

Report for Mark Anderson, Gilbert Lake Advancement Association
August 1, 2026

Summary of Results: Your sample has the genotype of the introduced (a.k.a. invasive) subspecies of *Phragmites australis*

Procedures:

I tested the samples using three methods:

1. The PCR-RFLP method of Saltonstall which can distinguish between North American native (*P.a. americanus*), Eurasian Introduced, and Gulf Coast type (*P.a. berlandieri*). The basis is DNA sequence variation in two loci in the chloroplast genome that can be detected by the PCR-RFLP method. Whether a specific enzyme “cuts” the DNA or not at each locus indicates genotype, and combinations of genotypes at the two loci form haplotypes which have been shown to be characteristic of different subspecies.

Reference: Saltonstall, K. A rapid method for identifying the origin of North American *Phragmites* populations using RFLP analysis. *Wetlands* **23**, 1043 (2003). [https://doi.org/10.1672/0277-5212\(2003\)023\[1043:ARMFIT\]2.0.CO;2](https://doi.org/10.1672/0277-5212(2003)023[1043:ARMFIT]2.0.CO;2)

2. A PCR-RFLP screen based on the nuclear gene *NRT2*. My lab has found that native *P.a. americanus* and Eurasian introduced are fixed for different alleles of an insertion/deletion variant in the nuclear (chromosomal) gene *NRT2*. Because this is a nuclear gene, a hybrid of native and introduced will be heterozygous and show both alleles with equal intensity. I routinely run this test even if submitters don't ask about hybrids because it also provides confirmation of native vs. introduced subspecies as in the Saltonstall test results. While this assay can differentiate *P.a. americanus* from other types, it cannot differentiate between different introduced types.

Reference: Wendell et al, 2025. Nuclear DNA markers to screen for hybridization between *Phragmites australis americanus* and other *Phragmites* subspecies. DOI: <https://doi.org/10.1017/inp.2025.10>

Data are on the following pages.

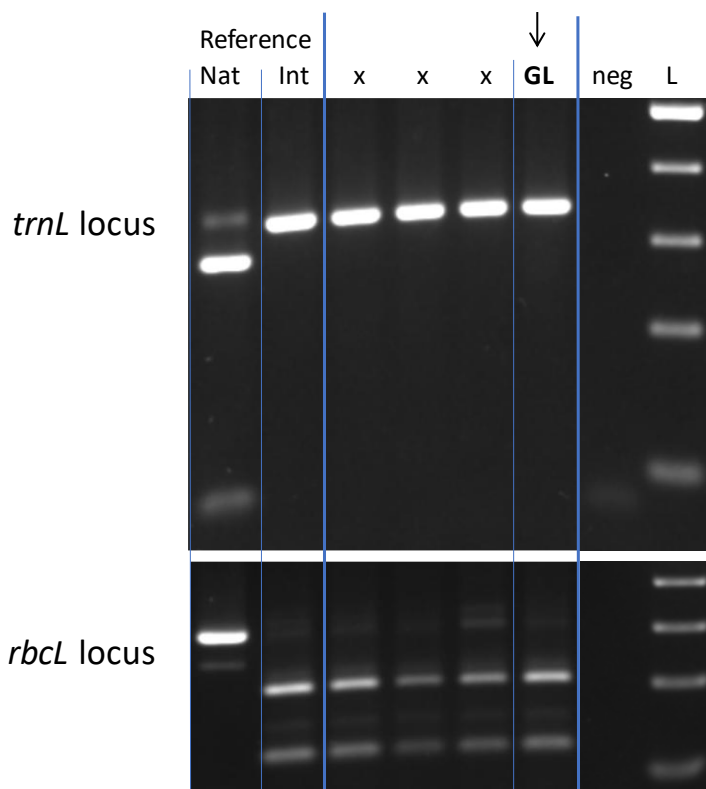
Wendell Lab
Phragmites DNA Testing Report

Results of Saltonstall Test

This test determines the genotype for two loci, *rbcL* and *trnL*. The references are known samples of native (Nat.) and introduced (Int.) *Phragmites*. In this test, native is “cut” at the *trnL* locus but “uncut” at the *rbcL* locus, while introduced is “uncut” at the *trnL* locus but “cut” at the *rbcL* locus.

“L” is a DNA size standard, aka a “ladder.” “neg” is a negative control run to test for contamination. The lanes marked with “x” are samples being tested for another group that were run in the same gel.

Your sample, marked “GL” in the gel, has the same pattern as introduced.



Wendell Lab
Phragmites DNA Testing Report

Results of Nuclear Gene Test

This test determines the genotype for the *NRT2* marker. In this test the native PCR product is “cut” and the PCR product of other subspecies is “uncut”. A hybrid would have a combination of the cut and uncut bands with equal intensity.

The references are known samples of native (Nat.), and introduced (Int.). “L” is a DNA size standard, aka a “ladder.” “neg” is a negative control run to test for contamination. The lanes marked with “x” are samples being tested for another group that were run in the same gel.

Your sample, marked “GL” in the gel, has the same pattern as introduced.

