

Epiphytic Plants in South Carolina

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For many people the image most associated with coastal South Carolina is that of venerable live oaks draped in Spanish moss and punctuated by dense colonies of resurrection fern. While the oaks themselves are quite impressive, the Spanish moss and resurrection fern imbue them with a lushness that tells you that moist ocean breezes or slow meandering rivers are nearby. These are just two of our better known epiphytes in South Carolina.

An epiphyte is a plant that lives upon (*epi-*) another plant (*phyte*). True epiphytes are classified as non-parasitic organisms. Ecologically we classify the tree-epiphyte relationship as **commensalism**. Unlike parasitism, the host in a **commensal** relationship is unharmed by the symbiont living upon it. While the epiphyte is frequently anchored to the host plant with roots, these roots are absorbing water and nutrients from the air and sediments that land on the tree. The epiphyte benefits from the height it gains through this association. Being elevated above the forest floor may prevent the plant from being trampled, covered in leaves or grazed upon by large herbivores. The greatest advantage of being an epiphytic plant may be the opportunity to gain more sunlight than it would at ground level.

Several epiphytes are clearly native in South Carolina:

resurrection fern (*Pleiopeltis polypodioides*), Spanish moss (*Tillandsia usneoides*) and green-fly orchid (*Epidendrum magnoliae*). These species are primarily found in the outer Coastal Plain, but may be found further inland along

rivers. The high humidity characteristic of these parts of the state is essential for our native epiphytes. In places where the habitat has been altered we may observe fewer or no epiphytes. Large oaks that support spanish moss and resurrection fern may lose these taxa when surrounded by asphalt or other built structures that raise the ambient air temperature and retain less water than forests or meadows.

Resurrection fern gets its name from its water-conserving habits. When moist with rain or fog, resurrection fern is green and lush in appearance. As the plant dries out the fronds curl up, turn grey and appear to have died (see Fig. 1). Following the next rain event, the plant will quickly reactivate and appear to have

come back to life (see Fig. 2). Resurrection fern has even been used as a traditional medicine throughout Central America to treat liver ailments, low blood pressure, fever and cough.

The mostly free-hanging Spanish moss is not a moss, but a flowering plant. The obscure flowers of this unique plant may be found from April to June and are evidenced by three delicate green petals (see Fig.3). Just like the pineapple



Figure 1. Drought-stricken resurrection fern.
Photo courtesy of Rebekah D. Wallace, Bugwood.org



Figure 2. Resurrection fern after a rain.
Photo courtesy of Rebekah D. Wallace, Bugwood.org

plant and some houseplants, Spanish moss is a bromeliad. Bromeliads are a diverse family of plants found in tropical and sub-tropical regions worldwide. Other species in the genus *Tillandsia* are sometimes marketed as “air plants” and sold as keepsakes to tourists in Florida or as novelties in some garden centers.

Showy tropical orchids are the prototypical epiphytes for many plant enthusiasts. While South Carolinians may be familiar with non-native epiphytic orchids that are commonly cultivated on bark or moss and traded worldwide, the green-fly orchid is a relatively obscure native plant that is frequently found mixed in with resurrection fern on the branches of live oak trees. The green-fly orchid is the only epiphytic orchid north of Florida and reaches its northern limit just across the North Carolina border in Brunswick and New Hanover Counties. The green-fly orchid has a delicate white flower that blooms from mid-summer through the fall in South Carolina (see Fig. 4). Dr. Richard D. Porcher argues that this taxon should be considered “common rather than rare.... It is often overlooked because it grows high up in the trees where it is sometimes hidden in resurrection fern and/or Spanish moss.” Recently discovered in Marion County, this epiphyte is one to look out for when paddling or hiking along our rivers in the Coastal Plain.

Just as we find terrestrial and aquatic non-native plants spreading across South Carolina there are two epiphytes that are expanding their ranges as well. Ball moss (*Tillandsia recurvata*) is a sister species of Spanish moss more commonly found in Florida. Until this century ball moss had not been documented in South Carolina. In the last five years it has been found in nearly every coastal county, but it almost certainly hasn’t been spreading on its own. Today ball moss in South Carolina is mostly found

on young, planted live oaks. It is thought that this “air plant” from Florida has hitchhiked its way up the coast on nursery plants. While it is mostly confined to streetscapes, neighborhoods and parking lots, ball moss can be observed colonizing new hosts (such as magnolias, cypresses, crape myrtles and even Japanese privet that may be planted nearby).

Cabbage palmetto fern (*Phlebodium aureum*) is another example of an epiphyte that is increasing its presence in coastal South Carolina. This relative of resurrection fern lives on the fronds of palmetto trees (*Sabal palmetto*). A few records of this plant have been linked to South Carolina in the past, but today the number of sightings is on the rise. Apparently this plant is also riding up from

Florida on trees purchased from nurseries and planted along the South Carolina coast.

Other plants may exhibit an epiphytic habit without being considered true epiphytes. Mistletoe (*Phoradendron leucarpum*) is a hemi-parasite that grows primarily upon oak trees. The striking green color and distinct growth form of mistletoe in winter gives it a bushy appearance

in the otherwise barren branches of deciduous trees. We classify mistletoe as a hemi-parasite because it is capable of photosynthesizing its own food as evidenced by its greenness (a result of the abundant chloroplasts), but it also taps into the host tree to gain nutrients. Also, non-epiphytes will occasionally establish on a tree that has accumulated soil or humus on or in a stem or branch (see Fig. 5). While these opportunistic individuals usually don’t survive over time, they can create an interesting sight.

When looking for native plants it is easy to get into the habit of seeing a tree you

are familiar with and looking past it to find something new. With epiphytes we need to take a second look at



Figure 3. Spanish moss in flower. Photo courtesy of author.



Figure 4. Green-fly orchid. Photo courtesy of Jim Fowler

the plants we know to find the extra “plant upon a plant”. As new epiphytes spread into South Carolina it will be interesting to see if they adopt new hosts, colonize natural areas or even survive in our climate long term. Take a look around, there may be more new epiphytes in South Carolina that haven’t been documented.

Dr. Joel Gramling is a Charleston native, and did his undergraduate study at College of Charleston, followed by a Masters in Education from The Citadel, and Doctorate from UNC-Chapel Hill.



Figure 5. Opportunistic pseudo-epiphytes on an oak.
Photo courtesy of author.

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Upcoming Activities

Cullowhee Native Plants Conference

The annual Cullowhee Conference: Native Plants in the Landscape will be held July 28-31, 2010, on the campus of Western Carolina University, Cullowhee, NC. For more information and/or registration, see <http://nativeplantconference.wcu.edu>

LowCountry Chapter

Lowcountry Fall Plant Sale – October 23 at Charlestowne Landing – Time and other details TBA. Watch <http://www.scnps.org/calendar.html>

Midlands Chapter

Field Trip: Savage Bay Heritage Preserve - July 10, 2010 (Saturday) Bert Pittman and Kathy Boyle will lead this field trip to Savage Bay Heritage Preserve. Approximately half of the 110 acre preserve consists of Carolina bay habitat. Please contact Ellen Blundy at ellenblundy@windstream.net to register. Directions will be sent at the beginning of July.

Field Trip: Goodale State Park - August 14, 2010 (Saturday) - For more information contact Ellen Blundy ellenblundy@windstream.net

Field Trip: Botany Bay Heritage Preserve, Edisto Island - Sept 11-12, 2010 (Saturday - Sunday) . The 4630 acre tract is ecologically and historically significant with many diverse habitats. The maritime forest beach has its own boneyard. The property is managed by SCDNR. For more information contact Ellen Blundy ellenblundy@windstream.net

Field Trip: Peachtree Rock Heritage Preserve - October 9, 2010 (Saturday) - Leader will be Wayne Grooms. For more information contact Ellen Blundy ellenblundy@windstream.net

Upstate Chapter

Field Trip: Lee Falls - Saturday, July 17, 8:00 am. Joe Townsend will lead us on a 1.5 mile hike to the 75-foot Lee Falls. To see it we hike through a hardwood hollow full of botanical rarities such as Oconee Bell (*Shortia galacifolia*) and Bulblet Fern (*Cystopteris bulbifera*). Meet at the Holly Springs Store dirt parking area at 8:00 am. For more information and registration contact Mary at mmcnettles@gmail.com

Presentation: Magnolias in the Carolinas - Tuesday, July 20, 7:00 pm - Dick Figlar, world authority on the genus Magnolia, and resident of Pickens County. Founders Hall in Dining Commons, Southern Wesleyan University, Central. For a map and more information, visit http://www.scnps.org/activities_ups.html

Field Trip: Coon Branch Trail / Lower Whitewater Falls. Thursday, July 22. Registration and details available from mmcnettles@gmail.com

Presentation: The Natural and Cultural History of Fire in the Southlands . Tuesday, Aug 17, 7:00 pm - Johnny Stowe. Heritage Preserve Manager for SC DNR's Heritage Trust Program.

Location: Greenville TEC @ McAlister Square, 225 S Pleasantburg Dr., Greenville.

Presentation: Mosses in the Landscape. Tuesday, Sept 21, 7:00 pm - Dr. Robert Wyatt, former Director of the Highlands Biological Station, will focus his talk on ten native moss species that make attractive subjects for a range of garden sites. Founders Hall in Dining Commons, Southern Wesleyan University, Central.