

The Quarterly Journal of the Florida Native Plant Society

# Palmetto



# Primrose Willow

## *Ludwigia peruviana* (ONAGRACEAE)

by Daniel B. Ward

**T**he primrose willow (*Ludwigia peruviana* (L.) Hara) is a familiar member of Florida's flora, frequent to common in wetlands throughout the peninsula though somewhat sporadic in the panhandle. Since its first discovery late in the nineteenth century it has been assumed to be an introduction to the state. But a recent appraisal by a Florida regulatory agency has cast doubt on that status. Whether it should cause concern as an exotic that is perhaps invasive, or whether it should merely be admired as an attractive member of Florida's native flora, is an issue that needs determination.

Primrose willow is a member of the Onagraceae, the Evening Primrose Family. Its genus, *Ludwigia*, is well represented in Florida, with twenty-nine species. All have flowers with four yellow petals (though in some the petals are tiny or evanescent). But *Ludwigia peruviana* stands out. While all other Florida members of the genus are annual or perennial herbs, the primrose willow is a soft-stemmed shrub, often to 3 m. or more in height. And its flowers, to 5 cm. diameter, are impressively larger than those of its congeners.

The common name applied to this species was assigned some decades after its first appearance in the state. As late as 1927 (Harper) and 1933 (Small) the plant was without a vernacular name. But in 1938 Mary Frances Baker, in the first popular Florida "wild flower" book, gave it the name primrose willow. The source of this name is apparent in part; the Onagraceae has long been known as the Evening Primrose Family. The leaves are not appreciably willow-like, but perhaps its wetland habitat was Baker's inspiration for "willow." Recently, the name has been agglutinated to "primrosewillow" and has been extended to apply to all species of the genus *Ludwigia*. [By this logic, southern red oak (*Quercus falcata*) should be termed "southernredoak," Key tree cactus (*Cephalocereus robinii*) should become "Keytreecactus," etc.]

Always, in the determination of nativity, examination of early publications and of early herbarium collections is important, often essential (Ward, 2003). Here, evidence from early field records seems clear. The first collection seen was by A. P. Garber in November 1878, along the Miami River, Dade County. It was then encountered by P. H. Rolfs in June 1893 at Tavares, Lake County; and seemingly not again until found



*Ludwigia peruviana* – Photo by Shirley Denton

by S. C. Hood in September 1913 on the bank of Green Spring, Enterprise, Volusia County, and by A. Cuthbert in October 1916 in Manatee Hammock, Manatee County. (These records are all from FLAS, Gainesville.)

Published reports are equally unambivalent. A.W. Chapman did not know of it in his 1860 *Flora of the Southern United States*, nor in his first revision in 1889. But in his second revision, in 1897, under the name *Jussiaea hirta*, he reported it as present on the "muddy banks of rivers, south Florida." In 1894, Charles Mohr (1901), a resident of southern Alabama, found it "adventive on the banks of Mobile River." And J.K. Small (1903) knew the plant "on banks of rivers, lakes and in swamps, peninsular Florida."

But even more important is the "negative" evidence, that is, the records of early observers who did *not* report the species. No mention of a plant that can be interpreted to be *Ludwigia peruviana* was made by either John Bartram or his son, William Bartram, in the 1760s and 1770s. Nor did Andre Michaux in the 1780s mention the species in his notes, nor is it represented among his Florida collections now preserved in Paris. And we know, from his correspondence to John Torrey of New York, that prior to his 1860 book, Chapman traveled the length of Florida's western coast, from Apalachicola to Key West, without finding and reporting the plant.

And, of course, a plant with the epithet “*peruviana*” is on its face a native of South America, presumably Peru. Indeed, Linnaeus (1753) first described it as “Habitat in Lima.”

On the surface, then, there should be no question that *Ludwigia peruviana* is not native to Florida, and that it first appeared here in the late nineteenth century. Uncertainty of its nativity apparently began with a brief note in the Research Management Notes (Yunker, 1995), an informal but much respected publication of the Department of Environmental Protection. The author of the note, Don Yunker, had proposed the species to the chairman of the Exotic Pest Plant Council for listing as an invasive species. But it was rejected after an official of the Florida Bureau of Aquatic Plant Management cited a reference (Ramamoorthy & Zardini, 1987) that was interpreted to indicate Florida to be part of the natural range of the species.

Yunker’s article was brief but blunt. It was titled with the unequivocal assertion, “Primrose-willow is native!” The text proceeded to claim that “Florida is part of the ‘native’ range for this plant,” and “the fortunate conclusion... that primrose-willow is not exotic.” From the date of Yunker’s article, Florida land managers have been tilted toward protecting this plant as a “native” species and, even where it is invading natural habitats, have been reluctant to make any effort to control its spread.

The basis for this claim needs examination. The cited reference (Ramamoorthy & Zardini, 1987) is a well-crafted monograph of a section of the genus *Ludwigia*. All of its species are native to South America, most to southeastern Brazil and northern Argentina. Only three are known in Florida – in addition to *L. peruviana* there is *L. decurrens* Walt. [widespread and common] and *L. longifolia* (DC.) Hara [a single 1961 collection from Seminole Co.]. *Ludwigia decurrens* was named in 1788 by Thomas Walter in South Carolina. It was perhaps also introduced, but so far back in time and is now so widespread that we usually think of it as native.

Though their work is the basis for the claim that *Ludwigia peruviana* is native to Florida, Ramamoorthy & Zardini make no such assertion. To the contrary, they note that “in Florida, *L. peruviana* may behave as a weed, and become especially common along slow-flowing canals and drainage ditches.” But most significantly, and apparently overlooked by those claiming Florida nativity, Ramamoorthy & Zardini provide a map showing the distribution of the four different chromosome numbers (n=32, 40, 48, and 64) they found in the species. In southeastern Brazil all four numbers were present, as would be expected if that area were the home in which the species evolved and from which it has diffused. Of these numbers, only one (n=40) was found in Central America and the West Indies. And only another number (n=48) was found in Florida. Thus the Florida plants cannot be a range

extension from the nearby West Indies, but are most likely a disjunction from Brazil.

But perhaps the most persuasive evidence that Florida is not the native home of the primrose willow is the visual evidence of its present and ever-growing abundance in the state. The largest contiguous stand may be in the marshes along the Oklawaha River of Marion County, where it covers some 2,000 acres. In the late summer a journey down any highway running the length of the peninsula will reveal the tall shrubby plants with their large attractive yellow flowers along every ditch and in every wetland. Surely these plants could not have been present in such numbers and have been overlooked by the early travelers and collectors. Clearly *Ludwigia peruviana* is an introduction to Florida.

Thus, if primrose willow is introduced, and if the evidence shows the species to be an active invader of undisturbed Florida habitats, perhaps the Exotic Pest Plant Council will reconsider, and permit this exotic to be ranked as “invasive,” as Don Yunker once proposed.

I wish to thank Carol L. Lippincott for her information on the invasive spread of *Ludwigia peruviana* in the marshes along the Oklawaha River; the late Kathy C. Burks for her research of pertinent references; and Richard Abbott for helpful comments regarding the manuscript.

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#### Addendum

In June 2007, after circulation of this manuscript, the Florida Exotic Pest Plant Council’s Plant List Committee unanimously voted to treat *Ludwigia peruviana* as non-native to Florida and classified it as “Invasive, Category I.”

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