
Naturalization Patterns of Horticultural Plants in Florida

ROBERT W. PEMBERTON

USDA-ARS Aquatic Plant Control Lab,
3205 College Ave., Ft. Lauderdale, Florida 33314, USA

Horticulture is an important source of naturalized plants in many floras, but little is known about naturalization frequencies and possible patterns of naturalization in these plants. Exotic plants sold by the most important early Florida plant nursery (1886-1930) were collated, analyzed and compared to a recent standard flora of Florida vascular plants (1996) to detect naturalization patterns of these horticultural plants in the state. Of the 1884 non native species sold by the nursery, 14% naturalized. Plants that naturalized were sold for an average of 15.5 years, compared to 8.1 years for all non native plants sold. Only 1.9% of the plants sold for one year naturalized, compared to 30.9% for those sold for ten years or more, and 68.8% for those sold for 30 or more years. About half of Florida's most invasive plants were sold by this nursery, and these were sold for an average of 20.5 years. Plants that have large native ranges were more likely to naturalize than plants with small native ranges. For instance, 47.6% of plants with pantropical distributions and 48.9% of those native to both Africa and Asia naturalized, compared to 14.3% of those native to tropical Asia, 9.3% of the tropical African species, and 10.8% of the tropical American plants. The rates of naturalization occurred in aquatic herbs (36.8%) and vines (30%), well above the rates for trees (16.9%) and non grass herbs (13.7%). Plants of some families naturalized more frequently than those of other families: the Verbenaceae (42.8%) and Euphorbiaceae (32.5%), compared to the Arecaceae (3.5%) and Orchidaceae (1.6%). There were no differences in the naturalization rates of plants belonging to non native genera and families compared to plants belonging to genera and families native to Florida. These naturalization patterns appear to be good predictors of the propensity of plants to naturalize in Florida.

A Conservation Biologist's Perspective on Biocontrol of Weeds

JOHN M. RANDALL

The Nature Conservancy, Wildland Weeds Management and Research,
Dept. of Vegetable Crops and Weed Science, University of California,
Davis, California 95616, USA

Many conservation biologists have what might be called a 'green light -yellow light' attitude towards the use of classical biological control against weeds of natural areas. On the one hand, classical biological control gets a 'green light' or 'go ahead' since it has the potential to be one of the most powerful tools available for control of invasive plants in natural areas, wildlife preserves and other wildlands. Biocontrol is an attractive option in

natural areas around the world, particularly because of its potential for specificity and ability to act over huge areas for the long term. It may be the only option capable of bringing certain widespread pests like leafy spurge and purple loosestrife under control over large areas at reasonable cost. Many land managers and researchers have urged that particular pests they have been unable to control be targeted for biocontrol. On the other hand, biocontrol gets a 'yellow light' (some might even say a 'red light') for caution due to concerns that biocontrol agents might have the potential to attack and damage populations of non-target native species. Natural area managers are typically concerned with the health and growth of a wide variety of organisms, far more species than most agriculturalists or foresters. If a biocontrol agent does in fact attack any native non-target species, its persistence and ability to spread to areas far from release sites become serious liabilities. The potential for harm to non-target organisms can be decreased with improved host-testing and risk reduction protocols for biocontrol. Use of formal risk assessment procedures, efforts to minimize the number of agents released against a given target, and requiring follow-up studies designed to assess target and non-target impacts and to improve later programs would answer many of the concerns of conservation biologists. While biocontrol offers great promise, it will provide long-term benefits to natural areas and biodiversity preservation only if it is practiced carefully and its potential risks are fully recognized and addressed.