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Native Bamboo [*Arundinaria gigantea* (Walter) Muhl., Poaceae] Establishment and Growth after the Removal of an Invasive Non-Native Shrub (*Ligustrum sinense* Lour., Oleaceae): Implications for Restoration

Michael J. Osland,* James W. Pahl, and Curtis J. Richardson**
Duke University Wetland Center, Nicholas School of the Environment, Box 90333, Durham, North Carolina 27708-0328

ABSTRACT Giant cane (*Arundinaria gigantea*) is a native bamboo species that was once abundant in wetlands and riparian areas throughout the Southeastern United States. As part of an effort to identify competitive-dominant native species that can be utilized to maximize the restoration of riparian ecosystem functions/services and reduce non-native community invasibility, we transplanted cane clump divisions into areas either dominated by or recently cleared of Chinese privet (*Ligustrum sinense*), an invasive non-native shrub. We quantified cane survival and growth in the presence of privet and other plants including several common invasive non-natives. Removal of mature privet via a cut and paint application of glyphosate herbicide resulted in 100% mortality. Cane survival was high in both the high and low-light conditions provided by the opposing privet treatments. During the first year, there was little cane growth or expansion in either privet treatment. In the second year, cane growth and expansion in the Privet-Present treatment was also very low. However, during the second year in the Privet-Removed treatment, cane genets produced more ramets, increased in genet area, and developed ramets that were taller and thicker. Despite very high recruitment and cover of Japanese stilt grass (*Microstegium vimineum*) and other common invasive non-natives in the Privet-Removed treatment, transplanted cane genets continue to grow and expand. Our future research will continue to monitor the rate of cane growth as we investigate whether cane can compete with the common non-native invasive species that are dominant at this site and at other riparian ecosystems throughout the region.

INTRODUCTION Riparian restoration efforts have historically focused more on abiotic conditions (e.g., hydrology, topography) and less on the biotic community. In the Southeastern United States, the outcome of such efforts is often plant communities dominated by invasive non-native species such as Chinese privet (*Ligustrum sinense* Lour.), Japanese stiltgrass [*Microstegium vimineum* (Trin.) A. Camus], and Japanese honeysuckle (*Lonicera japonica* Thunb.). These three species are especially common in the region and have the potential to impede the restoration of ecosystem structure, functions, and services (Ehrenfeld et al. 2001, Morris et al. 2002, Schierenbeck 2004). Restricting the spread of invasive non-native species at the regional level is very unlikely. However, at the local level (e.g., a specific restoration site), ecologists should be able to use an understanding of ecological competition theory related to invasive species plant biology to limit non-native invasions and improve efforts to restore ecosystem structure and functions.

Since interspecific competition is recognized as one of the primary mechanisms controlling plant community composition (Harper 1977, Grime 1979, Tilman 1982), identifying and utilizing native competitive-dominant plant

*email address: michael.osland@duke.edu
**Present address: Louisiana Office of Coastal Protection and Restoration, PO Box 44027, Capitol Station, Baton Rouge, Louisiana 70804-4027