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Too Precious To Lose: Managing and Protecting the Richmond Pine Rockland Tract (Richmond) in Miami Dade County, South Florida

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Too Precious To Lose: Managing and Protecting the Richmond Pine Rockland Tract (Richmond) in Miami Dade County, South Florida

Pine rockland is a globally critically imperiled ecosystem limited to the southern tip of Florida and nearby islands. Miami's Richmond tract contains the largest American assemblage of pine rockland species. Competing interests challenge management in this fire-dependent ecosystem surrounded by urban development. In 2018, Fairchild Tropical Botanic Garden and Miami-Dade County updated a 1994 management plan, complete with best practices, new developments, current data and learned experiences. An analysis in Richmond indicated non-traditional areas provided habitat for endangered species.

Keywords

urban biodiversity, urban forest management, urban climate resilience, urban natural area assessment

INTRODUCTION

Pine rockland is a globally critically imperiled ecosystem limited to the southern tip of Florida and nearby islands (FNAI 2010). Miami's Richmond tract contains the largest American assemblage of pine rockland species. Competing interests challenge management in this fire-dependent ecosystem surrounded by urban development. In 2018, Fairchild Tropical Botanic Garden (Fairchild) and Miami-Dade County updated a 1994 management plan, complete with best practices, new developments, current data and learned experiences (DERM 1994; Possley et al. 2018). An analysis in Richmond indicated non-traditional areas provided habitat for endangered species.

CONTEXT

In South Florida, the only large and intact pine rockland is within Everglades National Park (ENP), at less than five feet above sea level. Approximately 98% of pine rocklands outside ENP have been destroyed, with the most significant forest fragment being Richmond. In the context of sea level rise, Richmond (at 18 feet above sea level) is expected to become the largest remaining US pine rockland, once lower tracts in ENP succumb to sea level rise. In addition to rising seas, recent federal species listings and new plant and animal discoveries have raised scientific and public awareness of Richmond.

Richmond has a fascinating history. Despite being one of the first areas in Miami-Dade County to be developed, much of the pine rockland was protected as a World War II blimp base. In post-war decades, the federal land was surplussed and the number of stakeholders and development impacts grew. Recently, the first private multi-use development in Richmond has triggered public scrutiny.

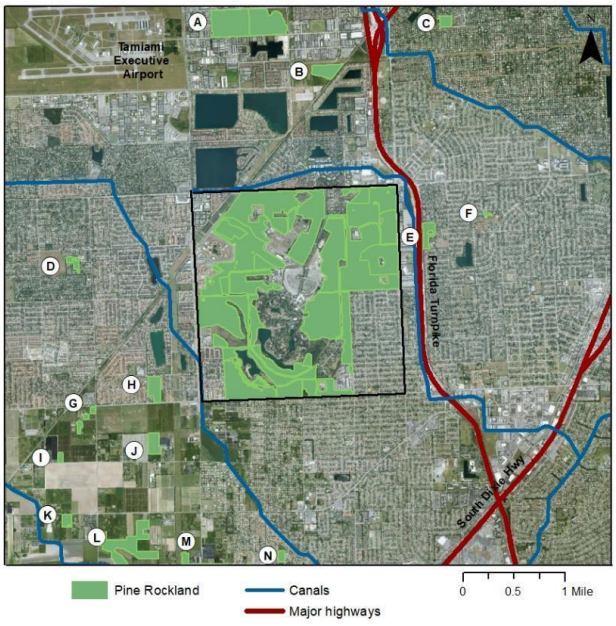

Figure 1. The Richmond tract in context. Dense urban development surrounds the area. A handful of small protected pine rockland preserves are indicated (letters A-N).

GOAL

The overall goal in this case study was to develop a cohesive vision for management of the Richmond tract that would be supported by stakeholders and would preserve the tract's unparalleled diversity of plants, animals and habitats. A cohesive vision is especially challenging to achieve in this fragmented, fire-dependent, yet currently fire-suppressed habitat. Additionally, parcels are subject to different conservation requirements, and not all parcels were meeting requirements to the same degree.

As part of a complete management vision, it became critical to characterize how protected species were using non-traditional natural areas within Richmond, and to determine which areas (if any) are suitable for development.

APPROACH

In 1994, the County produced the first Richmond plan which provided the basis for the current version. Complementary to the initial plan were County restoration and conservation efforts, which have spanned decades. In the 1990s and 2000s, management activities and acquisition by conservation agencies increased significantly. Documentation of these early restoration efforts enabled authors of the revised Richmond plan to include these details and judge which methods were most successful. Concurrently, partners collected data that indicated Richmond was a key location for safeguarding rare plant populations.

For the first step in developing the management plan, the County secured a trusted contractor (Fairchild) who was familiar with Richmond and independent of stakeholder interests. An existing agreement was modified to allocate funds for the plan. Fairchild then hosted a series of meetings with a core group of experts, and synthesized information on the area's natural resources and forest management activities (or lack thereof) that had occurred since completion of the original plan.

A draft plan was compiled and released, with feedback invited and received from stakeholders and other interested parties. Stakeholders were identified as all Richmond landowners, all relevant regulatory agencies, and several local environmental non-profit groups. Letters from stakeholders were sought out to determine support for the plan. A public meeting was held to educate and seek input from the public. Then a final version of the management plan was released.

Prospective development and development requirements at a 221-acre site owned by the US Coast Guard posed difficult questions regarding the characterization of environmentally sensitive lands. The presence of recently listed wildlife species (Bartram's scrub hairstreak and Miami tiger beetle) and factors defining a pine rockland forest per county code provided the basis for an indisputable characterization of environmentally sensitive lands. The County combined species presence and forest factors into a hybrid remote sensing analysis to measure avoidance of impacts to protected species. The analysis included ground-truthed transects that adhered to local and federal regulatory guidance.

RESOURCES

Developing a management plan for the Richmond pine rocklands drew upon resources from multiple agencies. The Floristic Inventory of South Florida (maintained by the Institute for Regional Conservation) provided baseline and contextual data (Gann et al. 2019). County regulatory, GIS, and scientific data collected over four decades provided context for the resources and management actions. The United States Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission provided technical and survey data resulting from years of concern regarding Richmond. Fairchild had decades of rare plant mapping data from Richmond. For the remote sensing analysis, field staff from various agencies mobilized to complete transects throughout the US Coast Guard property.

KEY RESULTS

The key result of this case study is that a comprehensive reference for management of the Richmond tract's natural resources is now available (Possley et al. 2018). This 130-page plan provides a cohesive management vision as well as a complete inventory of flora and fauna (including extirpated species), regulatory guidance on invertebrate management (mosquito control), and a representation of the quality of the vegetative communities within the natural area footprints.

The plan also provides a complete history of the property and current property ownership as well as details of both longstanding and new regulations. Longstanding regulations include endangered species listings from the 1980s and the County upland forest protection ordinance, Natural Forest Communities. New regulations include a zoning covenant mandating management, a federal management covenant, a habitat conservation plan requiring management of 50 acres of forest, as well as listing under the Endangered Species Act of six animal species and five plant species either found or recently found within Richmond in the past decade. Active land management on the County's part is chronicled, especially restoration, after the transfer of 478 forested acres into the County's Environmentally Endangered Lands Program.

The Richmond plan establishes four goals regarding management of county owned lands: restoration, monitoring, communication and best practices. Each of these goals includes more detailed objectives and associated actions. Several themes emerged in the development of the Richmond plan, and three bear emphasizing: (1) fire does not occur frequently enough to prevent further biodiversity losses, (2) conservation areas are not necessarily being maintained per regulatory requirements, and (3) communication and coordination between different stakeholders and public agencies needs improvement, especially in regards to the challenges with prescribed burning.

Plan development resulted in stakeholder discussions and dialogue that had never occurred previously. The plan received seven letters of support from stakeholders and concerned citizen groups. Letters of support helped to involve stakeholders and opened the door for future partnerships. The letters were included in the update of the management plan for transparency, given the increasing global profile of Richmond.

The remote sensing analysis increased recognition of non-traditional areas as critical habitat for endangered species. Due to decades of fire suppression, desirable vegetation characteristics (such as high native species richness, low invasive species cover, and presence of endangered fauna) were higher in mowed areas than in adjacent unmanaged forested areas of the US Coast Guard property. This revealed that a carefully selected mowing regimen is very important in the context of fire suppression.

Figure 2: Some of the federally listed plant species found in the Richmond tract.

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