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The Spider Lilies (*Hymenocallis*) Native to Florida[1]

Mark A. Garland[2], Gerald L. Smith[3] and Patti J. Anderson[4]

INTRODUCTION: Explorers of the southeastern United States, if they are fortunate, will sometimes encounter hundreds of large, brilliant white spider lilies, of the genus *Hymenocallis* in the amaryllis family (Amaryllidaceae), covering floodplains, lining stream banks, covering the rocky shoals of certain Piedmont river systems and perfuming the air with a lemony fragrance. Such displays are some of nature's most spectacular scenes.

Despite their attractiveness, except for *Hymenocallis latifolia*, the native spider lilies of Florida are little known to horticulture. One reason may be that the species differ in subtle ways and have confused botanists for centuries. To clarify distinctions among the species, the first two authors studied Florida's spider lilies in the field for twenty years, and Smith has studied the plants extensively in the herbarium and laboratory, especially their chromosomes. We briefly present results of this work below.

DISTRIBUTION: The genus *Hymenocallis* ranges through the tropics, subtropics and warm temperate regions of the New World and includes about 40 species. Smith's research (Smith and Flory 2002; Smith and Garland 2003; Smith and Garland 2009) indicates that 13 of the 16 species of spider lilies native to the United States are found in Florida. (One Florida species, *H. gholsonii* G. Lom. Sm. & Garland, was very recently discovered and is only briefly mentioned in this circular.) The species native to Florida included in this circular are *H. choctawensis*, *H. crassifolia*, *H. duvalensis*, *H. franklinensis*, *H. godfreyi*, *H. henryae*, *H. latifolia*, *H. occidentalis*, *H. palmeri*, *H. puntagordensis*, *H. rotata*, and *H. tridentata*. Two of these are rare and listed as endangered in Florida (Weaver and Anderson 2010).

IDENTIFICATION: The species in the genus *Hymenocallis* are hairless, perennial herbs with large, onion-like bulbs and often underground stems (rhizomes). Their strap-shaped, somewhat fleshy leaves all arise directly from the bulb in two ranks. These leaves are erect or arching, bright green to bluish-green and deciduous or evergreen. Each plant sends up a single, two-edged or sometimes roundish, leafless stalk (*scape*), at the top of which are several membranous leaf-like bracts underneath one to sixteen sessile, fragrant flowers. At the base of each flower sits a green ovary. Within the ovary are three chambers (*locules*), each containing one or more *ovules* (structures that become seeds). Above the ovary, a more or less slender *floral tube* divides at its tip into six long and narrow, white or pale green *tepals* (three petals and three sepals). Above the tepals, a delicate white membranous *staminal cup* joins the bases of the six long, thin stamens (Fig. 1).

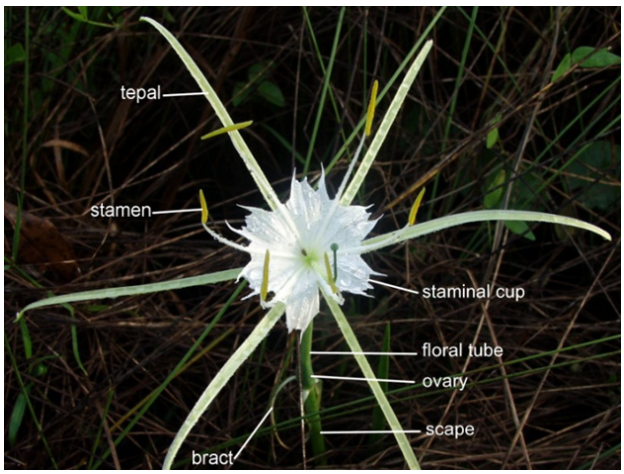

Fig. 1: *Hymenocallis palmeri* (alligator lily) flower, showing parts useful in identifying spider lilies.
Photography credit: Mark A. Garland, USDA

The native plant most similar to *Hymenocallis* is swamp lily or string lily (*Crinum americanum*), but its flowers lack a staminal cup and its leaves arise from the bulb in a spiral, rather than in two ranks. Cultivated species of *Crinum* also lack a staminal cup and have spirally arranged leaves. Several other cultivated plants in the amaryllis family, like *Hippeastrum* ("amaryllis"), also resemble spider lilies when they are not in flower; those in the genus *Lycoris* are even called spider lilies.

1 Contribution No. 487, Bureau of Entomology, Nematology and Plant Pathology – Botany Section
2 Botanist, United States Department of Agriculture, National Plant Data Team, 2901 East Lee Street, Suite 2100, Greensboro, NC 27401
3 Biology Department, High Point University, University Station-Montlieu Avenue, High Point, NC 27262
4 Botanist, Division of Plant Industry, P. O. Box 147100, Gainesville, FL 32614-7100.

TO IDENTIFY *HYMENOCALLIS* SPECIMENS: begin with mature, flowering plants, then use the following outline and photographs as a guide. Note that, even in flower, several species are hard to distinguish. Knowing where your specimens grow in nature can help you identify them. The species are grouped below by habitat and tepal color, then by other easily observable characters.

Two species have green tepals and grow in sunny, grassy places.

H. palmeri S. Watson (Fig. 1) has one flower per scape, and its tepals are often shorter than the floral tube. The leaves are the smallest of any native spider lily, rarely more than 40 cm long and only 0.4 to 1 cm wide. This is a common plant of sunny wet prairies and grassy roadsides of southern Florida. It is also found in northeast Florida. This species blooms in summer, from May to September.

H. henryae Traub (Fig. 2) has two flowers per scape, and its tepals are nearly always longer than the floral tube. The leaves are longer and wider than those of *H. palmeri*, from 25 to 65 cm long and 1 to 3 cm wide. It is a rare plant of wet prairies, edges of cypress domes and wet pine flatwoods in the Panhandle and is listed as endangered in Florida (Weaver and Anderson 2010). This species blooms in late May and early June.

The other 11 species have white tepals and grow either in sunny places or in shady swamps and wet woods.

The following three species have a staminal cup that is large in relation to the length of the tepals and is adorned with prominent projections on its edge. These species also have large ovaries, 15 to 30 mm long and 10 to 15 mm wide, with four to eight ovules in each locule.

H. rotata (Ker Gawl.) Herb. (Fig. 3) is robust, with two to four flowers per scape, each with a staminal cup 6 cm or more in diameter that spreads flat when the flower is fully open. It has deep green, arching to nearly erect, strap-shaped leaves that are 40 to 100 cm long. This spider lily is found along spring runs and lakes from Wakulla County to the central peninsula, blooming from April to June.

H. godfreyi G. Lom. Sm. & Darst (Fig. 4) is smaller than *H. rotata*, with two flowers per scape, each bearing a staminal cup 4 to 6 cm in diameter, and with erect leaves no more than 40 cm long at the time of flowering. Unlike any other native spider lily, *H. godfreyi* produces rhizomes from the bottom of the bulb, rather than from its side. This is a rare plant of coastal marshes in Wakulla County and is included on Florida's list of endangered plants (Weaver and Anderson 2010). This species blooms in early spring, from March to May, particularly after fire.

Fig. 2: *Hymenocallis henryae* (Henry's spider lily). Photography credit: Mark A. Garland, USDA

Fig. 3: *Hymenocallis rotata* (spring-run spider lily). Photography credit: Mark A. Garland, USDA

Fig. 4: *Hymenocallis godfreyi* (Godfrey's spider lily). Photography credit: Melanie Darst, U.S. Geological Survey

H. tridentata Small (Fig. 5) is also smaller than *H. rotata*, with two flowers per scape, each with a staminal cup 4 to 6 cm in diameter, but its leaves are often 40 to 55 cm long when the plant is in flower. It grows in ditches, marshes and wet prairies of the southern peninsula. This species blooms in April and May. *H. traubii* Moldenke, described from a potted plant grown from a bulb collected near Daytona Beach, may be a small example of *H. tridentata* or *H. rotata*.

The remaining eight species have staminal cups that are smaller in relation to the length of their tepals and that usually have less prominent projections on the cup edges, compared with the previous species. These species have either small or large ovaries. The following six of these species grow in North Florida, often in shady floodplains, and have small ovaries, 7 to 15 mm long and 5 to 10 mm wide, with one to three ovules in each locule. They lose their leaves in winter.

The first three of the six North Florida species have broad leaves, 2.5 to 6 cm wide, that are oblanceolate; that is, distinctly wider above the middle. They usually have three or more flowers per scape.

H. occidentalis (Leconte) Kunth (Figs. 6 and 7) has no rhizomes and relatively thin-textured, glaucous leaves. The bracts at the top of the scape are 4 to 7 cm in length with long, narrow acuminate tips. Unlike any other native spider lily, it usually grows in upland hardwood forests, sometimes far from any wetland, and is found from Leon County westward in the Florida Panhandle. This species blooms in July and August, with the leaves withering immediately afterward.

H. choctawensis Traub (Fig. 8) has rhizomes and thick-textured, shiny green leaves. The bracts at the top of the scape are 3 to 4.7 cm long, with acute, but not long acuminate, tips. This species grows in floodplain swamps from the Apalachicola River westward in the Panhandle. It blooms earlier than *H. occidentalis*, from April to June, with the leaves remaining green long afterward. The newly discovered species, ***H. gholsonii (Fig. 9),*** is very similar to *H. choctawensis*, but differs in several ways, for example, in having larger staminal cups, larger bracts, narrower, strap-shaped leaves and robust bulbs (Smith and Garland 2009; Wunderlin and Hansen 2011). It is known only from Liberty County.

Fig. 5: *Hymenocallis tridentata* (Florida spider lily). Photography credit: Gerald L. Smith, High Point University

Fig. 6: *Hymenocallis occidentalis* (northern spider lily) flowers. Photography credit: Mark A. Garland, USDA

Fig. 7: *Hymenocallis occidentalis* (northern spider lily) leaves. Photography credit: Mark A. Garland, USDA

Fig. 8: *Hymenocallis choctawensis* (Florida panhandle spider lily). Photography credit: Mark A. Garland, USDA

Fig. 9: *Hymenocallis gholsonii* (Gholson's spider lily). Photography credit: Mark A. Garland, USDA

The next three of the six North Florida species have narrower leaves, 1 to 2.7 cm wide, that are strap-shaped; that is, not distinctly wider above the middle. They usually have one to three flowers per scape.

H. duvalensis Traub (Fig. 10) is hard to distinguish from *H. crassifolia*, especially from pressed herbarium specimens. In its natural habitat, *H. duvalensis* has arching, sometimes almost prostrate leaves and staminal cups that spread almost flat when the flower is fully open. It grows in floodplains from northeast Florida west to the Ochlockonee River drainage in the central Panhandle. This species blooms in April and May.

H. crassifolia Herb. (Fig. 11), unlike *H. duvalensis*, has nearly erect leaves and staminal cups that are funnel-shaped when the flower is fully open. It is found in ditches and marshes near the coast in Nassau, Duval and St. Johns counties in northeast Florida. This species blooms in April and May.

H. franklinensis G. Lom. Sm., L. C. Anderson & Flory (Fig. 12), like *H. crassifolia*, has arching to nearly erect leaves and funnel-shaped staminal cups, but it has larger flowers and bracts, both of which are located at the top of the scape. It resembles a small-flowered version of *H. choctawensis*. This species grows in marshes and floodplain swamps along the lower Ochlockonee and Sopchoppy rivers in the Panhandle. This species blooms from April to mid-May.

The last two species grow in sunny coastal areas or along roadsides of South Florida and have either small or large ovaries. Their leaves are evergreen.

H. latifolia (Mill.) M. Roem. (Fig. 13) has the broadest leaves, 4 to 9 cm wide, and the largest number of flowers per scape, nine to 15, of any of our native spider lilies. It is also unique among our natives in having orange instead of yellow pollen. Its ovaries are small, 0.9 to 1.6 cm long and 5 to 10 mm wide, with 2 ovules in each locule. This species is found growing in sandy coastal strands of South Florida, including the Keys. Its natural distribution is hard to determine because it is widely available in the nursery trade and is planted throughout the state as a low-maintenance perennial (Nelson 2003). It is our only native representative of a group of West Indian spider lilies that includes such species as *H. caribaea* and *H. littoralis*. This species blooms throughout the year.

H. puntagordensis Traub (Fig. 14) is little-known. It has thick and stiff, shiny green, almost erect, narrow leaves that are 35 to 75 cm long and 1.5 to 3 cm wide and has three to five flowers on each scape. Unlike *H. latifolia* and many tropical spider lilies, it has yellow pollen. Its ovaries are large, 1.5 to 2.4 cm long and 10 mm wide, with five to nine ovules in each locule. In the field, its long narrow leaves, its particularly small staminal cup with prominent projections on its edge, and its stamens with particularly long green filaments are distinctive. So far, it has been found on a few roadsides and ditches near Punta Gorda in Charlotte County, always in association with *H. palmeri*. This species blooms in August.

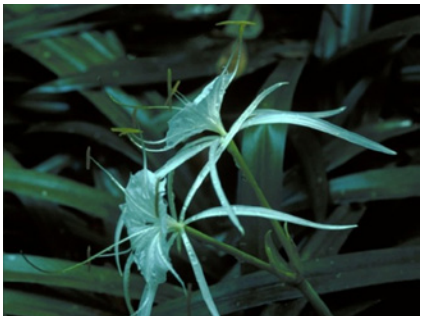

Fig. 10: *Hymenocallis duvalensis* (white-sands spider lily). Photography credit: Gary R. Knight, Florida Natural Areas Inventory

Fig. 11: *Hymenocallis crassifolia* (coastalplain spider lily). Photography credit: Gerald L. Smith, High Point University

Fig. 12: *Hymenocallis franklinensis* (cow creek spider lily). Photography credit: Gary R. Knight, Florida Natural Areas Inventory

Fig. 13: *Hymenocallis latifolia* (mangrove spider lily). Photography credit: John D. Tobe, Ecological Resource Consultants

Fig. 14: *Hymenocallis puntagordensis* (small cup spider lily). Photography credit: Mark A. Garland, USDA

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