

Microsatellites Uncover Multiple Introductions of Clonal Giant Reed (*Arundo donax*) in the New World

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Abstract

Giant reed, *Arundo donax* L., is a clonal, invasive weed that is native to the Mediterranean region. Tens of thousands of hectares of riparian habitat in the Rio Grande Basin (RGB) in Texas and Mexico have been heavily impacted by invasions of *Arundo*. In addition, many other watersheds across the southwestern United States have also been affected. Giant reed is being targeted for biological control because it displaces native vegetation and consumes water that could potentially be used for agricultural purposes, especially in areas with limited access to water, like the RGB. Finding the best-adapted insects for biological control involves locating the origin(s) of this plant. To locate the source(s) and trace the invasion of giant reed in the RGB, ten microsatellite markers were developed. An analysis of 203 Old World and 159 North American plants, with an emphasis on the RGB, indicate a reduction in the allelic diversity in the introduced range compared to the native range. The results also indicate that there were as many as seven or more introductions in North America, with one lineage responsible for the invasion of the RGB, Argentina, and Northern Mexico and other parts of the Southwestern United States. While no identical matches with the RGB lineage were found in the native range, several close matches were found on the Mediterranean coast of Spain.