Prairie Pines Preserve Plot Vegetation Analysis
Final Report

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Cover Photo: *Ray fern* (Schizaea pennula) *a rare tropical fern observed in mesic flatwoods at Prairie Pines Preserve. Steven W. Woodmansee, December 2003.*

Introduction:

In 2002 seven temporary study plots were established to sample vertebrate communities at Prairie Pines Preserve. In December 2003, The Institute for Regional Conservation (IRC) began field work to characterize the vegetation of these study plots at Prairie Pines Preserve. Work was done by Woodmansee & Sadle December 1-3, 2003.

Methods and Analysis:

Six of these plots were used to study impacts of the exotic vegetation. These were situated in three vegetation types: dense Melaleuca, transition zone between dense Melaleuca and marsh/wet prairie, and marsh/wet prairie. An additional seventh plot was established in mesic flatwoods. Each plot was circular with a 15 m radius.

A plant inventory of each of the seven existing circular sampling plots was conducted. A $\log_{10}$ estimate of number of individuals of each species was made for all species in the plot. In addition, in each plot, characterization of ground cover (<1m), shrub layer (1-3m) and canopy layer (>3m) was made by visually estimating percent cover of all vascular plant species in each of the three vegetative layers. This data was used to estimate the relative abundance of each taxon within each of the seven plots, as well as used to compare the relative abundance of each plant taxon across the six exotics study plots.

Four 15 m transects were run at randomly selected compass headings from the center point of each plot to the edge. At 0.5m intervals, each plant taxon intersecting the transect line was recorded for a total of 30 points along each transect, and 120 points for each study plot. This data was used to calculate the relative frequency of each plant taxon in each plot and across all plots.

Plant nomenclature predominantly follows Wunderlin (1998).

Results and Discussion:

Within all seven plots a total of 162 vascular plants were observed. Of these species, 151 of were native, 6 exotic, and 5 sterile species were of unknown origin. Of these, *Schizaea pennula* (endangered) and *Tillandsia balbisiana* (threatened) are the only taxa listed by the Florida Department of Agriculture and Consumer Services. In addition, *Melaleuca quinquenervia*, *Panicum repens*, and *Schinus terebinthifolius* (category I), and *Alternanthera philoxeroides* (category II) are the only taxa listed by the Florida Exotic Pest Plant Council (Table 6). The most abundant plant species across all plots was *Eleocharis cellulosa* with 11057 individuals.

Study Plot Summary

Dense Melaleuca

Plot numbers 1 and 5 were located within dense stands of Melaleuca. Together the plots contained totaled 44 plant species, 39 of which were native, 3 exotic, and 2 of unknown origin. *Melaleuca quinquenervia* had the highest relative frequency in both plots with an average of 92.5%, with *Myrica cerifera* as the second most dominant species with a combined average frequency of 9.17% (Table 1). *M. quinquenervia* also had the highest estimated population of 1652 individuals for both plots (Table 2). *Tillandsia recurvata* was the native with the highest estimated population of 62 (Table 2). Based upon combined percentage estimates, *M. quinquenervia* was also the dominant species in each vegetation layer (Tables 3, 4 and 5).

Melaleuca and Marsh/Wet Prairie Transition Zone

Plot numbers 3 and 6 were located within the edges of dense stands of Melaleuca and marsh/wet prairie. Together the plots totaled 62 plant species, 58 of which were native and 4 exotic. *Melaleuca quinquenervia* had the highest relative frequency in both plots with an average of 20.83%, with *Eleocharis cellulosa* coming in second with a combined average frequency of 10.42% (Table 1). *Eleocharis cellulosa* also had the highest estimated population of 5501 individuals for both plots, and *M. quinquenervia* was second with 1101 individuals (Table 2). Based upon combined percentage estimates, *M. quinquenervia* was the dominant species in the canopy and shrub layers, and equaled *E. cellulosa* in the herb layer (Tables 3, 4, and 5).

Marsh/Wet Prairie

Plot numbers 4 and 7 were located within basin marsh and wet prairie respectively, with relatively little Melaleuca. Together the plots totaled 60 plant species, 57 of which were native and 3 exotic. *Eleocharis cellulosa* had the highest relative frequency in both plots with an average of 21.67%, with *Paspalum dissectum* coming in a close second with a combined average frequency of 20.42% (Table 1). *Alternanthera philoxeroides*, an exotic, was third with an average frequency of 15.84%. *Eleocharis cellulosa* and *Utricularia gibba* had the highest estimated populations of 5556 each for both plots, and *A. philoxeroides* and *Paspalum dissectum* were tied for third and forth with 5501 (Table 2). Based upon combined percentage estimates, *Pinus elliottii* var. *densa* was the dominant species in the canopy layer, *M. quinquenervia* in the shrub layers, and *E. cellulosa* in the herb layer (Tables 3, 4, and 5).

Mesic Flatwoods Plot

Plot 2 possessed a total of 82 plant species, 77 of which were native, 2 exotic, and 3 of unknown origin. *Serenoa repens* had the highest relative frequency with an average of 70%, with Myrica cerifera coming in a distant second with a combined average frequency of 15% (Table 1). No exotics were encountered along the transect lines of this plot. *Burmannia capitata*, *Dichanthelium ensifolium* var. *unciphyllum*, *Dichanthelium strigosum* var. *glabrescens*, *Rhynchospora divergens*, *Xyris flabelliformis* had the highest estimated populations of 5501 individuals each (Table 2). Based upon percentage estimates, *Pinus elliottii* var. *densa* was the dominant species in the canopy layer, *Ilex glabra* in the shrub layers, and *Serenoa repens* in the herb layer (Tables 3, 4, and 5).

Of interesting note, it was here where 13 individuals of the state endangered *Schizaea pennula* were discovered. This rare tropical fern is new to Lee County. In addition *Salvia azurea* a temperate species critically imperiled in South Florida was also located having only been observed in Lee County twice before in the 1930's (Buswell s.n., FTG).

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Citations:

Wunderlin, R.P. 1998. Guide to the Vascular Plants of Florida. Gainesville: University Presses of Florida.