

Phragmites in Florida¹

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Phragmites is a tall, perennial, wetland grass, occurring in both fresh and brackish waters in North America. *Phragmites* can be divided into three genetic lineages: native North America types, a Gulf Coast type, and a Eurasian type. The native types are found in the northeast, Midwest and western United States, but not in the southeast. The Gulf Coast lineage occurs widely from the Atlantic coast of Florida, along the Gulf Coast from Florida to Texas and south into Mexico and Central and South America (Meyerson et al. 2009). The Eurasian lineage was introduced into Philadelphia with ships ballast in the 1800s (Burk 1877), and has become increasingly abundant and widespread in North America. It is now the dominant type along the Atlantic coast from Georgia northwards, and has moved into the Midwest, the Mississippi River Delta, and western states (Saltonstall 2002).

Native and Eurasian *Phragmites* are currently considered to be the same species, *Phragmites australis*, while the Gulf Coast type is thought to be the result of hybridization between an African species, *Phragmites mauritianus* and *P. australis* (Lambertini et al. 2012). The Gulf Coast type may represent an early introduction from Africa.

Eurasian *Phragmites* was discovered for the first time in Florida in 2013 in Lake Seminole, Pinellas Co. (Overholt et al. 2014), and efforts are underway to eradicate this population. Prior to this finding, the closest Eurasian *Phragmites* had been found to Florida was 42 miles north of the

Florida/Georgia border along Interstate 95, and 60 miles west of Florida on Petit Bois Island, Mississippi (Williams et al. 2012). Due to the proximity of the Eurasian type to Florida, it would seem likely that it will eventually reinvade the state.

Reproduction of *Phragmites*

There are reports of prolific seed production in populations of *Phragmites* (see references in Pellegrin and Hauber 1999), but in the Gulf Coast, little or no seed production has been observed (Hauber et al. 1991; Ward 2010; Williams et al. 2012). The lack of seed may be due to self-incompatibility, as most plants at a given location could belong to a single clone. *Phragmites* does spread through the growth of rhizomes, and it is thought that the majority of spread within a population is due to clonal growth. Broken pieces of rhizomes may be responsible for dispersal of *Phragmites* along water courses. How Gulf Coast *Phragmites* became so widespread in the southeastern United States with little or no seed production is not known.

Why be concerned about possible invasion of exotic *Phragmites* into Florida?

The Eurasian type of *Phragmites* has proven to be a highly aggressive invader, particularly in the northeastern and mid-Atlantic states, where it has largely displaced native

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Phragmites (Myerson et al. 2009). A study conducted in the Mississippi River Delta in Louisiana demonstrated that the Eurasian type can out-compete the Gulf Coast type (Howard et al. 2008). Thus, the Eurasian *Phragmites* may have the potential to displace Gulf Coast *Phragmites* and other wetland plants if it invades Florida.

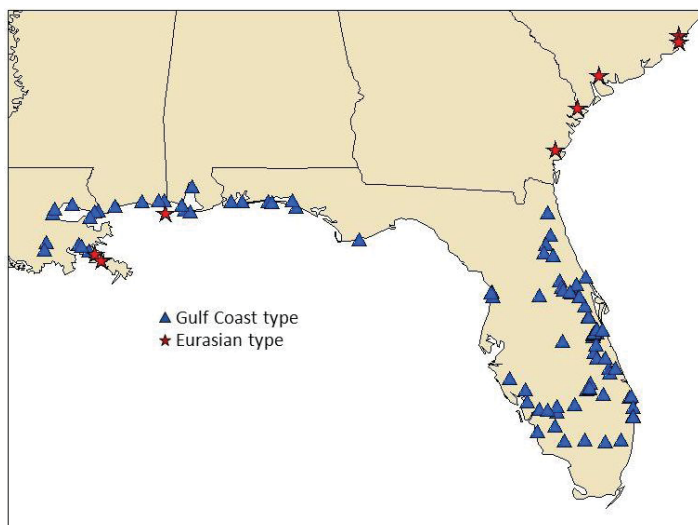


Figure 1. Locations of Eurasian and Gulf Coast type *Phragmites* found during surveys in 2009–2010.

How can Gulf Coast and Eurasian *Phragmites* be distinguished?

Eurasian and Gulf Coast *Phragmites* are morphologically distinct, and can be separated by three characters indicated in the table below. Fine longitudinal ribbing on the stems of Eurasian *Phragmites* may be the best character to separate the two types. The ribbing can be detected visually, but also by slowly rotating the stem under a finger nail.

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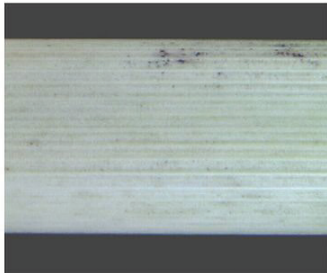


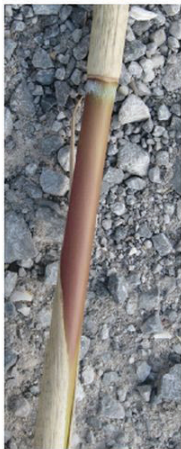

Character	Gulf Coast	Exotic
Stem texture	Smooth, shiny 	Ribbed, slightly dull 
Panicle form	Open, often drooping 	Compact, typically erect 
Stem color	Red where exposed (green behind leaf sheath) 	Green where exposed 

Figure 2. Characters to separate exotic Eurasian *Phragmites australis* from Gulf Coast *Phragmites*.