
The Palmetto

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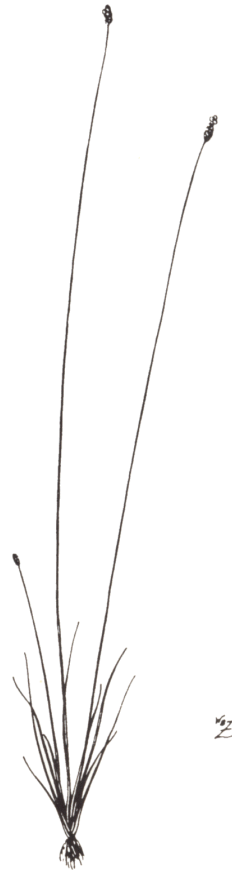
The Yellow-Eyed Grass Family in Florida

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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REFERENCES

- Bridges, Edwin L. and Steve L. Orzell. 1990. "*Xyris Chapmanii*, a New Species from the Gulf Coastal Plain of the Southern United States: *Phytologia* 68(5): 382-389.
- Clewell, A.F. 1985. *Guide To The Vascular Plants of The Florida Panhandle*. University Presses of Florida. Tallahassee, Florida.
- Florida Game & Fresh Water Fish Commission. 1989. *Summary Report on the Vascular Plants, Animals and Plant Communities Endemic to Florida*. Florida Game and Fresh Water Fish Commission Nongame Wildlife Program, Technical Report No. 7. Tallahassee, Florida.
- Godfrey, R.K. and Wooten. 1979. *Aquatic and Wetland Plants of the Southeastern United States*. Mono-cotyledons. University of Georgia Press. Athens, Georgia.

Hall, DW, *Illustrated Plants of Florida and the Coastal Plain*, Maupin House Publishing, Gainesville, Florida.

Kral, Robert. 1966. *Xyris (Xyridaceae) of the Continental United States and Canada: Sida* 2: 177-269.

Radford, A.B., H. E. Ahles, and C. R. Bell. 1968. *Manual of the Vascular Flora of the Carolinas*. University of North Carolina Press. Chapel Hill, North Carolina.

Rickert, H.W. 1966. *Wild Flowers of the United States - The Southeastern States*. Vol.2. McGraw Hill Book Co. New York.

Small, J. K. 1933. *Manual of the Southeastern Flora*. The University of North Carolina Press. Chapel Hill, North Carolina.

Taylor, W. K. *The Guide to Florida Wildflowers*. Taylor Publishing Co. Dallas, Texas.

US Department of Agriculture. 1983. *A Report On Some Rare, Threatened, Or Endangered Forest-Related Vascular Plants Of The South*. Vol. 1. Isoetaceae through Euphorbiaceae. Technical Publication R8-TP2. Atlanta, Georgia.

Ward, D.B., editor. 1979. *Rare and Endangered Biota of Florida*. Vol. S. Plants. University Presses of Florida, Gainesville, Florida.

Wunderlin, R. P. 1982. *Guide to the Vascular Plants of Central Florida*. University Presses of Florida (a University of South Florida book). Tampa, Florida.

Wanderlin, R. P. 1998. *Guide to the Vascular Plants of Florida*. University Press of Florida. Gainesville, Florida.



Lee, J. 1998. *The Yellow-Eyed Grass Family in Florida*. *The Palmetto*, 18(2): 14. <http://www.fnps.org/palmetto/v18i2p14le.pdf> (11 October, 2002).

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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. | | | | | |