

# Ecological Consequences of Latherleaf (*Colubrina asiatica*) in Southern Florida

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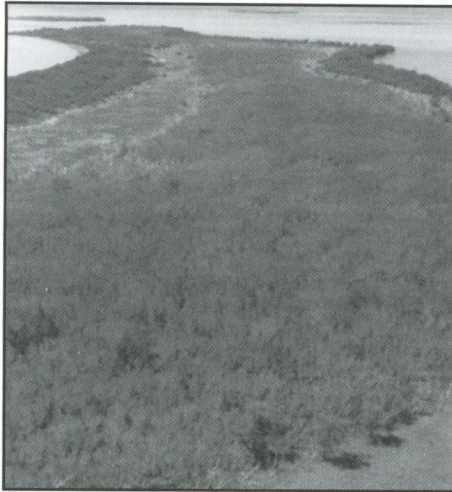
## Lather Up!

One of southern Florida's most damaging exotic pest plants is latherleaf (*Colubrina asiatica*). Although a component of the landscape for over 50 years, it is a comparatively little known and understood plant. What is known of it, though, is especially alarming. In areas where it becomes firmly established, it is capable of replacing the rare and vulnerable hardwood forests that fringe southern Florida's coastlines. While not yet attaining the notoriety of other exotic pest plants such as melaleuca (*Melaleuca quinquenervia*) and Brazilian pepper (*Schinus terebinthifolius*), latherleaf's damaging effects on some of the State's most precious natural resources make it deserving of greater attention.

Latherleaf is a scandent shrub native to coastal areas of the Old World tropics from eastern Africa to India, Southeast Asia, tropical Australia, and the Pacific Islands, including Hawaii. Valued for its use in traditional medicine and as a fish poison and soap substitute, the plant was apparently brought to Jamaica in the 1850s by immigrants from eastern Asia. Ocean currents and storm tides have since dispersed its buoyant, salt-tolerant fruits and seeds to other Caribbean Islands, the Yucatan Peninsula, and southern Florida. In Florida, latherleaf appears to be a recent introduction, first collected in the Florida Keys in the 1930s and on the mainland, specifically Everglades National Park, in the 1950s (Russell et al., 1982). It now occurs throughout the Florida Keys and along both coastlines as far north as central Florida.

## The coast is *not* clear

Latherleaf inhabits areas that are typically not subjected to prolonged flooding. Storm-deposited coastal ridges, ranging in size from broad bands supporting subtropical hardwood and buttonwood (*Conocarpus erectus*) forests, or hammocks, to narrow berms within mangrove forests and other seasonally inundated coastal swamps and marshes, provide ecological conditions favorable to latherleaf's establishment (Russell et al., 1982). Man-made features such as road shoulders and calcareous debris mounds are equally favorable. In fact, elevated roadways are the primary habitats where one may find latherleaf firmly established at interior



sites. Fortunately, there is no evidence of long-distance dispersal mechanisms (for example, seedlings are normally observed only under larger, reproductively mature plants) on land that could further facilitate its spread inland. Storms and extreme tides appear to be the major, if not only, dispersal agents of latherleaf.

Latherleaf requires considerable light for growth (growth rates of seedlings increase with removal of shading), with stems reportedly growing up to 30 feet in a year. A thick mat of entangled stems commonly forms on the site, affecting the underlying vegetation by growing on it or shading it out (Langeland, 1990; Jones,

1996); not even latherleaf seedlings are able to persist under these conditions. Its climbing branches can reach high into the canopies of adjacent trees and shrubs, particularly along the advancing edges of the infestation. And like many other aggressive pest plants, latherleaf has tremendous regenerative capabilities, which can have important ramifications for its control. Plants sometimes flower and fruit within the first year of growth. Branches root at the nodes when they contact the ground. Cut or injured stems resprout vigorously, and seeds can retain their viability in the soil for several years (Russell et al., 1982).

## Everglades National Park

Nowhere in Florida are the ecological effects of latherleaf more noticeable than in Everglades National Park. Established in 1947 to conserve and protect the natural, historic, and recreational values therein, the Park is a World Heritage Site and Biosphere Reserve. It is the largest subtropical

wilderness in the continental United States, encompassing more than 1.5 million acres. While over 220 species of exotic plants have been reported in the Park (equivalent to 25% of its total flora), management actions have been directed at only a few, with the highest priority given to Australian pine (*Casuarina equisetifolia*), melaleuca, and Brazilian pepper. While the distribution and ecological impacts of latherleaf in the Park have been recorded since the 1970s, its management has been seriously hindered by its remoteness.

Latherleaf is well-distributed throughout the Park's coastal areas. It occurs from the Ten Thousand Islands south to Cape

Sable along the Gulf Coast, and east along the northern fringe of Florida Bay to the Florida Keys. Interpretation of color infrared aerial photographs reveals approximately 1200 acres of the plant infesting coastal habitats, including offshore islands, along Florida Bay alone (Jones, 1996). Based on reports and maps of the distribution of this species in the Park, generated since the 1970s, latherleaf has doubled its areal extent every 8-10 years. At this rate, coastal subtropical hardwood forests, the preferred habitat of latherleaf, which accounts for less than 1% of the Park's total vegetation cover, could be replaced in 100 years or less. Latherleaf may also threaten American crocodile habitat (a sanctuary is located in the Park at Joe Bay) because crocodiles build their nests on dry land near coastal waters, where conditions are suitable for the plant's establishment.

The coastal hardwood forests, including madeira hammocks (madeira is the Spanish word for mahogany), are among the most threatened plant communities in southern Florida. This can be attributed not only to their vulnerability to exotic pest plant invasion but also to sea level rise which is eroding these coastal communities. The aggressive nature of latherleaf establishment and expansion in these habitats is of particular concern due to the uniqueness and rarity of certain plant species found in them. These include a number of State-listed threatened and endangered plant species (Coile, 1996) such as West Indian mahogany (*Swietenia mahagoni*), thatch palm (*Thrinax radiata*), wild cinnamon (*Canella winterana*), manchineel (*Hippomane mancinella*), cacti (*Cereus* spp.), bromeliads (*Tillandsia* spp.) and orchids (*Encyclia boothiana*, *Oncidium luridum*). A single population of latherleaf, which can range in size from less than an acre to over 20 acres, is capable of obliterating all but the tallest of the native plant species that inhabit the same site. And like many other invasive pest plants, latherleaf is able to colonize both disturbed and undisturbed sites. Loss of forest canopy caused by natural or anthropogenic forces is the most commonly created condition, but natural openings, such as herbaceous or graminoid patches within a hardwood forest, are equally susceptible (Olmsted et al., 1981; Jones, 1996).

Latherleaf is somewhat successfully managed in Biscayne National Park, as well as on public lands in coastal southeast Florida and the Florida Keys. Uprooting of young, shallow-rooted plants, cutting of scandent stems, and application of herbicides (using basal bark and cut stump methods), followed by periodic monitoring of treated sites, have proven to be moderately to highly effective (Langeland, 1990). Biological control agents are currently not available, a situation not likely to change anytime soon.

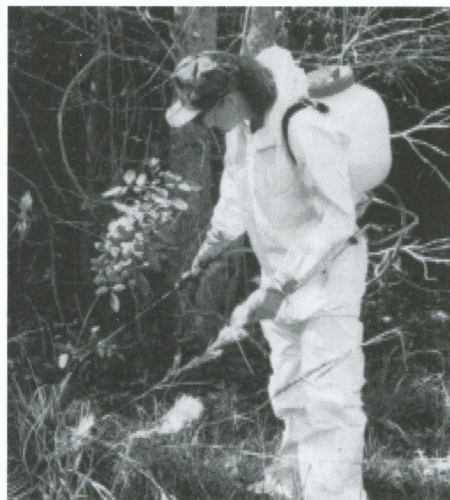
#### Get in line

The ecological effects of exotic pest plants on native areas are generally known to include alteration of species composition and community structure, diminishment of natural habitats and food sources of native animals, and interference with ecological and geological processes such as

water and nutrient cycling and species interactions. Unfortunately, most resource managers are typically not afforded the opportunity to record these changes. Minimally, determining the responses of native plant communities to exotic pest plant removal, by sampling before and after control treatments, is desirable, but this too often falls beyond the time and resource capabilities of most. Hence, most resource managers are resigned to carrying out only control actions. For every exotic control project successfully completed, there are a dozen more to replace it. Remember, Florida is the southeast's exotic pest plant showcase.

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