



West Indian Marsh Grass

Hymenachne amplexicaulis (Rudge) Nees
Grass family (Poaceae)

NATIVE RANGE

Tropical America and the West Indies

DESCRIPTION

West Indian marsh grass (*Hymenachne amplexicaulis*), also known as trompetilla, is a perennial grass adapted to wetland habitats. It is the only species in the genus *Hymenachne* that is present in Florida. The stem, in grasses called a culm, is glabrous (hairless), erect, up to six feet tall and filled with a white pith or aerenchyma. In aquatic plants, aerenchyma allows the easy movement of oxygen from the leaves to the roots. Stems that are submerged quickly produce roots from nodes and anchor to the wetland floor. The panicles are narrow, spike-like, cylindrical, 4-15 inches long and 0.4 inches wide. Leaf blades are 4-16 in. long, and up to 1½ inches wide, mostly hairless, heart-shaped at the base with earlike appendages and clasp around the stem.

NOTE: West Indian marsh grass may be confused with the native grass American cupscale (*Sacciolepis striata*) and some other native grasses, but the presence of the white pith rules out many grass species as well as the earlike appendages at the leaf bases of West Indian marsh grass.

ECOLOGICAL THREAT

In Florida, diverse aquatic wetlands are habitats for feeding, resting, refuge and reproduction for wading birds, wood storks, snail kites, killifishes, live bearers, juvenile sunfishes, southern leopard frogs, pig frogs, green tree frogs, American alligators and American crocodiles, among other species of wildlife.

West Indian marsh grass forms monotypic stands that create large amounts of biomass deposited in the aquatic habitat. Researchers are collecting evidence to suggest that wetland invasion of marsh grass causes changes to the biological diversity of the site, including reductions in native plants and animals, changes to water quality associated with plant community metabolism, flow regimes and possible exacerbation of flooding. Additionally, West Indian marsh grass may smother river banks and change plant recruitment, nutrient recycling and survival of riparian forest.



DISTRIBUTION IN THE UNITED STATES

West Indian marsh grass is present in central and south Florida where it has been found in at least twelve counties and also occurs in nearby Puerto Rico. It is not currently reported to occur in any other states in the U.S.

HABITAT IN THE UNITED STATES

West Indian marsh grass invades freshwater wetlands, flood plains and river banks. Field observations in Florida indicate that the plant grows vigorously in wetlands that are flooded by rivers containing nutrient runoff. Sites include shallow ponds, in or along streams, in ditches, swamps, marshes, wet disturbed sites such as wet pastures, drainage canals, river banks, and

cypress swamps. It also may be found floating. When grown in a nutrient rich wetland, mature plants are robust and form extensive colonies by producing cord-like stolons that extend many feet underwater.

BACKGROUND

West Indian marsh grass is believed to have been introduced into Florida more than thirty years ago. Herbarium specimens indicate that the first report of the plant in Florida was in a ponded pasture in Palm Beach Co. West Indian marsh grass is used as forage in the neotropics, especially in Venezuela, Mexico and Cuba. Whether this introduction was intentional or not has not been determined.



BIOLOGY & SPREAD

In Florida, flowering of West Indian marsh grass occurs from September through December and plants typically produce one panicle but occasionally up to three in a consecutive manner. West Indian marsh grass grows from stolons which can become fragmented and carried great distances downstream by flowing water. It can also be spread by seed which has high viability and is produced in abundance. In Myakka State Park, West Indian marsh grass is thought to be spread by vehicles. West Indian marsh grass first observed along roads eventually moves into adjacent wetlands, probably by stolons or seeds in mud that stick to tires and equipment. If West Indian marsh grass invades reservoirs, additional spread of seeds and stolons can occur via secondary canals. Observations in marshes near Sarasota suggest that when subject to flooding, West Indian marsh grass is capable of very rapid stem elongation, increase in foliage volume and rapid nodal adventitious root production allowing emergent leaves to function at full photosynthetic capacity. Migratory birds may have carried seeds from nearby islands.



MANAGEMENT OPTIONS

The best approach to managing West Indian marsh grass in uninfested areas is to prevent its introduction. Once introduced, the appropriate method of control must be considered on a case-by-case basis, depending on the site conditions and level of infestation. Several control methods are available and an integrated pest management approach is recommended. Park rangers and the South Florida Water Management District have used registered systemic herbicides to control marsh grass by killing the buried stolons. Plant managers in Australia have used mechanical harvesters and solarization to kill small outbreaks of West Indian marsh grass. For assistance with determining the best strategy for your situation, please contact the experts listed below.

Biological

A potential biocontrol agent is being investigated for future use in management of in management of *Hymenachne*. It is an insect in the true bug family Blissidae (Order Hemiptera) and is known only by its Latin name *Ischnodemus variegatus*. It was first collected in 2000 in Florida on West Indian marsh grass and has a distinctive black and white color pattern on its wings. This insect is native to South America where it has been reported feeding on the West Indian marsh grass. Researchers observed that feeding damage of *I. variegatus* reduced the photosynthetic capacity and growth rate of West Indian marsh grass under greenhouse conditions. Field sampling has shown that *I. variegatus* is distributed across central and south Florida and large infestations produce severe seasonal damage to West Indian marsh grass.



USE PESTICIDES WISELY: Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

NOTICE: mention of pesticide products on this page does not constitute endorsement of any material.

CONTACTS

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- Southwest Florida Water Management District. <http://www.swfwmd.state.fl.us/>

SUGGESTED ALTERNATIVE PLANTS

Plant communities in Florida wetlands are composed of many native species like maidencane (*Panicum hemitomon*), a native grass that has been displaced by West Indian Marsh Grass. Other native wetland plants include pickerelweed (*Pontederia cordata*), arrowhead (*Sagittaria lancifolia*), saw-grass (*Cladium jamaicense*) and water lilies (*Nymphaea odorata*). For a complete list of native wetland plants in Florida, please visit this website: <http://aquat1.ifas.ufl.edu/photos.html>

OTHER LINKS

- Pacific Islands Ecosystems at Risk (PIER) http://www.hear.org/pier/species/hymenachne_amplexicaulis.htm
- Queensland Government-Department of Natural Resources and Mines <http://www.nrm.qld.gov.au/pests/psas/pdfs/Hymenachne.pdf>
- United States Department of Agriculture- Natural Resource Conservation Service http://plants.usda.gov/cgi_bin/topics.cgi?earl=plant_profile.cgi&symbol=HYAM2
- Range Cattle Research and Education Center, University of Florida, Ona, FL <http://weedext.ifas.ufl.edu/>

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REFERENCES

Brambila, J. and F.J. Santana. 2004. *First Records for Ischnodemus variegates (Hemiptera: Blissidae) in North America. Florida Entomologist 87:4.* <http://www.fcla.edu/FlaEnt/fe87p585.pdf>

Hill, K.U. 1996. *Hymenachne amplexicaulis*: a review of the literature and summary of work in Florida. <http://www.naples.net/~kuh/hymen.htm>.

Csurhes, S.M., Mackey, A. P. and L. Fitzsimons. 1999. Hymenachne in Queensland. Pest Status Review Series. Queensland Government-Natural Resources and Mines. <http://www.nrm.qld.gov.au/>

Diaz, R. Overholt, W. and J. P. Cuda. Exotics in the Wetlands: West Indian Marsh Grass. <http://edis.ifas.ufl.edu/pdf/IN/IN49100.pdf>

Houston, W. A. and L. J. Duivenvoorden. 2002. Replacement of littoral native vegetation with the ponded pasture grass *Hymenachne amplexicaulis*: effects on plant, macroinvertebrate and fish biodiversity in the Fitzroy River, Central Queensland, Australia. *Marine and Freshwater Research* 53:1235-1244.

- Langeland, K. A. and K. Craddock Burks (eds.) 1998. Identification and Biology of Non-native Plants in Florida's Native Areas. University of Florida, Gainesville, Florida, USA.
- Overholt, W. A., S. M. L. Ewe, R. Diaz, E. C. Morgan and O. E. Moeri. 2004. Feeding effects of *Ischnodemus variegatus* (Hemiptera: Blissidae) on photosynthesis and growth of *Hymenachne amplexicaulis* (Poaceae). Florida Entomologist 87: 312-316.
- Swearingen, J. 2009. WeedUS Database of Plants Invading Natural Areas in the United States: West Indian Marsh Grass (*Hymenachne amplexicaulis*). <http://www.invasive.org/weedus/subject.html?sub=5733>.
- USDA, NRCS. 2009. The PLANTS Database (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.