

Post Flood Establishment of Native Woody Species and *Arundo Donax*

Jesse A. Else
San Diego State University

Post-flood establishment of native woody species and *Arundo donax*, a bamboo-like exotic grass, was studied on the Santa Margarita River in southern California. Type (seed and vegetative), distribution, and density of establishment events were compared.

Native woody species and *A. donax* share the ability to resprout readily after being damaged by floods. Establishment of new individuals by *A. donax* was primarily vegetatively, whereas native woody species established mostly by seed. Only a few cases of vegetatively established woody species were observed. No *A. donax* seedlings were observed.

The distribution of establishment events was examined on fluvial landforms (channel bed, channel bank, depositional bar, and floodplain shelf). Vegetative establishment by *A. donax* and native seedlings occurred at the highest frequency on depositional bars. There was also a high density of native seedlings on the channel bank and channel bed where there was little *A. donax* establishment.

To further understand vegetative establishment by *A. donax*, experiments were performed to determine the effect of desiccation on the ability of rhizomes and stems to sprout, and the effect of burial on the ability of rhizomes to sprout. A greenhouse experiment showed that drying rhizomes to 58.8% moisture loss and stems to 36.5% moisture loss did not affect their ability to sprout. A field experiment showed that the ability of rhizomes to sprout was not affected by depth of burial (10, 50 and 100 cm).

Although the native woody species are prolific producers of seed, seedlings have a high mortality rate and grow slowly compared to vegetatively established *A. donax*. The ability of the rhizomes and branches to withstand drying and the ability of the rhizomes to sprout at a variety of depths may partly explain *A. donax's* success at establishing after flood events and its rapid spread and dominance in some riparian systems.