

## Design With Natives 2002 Landscape Awards Program

### The Deering Estate at Cutler Ecosystem Restoration

The Deering Estate at Cutler ("The Deering Estate") is a 458 acre property located on Biscayne Bay in south Miami-Dade County. The property is managed by the Miami-Dade Park & Recreation Department. This protected natural area park contains a wealth of biological, historical, archaeological and architectural resources unequaled in Dade County and is listed in the National Register of Historic Places. The Deering Estate has six biotic communities including the globally imperiled pine rockland, rockland hammock, bottomland forest, marine tidal swamp and marsh, barrier island with beach dune and submerged benthic communities (soft bottom, hard bottom, and sea grass beds). It is one of the few remaining places in Dade County where such communities have ecotonal connections to each other (see attached map). In addition to the Federally endangered American crocodile and West Indian Manatee, there are 25 birds, 4 butterflies, 3 fish, 3 snails and 1 snake as well as 62 plants known to occur in the natural areas at Deering that are listed federally or by FDEP, FNAI and Florida DPI as endangered threatened or commercially exploited (see attached plant list).

The Estate has undergone major renovation following Hurricane Andrew in 1992 to restore severely damaged historic structures and natural habitats. The Natural Areas Management (NAM) Division of Parks is responsible for restoration and management of the Deering Estate's native communities. Although some exotic plant control began prior to 1992 in Deering's 142 acre tropical hardwood hammock, it was not until after Hurricane Andrew that exotic control efforts were intensified. The hurricane sheared off the forest canopy allowing a pulse of light and nutrients to reach the forest floor. Aggressive non-native vines responded more rapidly than native plants and quickly enveloped the remaining struggling natives. Air potato (*Dioscorea bulbifera*) and jasmine vines (*J. fluminense*, *J. dichotomum*) were the most problematic exotics. Prior to management, approximately 3/4 of the hammock had 50-75% coverage of non-native plants. The primary goal of restoration was to reduce exotic plant coverage to less than 1%, or into "maintenance condition." Most of the hammock is currently in, or close to, maintenance condition. (See slides 1 & 2).

Prior to treatment, Burma reed (*Neyraudia reynaudiana*) was overwhelming the 105 acre pine rockland forest. This unnaturally heavy vegetation cover shaded and crowded out sun loving pine rockland natives and added increased wildfire risk. Hurricane Andrew and the subsequent pine bark beetle infestation decimated 95% of the slash pine (*Pinus elliottii* var. *densa*) canopy. Intervention was critical to the rare habitat's continued existence. Since 1995, Burma reed and other exotics have been painstakingly removed and over 21,000 pine seedlings have been planted to restore the once lush pine canopy. As of 2002 all of the pineland is considered to be in a "maintenance" condition. A regimen of prescribed fire is being planned and implemented to ensure the health of the park's pineland and coastal marsh communities.

The Deering Estate's coastal areas (mangrove forest and salt marsh) became overrun with seaside mahoe (*Thespesia populnea*), Australian pine (*Casaurina* sp.), latherleaf (*Colubrina asiatica*) and Brazilian pepper (*Schinus terebinthifolius*). Exotic plant coverage averaged 10-50%. Following initial treatment, exotic plant cover in coastal areas was reduced to below 5%. Chicken Key, a seven acre bird rookery and mangrove island is one of only six naturally-occurring quartz sand islands in Biscayne Bay. During the 1930's and 1940's thousands of cubic yards of dredged material were pumped onto the key destroying native plant communities and changing the topography. Invasive exotic plants colonized the island including Australian pine, Burma reed, Brazilian pepper, beach naupaka (*Scaevola taccada*), seaside mahoe, sea hibiscus (*Hibiscus tiliaceus*) and earleaf acacia (*Acacia auriculiformis*). Restoration was undertaken by Parks and Dade County's DERM. Excess fill was removed, the dune was restored, and desirable native vegetation was planted. Miami-Dade Parks now maintains and manages the island as a preserve and bird rookery as part of the Estate.

All of this restoration was achieved through systematic labor intensive physical, manual and chemical means of exotic removal. By eliminating competition from exotics, the Deering Estate's natural areas have been able to recover naturally. Aside from portions of the pine rocklands, the intact native seed bank allowed regeneration and planting was not necessary.

In addition to functioning as a preserve for Miami-Dade County's natural treasures, the Deering Estate is foremost an educational facility. Historic structures devastated by the hurricane were restored and a brand new Environmental Education Center and outdoor wet/dry laboratory classrooms were constructed. Education, resource management and naturalist staff have partnered with numerous other agencies and organizations to create site-specific, interdisciplinary educational and recreational programs, including an internet-based middle school curriculum for grades 6, 7, and 8 that complies with Florida's Sunshine State Standards and emphasizes technology and hands-on field experience. Educational opportunities can be reviewed on-line at [www.deeringestate.org](http://www.deeringestate.org).

Acquisition and restoration partnerships have been essential to preserve and restore the natural habitats at the Deering Estate at Cutler (see attached list of conservation partners). It has been only through joint efforts that south Florida's most precious natural habitats and cultural resources of the Deering Estate have been protected for future generations.