

Rare Plants of South Florida:

Their History, Conservation, and Restoration



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The Institute for Regional Conservation



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Native Plant Heritage** program

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Cover photos by George D. Gann: Top: mahogany mistletoe (*Phoradendron rubrum*), a tropical species that grows only on Key Largo, and one of South Florida's rarest species. Mahogany poachers and habitat loss in the 1970s brought this species to near extinction in South Florida. Bottom: fuzzywuzzy airplant (*Tillandsia pruinosa*), a tropical epiphyte that grows in several conservation areas in and around the Big Cypress Swamp. This and other rare epiphytes are threatened by poaching, hydrological change, and exotic pest plant invasions.

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Introduction

South Florida long has been renowned for its abundant plant life, being the only place in the United States where the temperate flora intermingles with the subtropical and tropical flora of the Caribbean. With over 2,200 native and naturalized taxa, South Florida contains over 50 percent of the plants found in the state. Unfortunately, habitat destruction, collecting, hydrological modifications, fire suppression, and other human activities have severely disturbed, if not critically imperiled, many of South Florida's ecosystems, thus threatening many native plant species. Of approximately 1,400 kinds of plants native to South Florida, nearly 25 percent have been wiped out already, or are on the brink of regional extinction.

Regional Conservation

While it is easy to point a finger at extinctions in the tropics as a main cause of the global loss of biological diversity, small-scale regional extinctions are occurring worldwide in both tropical and temperate regions.

Regional conservation is the strategy to protect, restore, and manage the native ecosystems and biota of a specific geographical area. Certainly endemic species must be afforded higher levels of protection within a region, but conservation should not be based solely, or even primarily, upon the protection of those species. Regional conservation is concerned with the conservation and restoration of all native species, whether rare or common.

In South Florida, many wide-ranging tropical plant species reach the northern ends of their ranges. Local land managers and conservationists have a direct responsibility to protect these tropical species from extinction in South Florida, even though other populations may persist in other parts of the world. Similarly, many temperate plants have the southern limits of their ranges in South Florida, and these populations also warrant protection.

The Institute for Regional Conservation (IRC) is dedicated to the protection, restoration, and long-term management of biodiversity

on a regional basis, and to the prevention of regional extinctions of rare plants, animals, and natural communities. It is our view that the people of every region have a responsibility to protect all of the native species that historically occurred there – whether the region is a country, a group of states, a state, a county, a city, a watershed, or the southern tip of a large peninsula. IRC is not the first organization to propose that both globally rare and regionally rare species be protected within a region (New England Wild Flower Society, Inc., 1992; City of New York, Parks & Recreation, Natural Resources Group, 2001). In fact, this is the same basic philosophy promoted by the Natural Heritage Program, which was originally established by The Nature Conservancy and is now managed by NatureServe (www.abi.org).

Purpose of the Manual

IRC initiated the Floristic Inventory of South Florida in 1994 in an effort to create a model of regional conservation. IRC selected vascular plants for the study because of staff expertise and the availability of data on the historical distributions of plants in South Florida. This study is the foundation of IRC's Restoring South Florida's Native Plant Heritage program, of which this manual is a part.

The purpose of this manual is to assist land managers and restoration practitioners in conserving and restoring rare native plants and their habitats in South Florida. It is also an important tool for decision makers who are charged with developing protection policies (see Chapter 3). In addition, the document identifies areas needing further study and should provide direction for students and scientists focusing on South Florida ecosystems. Native plant enthusiasts also will find this manual helpful in understanding the history and conservation needs of South Florida's rarest plants.

This manual is the second of two resources IRC has prepared as part of its Restoring South Florida's Native Plant Heritage program. The first is the Institute's website at www.regionalconservation.org, which contains, among other resources, the Floristic Inventory of South Florida Database. This database provides information on plant distributions in South Florida's system of conservation areas and includes a sophisticated search engine.

Organization of the Manual

This manual is organized specifically to facilitate the conservation and restoration of the rare flora of South Florida. The manual is organized into six chapters. The first two chapters present the background and the results of the Floristic Inventory of South Florida. Chapter 3 presents strategies, actions, and implementation guidelines for restoring South Florida's rare plant populations and their habitats. Chapters 4 and 5 present data summaries of the extinct, extirpated, historical, and critically imperiled plants of South Florida. Chapter 6 provides a summary of rare plants found in South Florida's conservation areas. An index is provided for ease of use.

Floristic Work in South Florida

Botanists have long been interested in the plant life of South Florida. Our present knowledge of the flora is a result of the work of explorers like Bernard Romans who surveyed the Florida coastline in the late 1700s. He was followed by hundreds of field botanists and collectors, beginning around 1824 when Titian Ramsey Peale collected a few specimens in the Florida Keys. An excellent account of the history of botanical exploration in Florida is provided by Wunderlin et al. (2000).

A number of published floras and guides discuss the flora of South Florida. The most important include the *Flora of the Southern United States* by Alva Wentworth Chapman (1883), and two books by John Kunkel Small: *Manual of the Southeastern Flora* (1933a) and *Ferns of the Southeastern States* (1938). In 1971, Robert W. Long and Olga Lakela published their *Flora of Tropical Florida* (1971, 1976) that covered Collier, Miami-Dade, and Monroe counties. In 1982, Richard P. Wunderlin published the *Guide to the Vascular Plants of Central Florida*, covering the remaining seven counties in South Florida, as defined herein. This was followed, in 1998, by Wunderlin's *Guide to the Vascular Plants of Florida*, the first statewide treatment of Florida's flora. Wunderlin joined with Bruce F. Hansen to prepare the much-anticipated *Flora of Florida*, the first volume of which (pteridophytes and gymnosperms) was published in 2000.

New floristic resources also have become available on CD-ROM and on the Internet, particularly the *Atlas of the Florida Vascular*

Flora at www.plantatlas.usf.edu (Wunderlin et al., 1996; Wunderlin & Hansen, 2001). The atlas has proven to be an invaluable resource for this project, and is recommended highly for those interested in the flora of Florida. Other internet resources include Fairchild Tropical Garden's *Virtual Herbarium* at www.virtualherbarium.org, which has both label data and photographs of many herbarium sheets.

Taxonomic Concepts

For the most part, the taxonomy in this guide follows Wunderlin (1998). For gymnosperms and pteridophytes, it follows Wunderlin & Hansen (2000). In some cases, it diverges from these two texts. For species covered in Chapters 4 and 5, these differences are indicated in the species accounts.