eventually, the strangler fig will reach the ground at which point the growth cycle speeds up greatly. The strangler fig will encircle the roots of the host tree and eventually kill it. As the host tree rots away, a hollow void is left with the strangler fig standing alone. These eerie plants add a sense of wonder while visiting the Big Cypress swamp.

Extra Protein

Each of the 750 fig tree species found throughout the world are pollinated by a wasp specific to each fig. A chemical smell attracts the female wasp to the fruit of the fig tree. While inside the fruit, the wasp lays her eggs, where they hatch. When the wasps reach maturity, the males and females mate, and the females fly out in search of another fig to lay her eggs. As the females fly out they are coated in pollen, and as they fly into the next fig, they will pollinate that tree. The male wasps never leave the fruit of the fig where they were born; as a result, any organism that eats the fruit of the fig tree will receive an extra protein bonus provided by the male wasps.

Little by little, strangler figs, like the one shown here, slowly creep up and around their host trees using them for support in the journey upwards towards sunlight. Their growth resembles a spider web and the intertwining root structure will eventually envelop the tree. Like a scene from a horror movie in which plants slowly envelop and kill forsaken hikers, the strangler fig's competitive advantage over the host tree is haunting, yet successful.

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