ABSTRACT

Cypress swamps formed large forested parts of the historic Everglades ecosystem, providing habitat and shelter for wildlife, until the 1900’s, when most of cypress was cut to furnish wood for buildings and commercial interests. A pilot project was undertaken in 2001 to restore a cypress community on a 6.5 acre tract (impoundment B-3) within the Arthur R. Marshall Loxahatchee National Wildlife Refuge (ARM-LOX), Boynton Beach. The project was initiated by the Arthur R. Marshall Foundation, consistent with the goals of the Foundation (Marshall, 1972), to restore a native swamp community in an area that was previously managed as an open marsh, primarily to provide food for migratory birds. More than 400 volunteers planted approximately 6600 cypress, maple, and pond apple trees. After the planting, the site was not specifically managed to promote cypress growth, experienced atypically high water levels during subsequent years, and was significantly damaged by Hurricane Wilma in 2005. The site was initially monitored by LWNR staff approximately one year after the planting. A more extensive follow-up survey was conducted to determine growth and survival of trees in June 2007. This second follow-up survey was conducted in March 2016 to document changes in vegetation over time. Due to funded conditions over the years, no maple trees survived, very few pond apples were found, and the remaining trees were cypress. Statistical analyses of the data indicate that there was significant growth (measured by height relative to 2001) and that survival exceeded 70% in much of the study area.

INTRODUCTION

This project was initiated by the Arthur R. Marshall Foundation to restore a cypress swamp community on a disturbed wetland marsh site within the refuge. Another major purpose was to elicit support from volunteers, to raise public awareness of wetland ecology and threats to refuge ecosystems. Public participation in community projects encourages, engages, and teaches a diversity of citizens (Marshall Plan, 1972). Restoration of swamp habitat by replanting trees in disturbed marsh enhances biodiversity and wildlife habitat. Forest communities can reduce pollutants through long-term sequestering of nutrients in woody tissues.

SITE DESCRIPTION

This 6-acre B-3 tract (Fig. 1) was logged for cypress in the early 1900’s. By 1948 the site was planted with barley, millet, buckwheat, and chufa for waterfowl forage. Restoration to a mixed marsh was encouraged by water level manipulation and burning. In 2000, it was an open marshland consisting primarily of sawgrass and cattails. The marsh was approximately one year after the planting. A more extensive follow-up survey was conducted to determine growth and survival of trees in June 2007. This second follow-up survey was conducted in March 2016 to document changes in vegetation over time. Due to funded conditions over the years, no maple trees survived, very few pond apples were found, and the remaining trees were cypress. Statistical analyses of the data indicate that there was significant growth (measured by height relative to 2001) and that survival exceeded 70% in much of the study area.

RESULTS

Several reaches were sampled: 1, 2, 3, 4, 5, 6, 7, and 8, ranging in elevation from about 13.5 to 14.5 ft above sea level. The land surface is slightly undulating, with the northeast end. The driest areas of the field were blocks 1 and 8 at the north end, and blocks 6 and 7 on the east (Martin 2001/2002).

METHODS

Data were initially analyzed using Height, diameter at breast height (DBH), and survival data were collected from every tree within 4 meters of the transect. Height and DBH were measured using a meter tape and meter stick. Data were initially analyzed using means and standard deviations, to compare results from June 2007 with those obtained in March 2016.

SELECTED REFERENCES


Palm Beach Atlantic University

15 Year Follow-up Survey to Assess the Progress of a Cypress-Pond Apple, Maple Tree Planting Project in the ARM-Loxahatchee National Wildlife Refuge, Boynton Beach, FL USA

*Peggy VanArman, Kyle Holly, Trinity Livingston, *Austin Peightel, *David A. Periard, Catherine Wiersma, *Joel VanArman (also worked on poster)

To monitor growth (height) and survival of 6600 trees planted in 2001 by the largest volunteer force (over 400) to that date helping to restore a mixed cypress-pond apple-maple swamp: Taxodium ascendens (pond cypress), Annona glabra (pond apple), and Acer rubrum (maple),

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