

The Rein Orchids of Florida

Despite the considerable precipitation that falls on the so-called Sunshine State, if you hear somebody talking about Florida's "Rain Orchids", tell them, "Whoa, there! Hold your horses. You must mean "Rein Orchids."

The homonymic nature of the words "rain" and "rein" make the mistake understandable. But these orchids—which belong to the genus *Habenaria*—are properly "Rein Orchids" with an "e".

by Chuck McCartney

In the mid-1700s, Swedish botanist Carl von Linné obtained specimens of a New World orchid bearing flowers producing a nectar spur that hung down nearly seven inches from the back of the lip. Linné, known to the world by his Latinized name, Carolus Linnaeus, and considered the father of our modern binomial system of botanical nomenclature, placed this western hemisphere terrestrial orchid in the genus *Orchis*, which is now considered limited to Eurasia. He called it *Orchis habenaria*, coining the species epithet from the Latin word *habena*, meaning "strap", "thong", or "rein". The name probably refers to the long, rein-like nectar spur, although the three-lobed lip and lower lobe of each bilobed lateral petal also appear somewhat rein-like.

Later, in 1805, Carl Ludwig Willdenow erected the genus *Habenaria*, using the Linnaean species name for his new grouping. Rules of botanical nomenclature do not allow the repetition of the

generic name as the specific epithet. Thus, Linné's plant could not be called *Habenaria habenaria*. (This practice is allowed in zoological nomenclature, giving us such stuttering names as *Anhinga anhinga*.) Linné's *Orchis habenaria* of 1759 therefore became Willdenow's *Habenaria macroceratitis*. This species epithet came from the Greek words meaning "large horn", no doubt also referring to the length of the nectar spur of this orchid. Today, we know this plant as *Habenaria quinqueseta* (Michaux) A. Eaton var. *macroceratitis* (Willdenow) Luer. It is considered the type species for the genus *Habenaria*, and it is present in Florida.

Because of the generic name, members of the genus *Habenaria* today are called Rein Orchids, a rather artificial common name manufactured for persons unable to remember Latinized plant

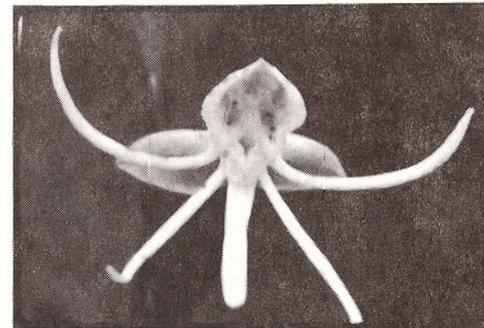
binomials.

Estimates of the number of species of *Habenaria* vary from 300 to 600, depending on how the genus is delimited. In the modern, stricter sense of the genus, however, the lower number probably is more accurate.

Species of the genus *Habenaria* are found throughout South America, Africa, and Asia. Five taxa of true habenarias occur in Florida. Two are rather limited in distribution within the state. The other three are encountered relatively frequently in their chosen habitats. These Rein Orchids of Florida generally bloom from late summer into early winter.

Habenaria quinqueseta

In the pinelands of Everglades National Park, *Habenaria quinqueseta* (Michaux) A. Eaton var. *quinqueseta* can be found blooming from late August through September, sometimes right along road-



The species name of *Habenaria quinqueseta* comes from the Latin words for "five bristles", referring to what, at first, looks like the flower's five-part lip. Only the lower three "bristles" belong to the lip. The outermost upswept bristle on each side is the lower lobe of each bilobed lateral petal. This plant was growing in a pasture under pines in the Big Cypress Swamp in September, 1984.

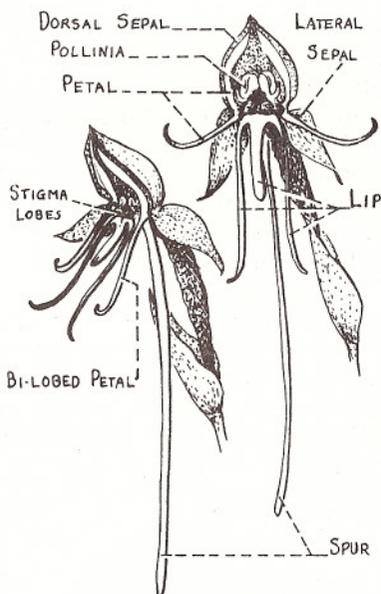
sides. This species ranges throughout the Florida peninsula, up the Atlantic coast as far as southern South Carolina and along the Gulf coast as far west as eastern Texas. In those areas, it may occupy plant communities other than the harsh pine-land environment in which it is found in southern Florida.

This species produces attractive, somewhat spidery, white to greenish-white, inch-wide flowers which exhibit the typical *Habenaria* floral form. In fact, the species name, *quinqueseta*, created by Andre Michaux in 1803 for a plant from the Carolinas, makes reference to this form. It comes from the Latin words meaning "five bristles". On first glance, the lip of the flower appears to be made up of five bristle-like lobes. But only the



Photos by Chuck McCartney

Blooming plants of *Habenaria quinqueseta* have large leaves growing up the stem. Such "cauline" leaves are typical for the genus *Habenaria*. This specimen, growing under pines in a pasture in Big Cypress Swamp, was photographed in September, 1987.



M. McCracken © '90

lower three lobes belong to the lip, and a similarly deeply three-lobed lip is typical of most species of true *Habenarias*. The widest-spreading lobe on each side of the lip is actually the lowermost lobe of each deeply bilobed lateral petal, again with such deeply bilobed petals being typical for the genus. The shorter, broader upper lobe of each petal is held tightly against the concave dorsal sepal, forming a hood over the entrance to the usually long nectar spur jutting from the back of the lip. The length of the nectar spur can vary considerably within the genus. The lateral sepals often fold back out of the way because they do not seem essential to the mechanism of the pollination process.

Because of the long-spurred flower structure, pollination would appear to be by butterflies and/or moths.

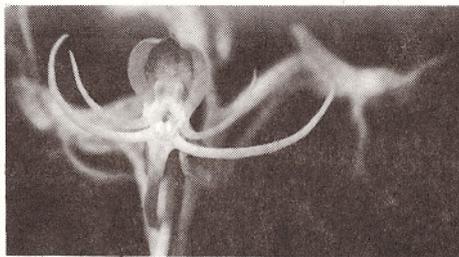
Plants of *Habenaria quinqueseta*, which can range from less than eight inches to more than 24 inches in height, also exhibit typical *Habenaria* vegetative form, with large cauline [growing from the stem] leaves extending well up the stem from the base on flowering specimens. Leaves on sterile plants remain as a basal rosette.

In the typical form of *Habenaria quinqueseta*, the nectar spur ranges from less than two inches to almost four inches in length. A longer-spurred form occurs in a limited area of western central Florida, generally from Tampa Bay northward to the Big Bend area of north Florida. This is the form Linné first described as *Orchis habenaria*. It also occurs from southern Mexico through Central America and along the Caribbean coast of northern South America as well as on the islands of Cuba and Jamaica. The latter island supposedly is the type locality for this form.

Although this extreme difference in length of the nectar spur probably indicates a different pollinator or group of pollinators for the two forms, in all other floral details the long-spurred form appears to be identical to the typical form of *Habenaria quinqueseta*. This led Dr. Carlyle A. Luer, in *The Native Orchids of Florida* (1972), to reduce the long-spurred form to a variety of the typical form, as *Habenaria quinqueseta* var. *macroceratitis*.

Habenaria distans

Very similar to *Habenaria quinqueseta* in both flower size and form is Florida's rarest Rein Orchid. This is *Habenaria distans* Grisebach, which has been reported in Florida only from Highlands, Lee, and Collier counties. In Collier



Habenaria distans is the rarest Rein Orchid in Florida, producing green-and-yellow flowers similar in form to those of *Habenaria quinqueseta*. However, the lateral lobes of the lip spread wider in *H. distans*. Photographed in a damp swamp forest in Collier County in September, 1986.

County, it is represented by at least two healthy populations, one on a tree island in the depths of the Fakahatchee Strand, and another in a damp swamp forest in a protected area nearer the Gulf coast. This species also occurs in much of the Caribbean and Central America and in a small portion of northern South America.



Habenaria distans does not produce large leaves on the bloom stem, as do most other Rein Orchids. Instead, the leaves grow at ground level, forming a basal rosette. Photographed in swamp forest in Collier County, September, 1986.

Flowers of *Habenaria distans* are yellow and green, while those of *Habenaria quinqueseta* are white and green. Also, the lateral lobes of the lip and the lower lobes of the lateral petals tend to sweep upward gracefully, leaving the midlobe of the lip somewhat separated at the lowermost part of the flower.

One vegetative characteristic makes *Habenaria distans* stand out immediately from other Rein Orchids in Florida. Instead of having large leaves growing up

the stem, all the larger leaves are clustered around the bottom of the stem, forming a basal rosette against the damp ground in which these plants grow. The species epithet, *distans*, comes from a Latin word meaning "standing apart" and may refer to the distance between the leaves and the flowers in this rosulate species. It also may refer to the rather widely spaced flowers on the few-flowered inflorescence. The exact reference is not clear, according to Luer.

Habenaria repens

The other Rein Orchid in Florida displaying typical *Habenaria* flower characteristics is *Habenaria repens* Nuttall, one of the Sunshine State's few



Habenaria repens is commonly called the Water Spider Orchid, with good reason. It is one of Florida's few truly aquatic orchids, often growing in standing water. And the little flowers do indeed look like nests of spiders crowding the inflorescence. This specimen was growing beside an artificial pond in Palm Beach County, June, 1985.

"aquatic" orchids (and perhaps more deserving of this designation than *Spiranthes odorata*). In fact, its appropriate common name, Water Spider Orchid, makes allusion to the aquatic habitat in which *Habenaria repens* most frequently is found. And the spicate racemes of little greenish flowers, with their typical *Habenaria* shape, do, indeed, look like nests of spiders.

Although rare in southern Florida, this orchid is considered the most common *Habenaria* in central Florida, where it occurs along the edges of lakes, as well as actually in the lakes growing out of floating mats of vegetation. Besides being found throughout most of peninsular Florida, *Habenaria repens* occurs up the Atlantic coast as far as North Carolina and along the Gulf coast down into Mexico. It also is found throughout the West Indies and the lands ringing the Caribbean basin.

The flowers of *Habenaria repens* are

considerably smaller than those of the other species of this genus occurring in Florida, being only about one-half an



What *Habenaria repens* lacks in flower size, it more than makes up for in floriferousness, producing spicate racemes crowded with tiny Rein Orchid flowers. This is the same flower as in the close-up of *H. repens*.

inch across. However, what it lacks in flowers size, this species more than makes up for in floriferousness, with the tall racemes bearing up to 50 or more flowers.

Unlike other true habenarias in Florida, *Habenaria repens* blooms sporadically throughout the year, according to Luer.

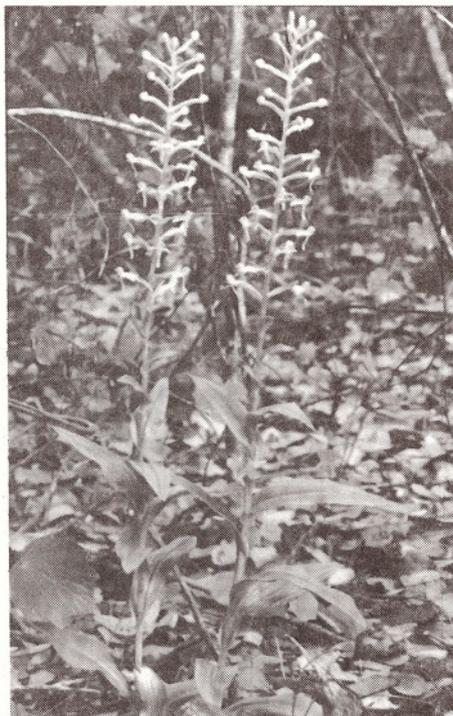
The species name, *repens*, applied to this orchid by Thomas Nutt!! in 1818, comes from the Latin, and traditionally is interpreted to mean "creeping", referring to plants whose stems creep along the ground. This doesn't apply at all to *Habenaria repens*, which proudly holds erect its inflorescences of up to 20 inches in height. The name thus becomes even more mysterious in meaning than that for *Habenaria distans*. Luer, in *The Native Orchids of Florida*, offers this alternative explanation of the meaning: "According to a standard Latin dictionary, *repens* means sudden or unexpected, which could very nicely refer to the manner in which these inconspicuous plants are usually encountered."

Habenaria odontopetala

In southern Florida, the most common Rein Orchid is *Habenaria odontopetala* Reichenbach f., which was once (and apparently erroneously) considered a

variety of the Mexican *Habenaria strictissima* Reichenbach f., a name under which the Florida plants sometimes are encountered in older texts.

In south Florida, *Habenaria odontopetala* is a species of hammocks and swamp forests, where it blooms from November into February. The species



Habenaria odontopetala is a species of hammocks and damp woodlands, producing typical Rein Orchid plants with large leaves growing up the stem. Photographed in a hammock remnant in Broward County, November, 1987.

occurs throughout peninsular Florida, [including, as readers found out in the last issue of *The Palmetto*, in the Enchanted Forest in Titusville]. Luer reports that in the northern part of the state, it blooms as early as September.

This species also occurs in the Bahamas, the Greater Antilles, and from Mexico through Central America. There is also a suspiciously similar species reported for Venezuela called *Habenaria petalodes*.

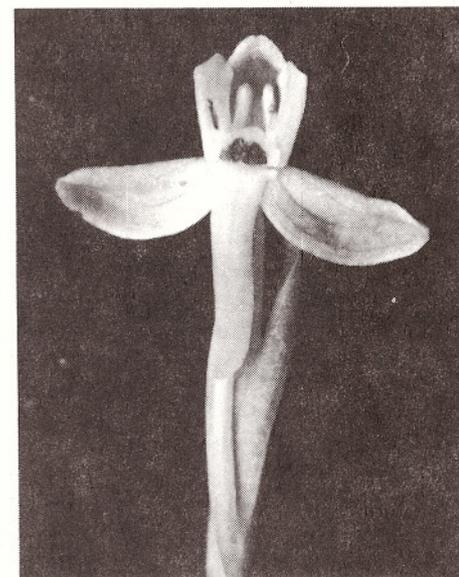
Habenaria odontopetala diverges from the typical *Habenaria* flower form. The form is still there—but you have to look at the flowers very closely to perceive it. This seemingly anomalous flower structure led John Kunkel Small, the "splitter supreme" of southeastern U.S. flora, to place it in its own monotypic genus, as *Habenaria odontopetala*.

In *Habenaria odontopetala*, the side lobes of the lip are reduced to mere minute lobules, and the middle lobe becomes considerably wider and strap-like. The same kind of diminution occurs with the normally long lower lobes of the

two lateral petals, making them scarcely visible as little lobules at the base of the widened upper lobe. The tip of each upper lobe sports a pointed, tooth-like projection, accounting for the species epithet, *odontopetala*, which comes from the Greek words for 'tooth' and 'petal'. These wider, pointed upper lobes diverge more from the dorsal sepal in this species than they do in Florida's other Rein Orchids, making them more prominent than in the other species.

The size and floriferousness of plants of *Habenaria odontopetala* can vary considerably. In the shade of a hammock in Everglades National Park, plants may be only a foot or two tall and may produce only a few flowers widely spaced along the stem. However, plants growing in slightly sunnier (and obviously more optimum) locations in the Big Cypress Swamp may be as tall as four feet and may produce racemes densely packed with as many as 60 or more flowers.

Flower color also can vary from green to yellow. Sometimes, bicolored flowers occur, with the yellow petals and lip set off against the green sepals. Old flowers also persist on the stem for a long time, with the green sepals remaining fresh



Habenaria odontopetala differs somewhat in flower form from other Rein Orchids. The normally long side lobes of the lip and lower lobes of the lateral petals are reduced to mere minute lobules. The species name refers to the tooth-like point at the tip of each upper petal lobe. Photographed in Palm Beach County, January, 1986.

after the petals and lip have withered.

Because they lack the wide-spreading lateral lobes of the lip and the lower lobes of the lateral petals found in *Habenaria quinqueseta*, the half-inch-wide flowers of *Habenaria odontopetala* are less conspicuous and appear smaller. But they are considerably larger than the flowers

of *Habenaria repens*, especially in length.

True *habenarias*

In the past, a number of disparate plants were lumped together in the genus *Habenaria*, and most older texts (and far too many new ones, unfortunately) list these as *habenarias* in Florida. However, the four species and one variety discussed here are the only true *habenarias* occurring in North America north of Mexico, as the genus is currently understood.

Habenaria in this stricter sense is primarily tropical to subtropical in distribution. The roots produce swollen, tuber-like growths termed root-stem tuberoids. In the flowers, the stigma produces lobes which grow downward around the opening of the nectar spur, essentially surrounding it.

Most other plants in North America formerly lumped into the genus *Habenaria* now are placed in the genus *Platanthera*, which is primarily north-temperate in occurrence. Although plants of *Platanthera* may have fleshy roots, they lack the distinctive root-stem tuberoids of true *habenarias*. Also, the stigma of the flowers does not surround the opening of the nectar spur.

Several members of the genus *Platanthera* are found in Florida, with the more spectacular ones, such as *Platanthera ciliaris*, *Platanthera cristata*, and *Platanthera blephariglottis*—the so-called Fringed Orchids—occurring only from central Florida northward.

The sole *Platanthera* straggling into South Florida is *Platanthera nivea*, which produces small, snowy-white flowers with the lip uppermost, rather than pointing downward as in most resupinate orchid flowers. This species, which blooms from late May into June and early July in Florida, is discordant even within the genus *Platanthera*, and sometimes is encountered in the genus *Gymnadeniopsis*.

[Since this presentation by Chuck McCartney was precipitated by your editor's incorrect spelling of Rein Orchid in the article about "The Enchanted Forest" in the last issue of *The Palmetto*, then the obvious close for this article is:

Next time you visit the Enchanted Forest, remember to look for *Habenaria odontopetala*, the Rein Orchid, whether it's raining or not!]

Chuck McCartney is a life-long Floridian, and specializes in orchids. He has written several articles about Florida's species of these beautiful plants for The Palmetto.

The Tulip Tree in Peninsular Florida

(*Liriodendron tulipifera*)

by William D. Moriaty

One of Florida's finest large native trees is the *Liriodendron tulipifera* Linnaeus. A member of the Magnolia family, this species is known commonly as the tulip tree, tulip poplar, or yellow poplar.

Range

Its natural range is from southern Vermont and southern Illinois south to eastern Louisiana and northern Florida, with relict and endemic populations as far south as Orange and Hernando counties in central Florida. Largest trees are usually found in the Appalachian Mountains in the southeast, and the Ohio River valley. The only other member of this genus occurs naturally in the Orient, and is known as *Liriodendron chinensis*.

In Florida, native stands are most abundant along the sides of seepage slopes in the moist soils of the Panhandle, particularly from Jefferson County westward. Populous stands can also be found in Putnam and Duval counties, usually bordering streams and swamp hardwood hammocks. The tree was allegedly native to Alachua County, but was logged to extinction. The only examples there are planted ones, with several noteworthy specimens on the University of Florida campus.

In the remainder of the central part of the Peninsula, however, their numbers decrease dramatically as growing conditions for this species become more difficult due to soil content, hydrological extremes, lack of winter chill, and intensified solar conditions.

Nevertheless, large specimens can be found in several locales in the Peninsula. It is not uncommon for populations of these specimens to be up to 90 miles from one another. Natural stands with these specimens are most abundant along the Wekiva River and its tributaries in Orange, Lake, and Seminole counties. The best viewing on foot is at Kelly Park in Orange County, where several large specimens can be seen by crossing Rock Springs Run and surveying areas just southwest and

north of the main path. Kelly Park is north of Apopka just east of SR 435.

Toward the west coast, several specimens are growing in and near McKethan Park, which is north of Brooksville on the west side of U.S. 41. These Hernando County examples can be found by a little woods walking just south of the entrance road, and just east of the intersection of the lake loop road.

Planted examples in the Peninsula can be found in the following locations:

Ocala, Marion County—Town Square, downtown, SR 40.

Orlando, Orange County—Lake Eola Park, north side of lake, just south of Robinson Avenue.

EPCOT Center, Orange County—Communicore West, west side of building.

Tampa, Hillsborough County—Armenia Avenue, west side of pavement on the grounds of a funeral home.

Tampa, Hillsborough County—Jesus High School, north entrance road. Specimen may have taken a lightning hit three years ago; appears to be recovering.

Tampa, Hillsborough County—Corporex Business Park, Buffalo Avenue, extreme southwest end of entrance road. Strangely, it is sheared annually to a height of about ten feet!

St. Petersburg, Pinellas County—Bay Pines Veterans Administration Hospital, north of Building 2, and at the police station.

Culturing

Liriodendron performs best in moist (but not wet), organic soils, typically from Orange County northward. I have seen a few healthy examples, however, as far south as Arcadia in DeSoto County, so if the soil is enriched and watering is tended to during drought periods, its range of growth can be extended farther south.

Plant in full sun or partial shade. Full sun will usually produce the finest shaped tree (generally pyramidal to