
The Palmetto

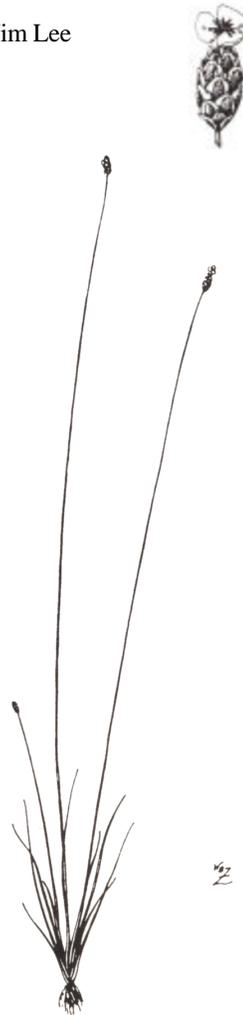
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The Yellow-Eyed Grass Family in Florida

by Jim Lee

The state of Florida is richly endowed with over 2,100 native plant species, where many may occur in or near wetland ecosystems. The diversity of wetland plants is influenced by climate, hydric soil conditions, and other biological interactions that promote or limit their existence. By early summer to late fall, one wetland plant family, the XYRIDACEAE, inhabits many fresh-water wetlands. It begins to pervade the shallow margins of ponds, lakeshores, and roadside ditches with its 2-3 foot tall stem topped by a cone-shaped spike that exposes one or two small yellow flowers at a time. Two species produce yellow or white flowers, *Xyris caroliniana* and *X. platylepis*.

The XYRIDACEAE has but one genus in North America while there are many genera in the tropics (Rickert 1966). There are 21 known native species of yellow-eyed grass that occur in Florida, plus one non-native introduced from Tropical America (*Xyris jupicai*). Thirteen species occur in peninsular Florida. Nine species occur only in the panhandle and do not extend into Central Florida. Interestingly, the yellow-eyed grass is not a grass but is considered an annual or perennial herbaceous plant that prefers to grow in acidic, hydric, sandy or slightly organic soils. Most inhabit wet pine flatwoods, pond and lake margins, cypress swamps, creek swamps, bogs, freshwater marshes, and wet prairies. Its habitat is limited by significant changes in water levels and extended flood duration in an upland-wet-



Illustrations of flower and plant from Rare and Endangered biota of Florida, Volume 5, Plants. By Daniel Waard, University Press of Florida, Gainesville, 1978.

land transition zone, or not enough moisture at the ground surface. The yellow-eyed grasses adapt well and endure the shallow wet habitat where deer and marsh rabbits can browse their leaves

in the partially open to fully open sunlit environment.

One can easily become familiar with Florida's 21 species of *Xyris*, or the ones in your area. The challenge is to recognize them in the field. Size and shape are the most useful tools to identify them. If possible, collect a complete sample specimen, including the roots, stem (scape), cone (spike or bract), leaves, flowers, and seeds. Then compare and differentiate between the plant's physical characteristics with known identifiable traits that are available in various plant identification books or manuals. They may include a photograph or drawing of the specimens, description and measurement of the leaf, leafless stem, cone, petal, seed, lateral sepal, habitat, the season they flower, and their distribution. Equipment needed to help identify the parts of the plant include a hand lens (with a power of 10 or more), a metric ruler to measure the lengths of the spike, seed, leaves, and lateral sepal, and scape. The table on the opposite page summarizes many important identifying characteristics of various *Xyris* species in Florida. The ideal method is to compare a field specimen you have collected with one from a permanent voucher specimen at a local university herbarium.

There are distinguishable physical characteristics that some species have which no other species provide. For example, two rare species, *Xyris longisepala* and *X. scabrifolia*, possess different habitat requirements unique from the rest of the species found in Florida.

Xyris longisepala is listed by the Florida Department of Agriculture as an endangered species. In Florida, it occurs only in four known locations in Bay, Leon, and Walton Counties. There are also known sites where it exists in southern Alabama. There are less than 20 sites total with less than 3,000 plants total (Florida Game & Fresh Water Fish Commission - FGFWFC 1989). Their habitat in the panhandle is on moist sandy shorelines of receding sandhill sinkhole ponds, or lake shores where water levels periodically recede enough to expose the sandy soil. The plants bloom in the after noon, and have small petals with a spike shape that is ellipsoid to oblong. In comparison, species that may grow in association with *X. longisepala* include *X. isoetifolia*, *X. smalliana* and *X. jupicai*. *X. isoetifolia* blooms in the morning, *X. smalliana* and *X. jupicai* bloom in the afternoon. *X. smalliana* has a taller scape than *X. longisepala* and *X. jupicai*. Also, *X. jupicai* has a wider leaf width, while the other two have narrow linear leaves. Knowing other key physical characteristics can further distinguish between them. Once these features become familiar, the fun begins when you compare other species.

Xyris scabrifolia is listed as threatened in Florida. "Scabrous" means "rough to touch;" for this species, this includes all parts of the leaves and scape. The leaf surface has small tubercles called papillose. The common name is Harper's yellow-eyed grass, and it is found only in

Bay, Gulf, Liberty, and Escambia Counties of Florida (and nine locations in Georgia, Alabama, and Mississippi). The plant is found solitary or in small tufts, on wet sandy peats of seepage slopes in pinelands, sphagna and pitcher plant bogs, and wet prairies. The length of the few leaves they have vary from four inches to 27 7 inches (10 to 40 cm) and 1/4 to 1/2 inch (5 to 10 mm) wide (Godfrey and Wooten 1979, and USDA 1983). The bulbous base of the leaf is tinted with pink or purple. The twisted, but erect flower stem is 1-3 feet (30 to 60 cm) tall. The spike is 10 to 20 mm long, obovoid or ellipsoidal (USDA 1983). This species is similar to *X. platylepis*, but differs in having fine tubercles, round Petals, and in having much larger, longer seeds.

An endemic species, *X. isoetifolia*, is found in Bay and Gulf Counties of Florida and occurs in savannahs, flatwood pond margins, bogs, or lakeshores (Godfrey and Wooten 1979). There are less than 20 locations with less than 3,000 plants total (FGFWFC 1989). The Florida Natural Areas Inventory (FNAI) in Tallahassee, Florida ((904) 224-8207) is interested in being notified if one finds a listed species on private or protected public lands. Protection of these listed species and their habitat is the key to their future. Many wetlands are being altered by draining them or changing their hydrology which can cause damage to the wetland habitat.

For the further interested botanist, the following table is a brief comparison of characteristic features of the *Xyris* species that occur in Florida. For a more descriptive identification, use botanical references and manuals available from your library or book store. After you investigate several wetlands and find the yellow-eyed grass in bloom, you will appreciate the radiant beauty they provide in Florida's splendid wetlands.

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Characteristics of Xyris Species in Florida Wetlands

SCIENTIFIC NAME	DISTRIBUTION	STEM HEIGHT	LEAF LENGTH	LEAF WIDTH	FLOWERING TIME	SPIKE SHAPE	SPIKE LENGTH	SEED LENGTH
<i>Xyris ambigua</i>	All of FL	70-100cm	10-40-60cm	2-7mm	Jun-Aug am	ovoid to ellipsoid	1-2.5cm	0.5-0.6mm
Savannahs, wet pinelands, and ditches.			Plants clustered, scape twisted, leaves slender.					
<i>Xyris baldwiniana</i>	Peninsular FL	20-60cm	10-30cm	0.5-2mm	May-Jun am	ovoid/ellipsoid	1.5-2.5cm	1mm
Savannahs, pinelands, and ditches.			Leaves not filiform.					
<i>Xyris brevifolia</i>	All of FL	8-40cm	2-6cm	0.5-2mm	Spr-Fall am	subglobose	4-6mm	0.3-0.4mm
Disturbed sandy, moist areas and pinelands.			Bracts purple margined, jagged margin, sepal pimplelike.					
<i>Xyris caroliniana</i>	All of FL	10-70cm	20-50cm	2-5mm	Jun-Sept pm	elliptic to obtuse	1.3-3.0cm	0.8-1.0mm
Savannahs, wet depressions, and swamps.			Smooth scape ridges; leaf base bulbous.					
<i>Xyris chapmanii</i>	W Panhandle	4.5-9.5dm	47-58cm	1.5-2.4mm	Aug-Sept am	-	6-11mm	0.6-0.8mm
Deep muck & seepage bogs in Calhoun County.			Rare; leaf base not noticeably expanded, leaves smooth.					
<i>Xyris difformis</i> var. <i>curtissii</i>	All of FL	15-70cm	20-50cm	3-14mm	May-Sept am	ovoid	12-18mm	0.5mm
Sandy peat: ditches, flatwoods; acid seep areas.			Few leaves, scape twisted, two-edged; seeds translucent.					
<i>Xyris difformis</i> var. <i>difformis</i>	Panhandle/N FL	-	10-50cm	0.5-1.5cm	Spr-Fall	relatively broad, not flat	1cm	-
Wet sands, flatwoods, lake/pond margins, Nassau & Marion Cos.			Oval scape; scape ridges more than three.					
<i>Xyris difformis</i> var. <i>floridana</i>	All of FL	10-30-50cm	15-70cm	1.5-6.0mm	All year am	broadly ovoid	1.0-1.5cm	<0.5mm
Sandy peats of ditches & pine flatwoods; roadsides.			Tufts or solitary, scape twisted below, three to seven ridges, pink base.					
<i>Xyris drummondii</i>	NW FL	4-20cm	3-8(10)cm	1.5-5.0mm	Jun-Jul am	lance-ovoid	-	0.3-0.4mm
Coastal flatwoods, disturbed lowlands, and bogs.			In tufts. Leaf with brown patch at base; scape two edged.					
<i>Xyris elliptica</i>	All of FL	20-70cm	5-10-30cm	1.5-2.5mm	May-Jul am	ovoid	7-9mm	0.5-0.6mm
Savannahs, pineland pond margins, and ditches.			Leaves numerous, flat, often twisted, two edged.					
<i>Xyris fimbriata</i>	Most of FL	60-80-150cm	4-70cm	0.5-2.5cm	Jul-Sept am	ovoid or ellipsoid	1.5-2.5cm	0.8-1mm
Pond margins, wet sandy ditches, wet pinelands.			Solitary or small tufts; scape ridges two edged twisted rough.					
<i>Xyris flabelliformis</i>	All of FL	30cm	1-4cm	1-3mm	Apr-May am	ovoid or ellipsoid	4.8-10mm	0.3mm
Savannahs, wet ditches, and pine flatwoods.			Leaves spread into fan shape; scape two edged, light color bract.					
<i>Xyris iridifolia</i>	NW FL	40-70-(10)cm	6-10-20mm	2-15mm	Jul-Sept am	ellipsoid or cylindrical	1.5-3.5cm	0.8-1.0mm
Freshwater marsh, pond margins, wet depressions.			Leaves few, linear, scape one edged below and two edged above.					
<i>Xyris isopetiolata</i>	NW FL	15-30cm	4-15cm	2mm	July am	ellipsoid	5-7mm	<0.5mm
Savannah bogs and flatwood pond-lake margins.			Similar to <i>Xyris baldwiniana</i> ; Bay and Washington Counties only.					
<i>Xyris jupicai</i>	All of FL	20-70-90cm	10-60cm	1-5-10mm	Jul-Oct am	ovoid, ellipsoid, oblong	5-15mm	4-5mm
Bogs, cypress swamps, lake-pond margins.			Short-lived coastal perennial; scape one-two edged above.					
<i>Xyris longisepala</i>	NW FL	30-40-82cm	6-8-25cm	1-2mm	Aug-Oct pm	ellipsoid to oblong	1.0-1.6cm	0.4-0.5mm
Margins of sandhill sinkhole ponds, four known locations.			In association with <i>X. jupicai</i> and <i>X. isoetifolia</i> in moist sand.					
<i>Xyris louisianica</i>	Panhandle	-	15-30cm	2-5mm	Sum-Fall	ovoid to elliptic	1.5cm-2.0	0.5-0.7mm
Ditches, swales, wet depressions; East Gulf Coastal Plain.			Rare; spike slightly flattened, solitary or in small clumps.					
<i>Xyris platylepis</i>	All of FL	50-110cm	20-40-50cm	<15mm	Jul-Oct pm	ellipsoid or cylindrical	1.5-3cm	0.5-0.6mm
Savannahs, swamps, and wet ditches.			Scape twisted, two-edged, bulbous leaf base.					
<i>Xyris scabrifolia</i>	NW FL	30-60cm	2-40-70cm	5-10mm	Aug-Sept am	ovoid or ellipsoid	1.0-2.0cm	0.4-1mm
Sphagnum bogs/sandy seepage slope, wet prairie.			Leaves few, narrow and scabrous, bulbous base, twisted scape, rarest					
<i>Xyris serotina</i>	All of FL	24-60cm	7-20-50cm	2.5-12mm	Jul-Oct am	ovoid/broadly ellipsoidal	10-18mm	0.6mm
Pine savannahs, cypress flatwoods, and ditches.			Similar to <i>X. difformis</i> ; scape four ridges.					
<i>Xyris smalliana</i>	All of FL	50-150cmd	30-50-60cm	0.5-1.5mm	Jul-Aug pm	ellipsoid to ovoid	1.2-5cm	>0.6mm
Coastal, freshwater marshes, and roadside ditches.			Solitary or in tufts, scape one-two ridged and smooth.					
<i>Xyris stricta</i>	NW FL	40-45-85cm	15-20-50cm	2-5mm	July mid-day	ellipsoid or cylindrical	2-3.5cm	0.8mm
Acid swamps, pineland ponds, and roadside ditches.			Leaves linear, scape two-edged with rough margins.					