

Invasive Potential of Smooth Rattlebox in Southeast Florida

by Richard E. Roberts and Andrew J. Flanner

Many non-native plant species have a substantial lag-time from when first observed to an explosive growth into the environment. Natural disturbance has long been a part of South Florida's environment (Roberts et. al., in press), providing an opportunity for non-native species to spread into new areas. With human activities and multiple plant introductions, non-native plants have invaded these altered sites, often adversely affecting the natural complexity of the community.



Smooth rattlebox along the road shoulder at Jonathan Dickinson State Park in southeast Florida.

In Jonathan Dickinson State Park (Martin and Palm Beach Counties in southeast Florida), there are 180 non-native plants equaling 20% of the total plant species richness (Roberts et. al., 2006). Of these non-native plants, 37 species are targeted for intensive control in the park's Unit Management Plan (FDEP, 2000).

Smooth rattlebox (*Crotalaria pallida* var. *obovata*) was not listed in the park's 2000 plan, but now exhibits the invasive potential (Schmitz, 1994) to expand into disturbed sites as well as natural habitats. This plant is pan-tropical and probably indigenous to tropical Africa, with its original distribution obscure (USFS, 2009). The documented range within the continental United States is the Southeast from North Carolina to Mississippi and Hawaii and Puerto Rico (USDA, 2009). Herbarium specimens of smooth rattlebox from Florida have been collected across most of the peninsula and even in the panhandle (Wunderlin and Hansen, 2009). Although the species has not been listed on the FLEPPC lists of invasive species, it has been assessed by the University of Florida IFAS Assessment of Non-Native Plants in Florida's Natural Areas (2009) and given the "Caution" rating: **Caution — manage to prevent escape** (may be recommended by IFAS faculty and reassess in two years).

Smooth rattlebox was first collected at Jonathan Dickinson State Park in an area of disturbed sand pine scrub in November 1975. It was vouchered at that time (Fairchild Tropical Garden Herbarium — J. Popenoe #518). It was collected again near the same location in November 1988 (University of South Florida Herbarium — R. Woodbury and R. Roberts). In March 1992, this plant was observed in the yard of a park service employee, located within a mesic flat-wood habitat, indicating this species is not exclusively confined to the xeric community where it was noted in 1975.

In 1992, the plant was only infrequently observed in small disturbed areas and only at the one staff residence site. Recently, with expanded mowing of the park drive and in one campground, there has been an explosive increase of this species in these areas (photograph). It now extends along the park drive road shoulders in scattered to thick stands for 60% cover along 4.3 miles of the road. At present, it is still confined to disturbed habitat and has not invaded into recent prescribed burns in either xeric or mesic pinelands. There is, however, the increased potential

for this to occur due to its enhanced numbers and seed dispersal.

These observations demonstrate the ramifications of soil disturbance within and/or near the perimeter of non-native plants. Land managers in Florida need to realize the importance of early treatment before such species establish and spread. Once they are allowed to flourish, their control or eradication can be a difficult, long-term and expensive process.

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