

Big Cypress

National Park Service
U.S. Department of the Interior



Big Cypress
National Preserve



Orchids

Orchids invoke a sense of wonder in many people due to their distinctive beauty, great diversity and rarity. With around 30,000 known species, orchids constitute the largest family of flowering plants on earth. Not only are they extremely diverse, but they are widespread and can be found around the world in environments ranging from rainforests to desert oases to tundra above the Arctic Circle. Here in Big Cypress National Preserve, 36 species of orchids can be found. Some of these are epiphytic, meaning they live on trees or other plants but are not parasitic. While others are terrestrial growing from the ground.

During the dry season visitors frequently pass by rare and beautiful orchids without a second glance. For much of the year when the plants are not flowering they are nondescript, resembling a small cluster of palm or grass leaves. But one way to tell them apart from other plants is by their leaves. With parallel veins, the leaves of the orchid are quite variable in size and shape, some being small and round while others are slender and elongated.

The flowers have three sepals, and three petals, one of which is modified into a *lip* that serves as a landing platform for pollinating insects or birds. It guides the insect towards the nectar, which is strategically located to ensure that the pollinator brushes against the pollen as it feeds. Orchids adapted for wind, rain, insect, bee, wasp, hummingbird, and many other types of pollination exist. Therefore, the diversity in floral forms in the orchid is outstanding. Orchid flowers range from being green and tiny (less than three millimeters across) to multi-colored and large.

Epiphytic or Terrestrial

The two main growth patterns for orchids are epiphytic, growing in trees or other hosts, and terrestrial, growing from the ground. Epiphytic organisms were once confused with parasitic organisms, in the sense that both types of organisms require a host to survive. The main difference is that epiphytes do not take anything away from its host; it uses the host solely for stability rooting to it like an anchor. Most epiphytic orchids have stems which are swollen at the base and store water in this bulbous region. Terrestrial orchids utilize their roots in the same fashion as other plants, drawing water from the surrounding soil.

Cowhorn Orchids

The endangered cowhorn orchid (*Cyrtopodium punctatum*) can be found in the hardwood hammocks and open cypress swamps of Big Cypress (pictured top of page on left). In the spring, the plant produces an impressive cluster of flowers spattered with shades of red

Common Orchids of Big Cypress

- Clamshell orchid
- Dingy-flowered star orchid (left)
- Leafy vanilla orchid
- Florida dollar orchid
- Florida butterfly orchid (center)
- Lace-lip ladies orchid
- Habeneria
- Snowy orchid
- Florida malaxis orchid
- Grass pink orchid (right)



and yellow. In order to attract bees that are its pollinator, the flowers have evolved to resemble a swarm of bees. The actual bee flies into the flowers either to fight with what it believes to be a rival swarm of bees, or to mate with what appears to be bees of its own kind. In doing this, the bee becomes covered in pollen, therefore pollinating the next orchid when it starts the process over again. The cowhorn orchid requires cross-pollination to produce seeds and fruit meaning that a cowhorn orchid must receive pollen from another cowhorn orchid in order to reproduce. The problem is that the cowhorn orchid has become so rare in Big Cypress that cross pollination is not reliable. Dr. Jim Burch, the preserve's botanist, has begun to manually pollinate many of the known cowhorn orchids using small forceps in an effort to conserve the species.

Ghost Orchids

One of the most unusual orchids found anywhere in the world, the ghost orchid (*Polyrrhiza lindenii*) has become a symbol of the South Florida landscape. Its haunting white color and long curling spikes that seem to float in midair are like a ghost of bygone eras. The ghost orchid is a night moth pollinated specimen that blooms both during the day and at night. The long wispy petals attract the moths in the dead of night and provide nectar to the hovering pollinator. The moth will then seek out another ghost orchid and transfer the pollen from one to another, thereby aiding in reproduction. The most conspicuous feature of this orchid is the system of roots, which radiate from a central hub and creep tightly both up and down the host tree's bark. These orchids grow as easily on the smooth bark of a Royal Palm as the rough bark of the cypress trees of the swamps.

The ghost orchid is an indicator for the overall health of the Big Cypress swamp due to its need of a specialized habitat. It requires a vast pool of genetic diversity, and high humidity to thrive. Habitat destruction, as well as changing hydrologic cycles have affected the ability of the ghost orchid to bloom in high numbers. Due to its specific growth requirements the ghost orchid is one of the most endangered flowers in

the United States. The best time to view the ghost orchid blooming is in June/July when the flower and mosquitoes are at their peak.

Clamshell Orchids

The small purple lip of a blooming clamshell (*Encyclia cochleata*) is a beautiful sight to witness (pictured top of page one on right). The clamshell is part of a larger family of orchids known as the cochleata family. Elsewhere in the world, the clamshell orchid has one central stamen, or reproductive organ, surrounded by two pairs of pollen sacs. Here in Big Cypress the clamshell has developed a pair of stamens, and four pairs of pollen sacs. Thus, the Florida clamshell orchid is another highly endangered flower which is found in the wilds of the Big Cypress Swamp. Unlike many other types of orchids found throughout the world, the clamshell can be found blooming on portions of the Turner River year-round.

A Dying Breed

Unfortunately, many of our orchid species are threatened or endangered due to overcollecting and changing environmental conditions. Canals built many decades ago cause water to drain from the swamps of Big Cypress into the Gulf of Mexico to the south. Now, efforts are being made to stop this flow of water in the canals and restore natural hydrologic functions in the Preserve. This is important to the survival of orchids as they are sensitive to climatic conditions. Many orchids in the Preserve rely on the water in the swampland to moderate air temperatures and provide humidity. Because most of the orchids that grow here are of tropical origin, they do not tolerate freezing conditions, and need the warm, moist conditions to survive that the swamp provides.

Did You Know?

Orchids rely heavily on other species for survival. In order to help conserve specific types of orchids certain insects and birds must also be protected to ensure their survival.

A ghost orchid flowering (center) and in a dormant state (left). A ranger photographs a blooming ghost orchid (right). Only take a photo, never collect orchids or other plants.



Center photo courtesy of JR Bertels, NPS/VIP

Left and right photos: NPS/Christine Clark