Restoration of Native Groundcover Vegetation on Abandoned Improved Pasture at Okaloacoochee Slough Wildlife Management Area

Contract Number OT040604
submitted to the
South Florida Water Management District
Big Cypress Basin Watershed Initiative

By
Florida Fish and WildlifeConservation Commission

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December 2005

Report on

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TABLE OF CONTENTS

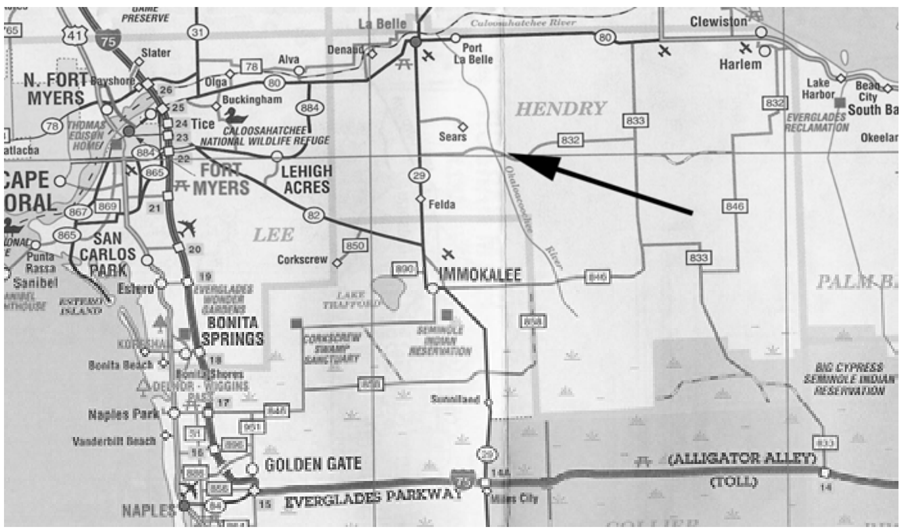
LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

Many of the CARL purchases in South Florida contain large areas of improved pasture and the CARL management criteria state that the managing agencies will restore the groundcover to native vegetation (Florida Department of Environmental Protection 2005). This is a big task, and Florida Fish and Wildlife Conservation Commission (FWC) has been looking at ways to accomplish this at Okaloacoochee Slough Wildlife Management Area (OK Slough) in Hendy County (Figure 1).

Figure 1. Location of Okaloacoochee Slough Wildlife Management Area in Southwest Florida.



From a wildlife and land management perspective, there are many good reasons for restoring native groundcover. Most of the native fauna in this region depend on herbaceous and small woody vegetation for food for themselves or for their prey. A diversity of more palatable vegetation and seeds available throughout the year are necessary to maintain healthy populations. The native pine flatwoods community alone contains over 500 different species of plants. On a wet prairie at OK Slough, two topnotch botanists, Edwin Bridges and Steve Orzell, identified over 100 species of plants in 15 minutes. This kind of diversity provides a varied and seasonally distributed food source. A more natural habitat offers structural variability, perches, and cover. Native groundcover also contributes to a more natural fire regime.

By contrast, bahiagrass (*Paspalum notatum*) pasture is virtually a monoculture with low frequency of only a small number of other species (Wertschnig 1996). In actively grazed pastures, bahiagrass does not seed and when dormant provides no nutritional value. Bahiagrass greens up early in the spring and is difficult to burn during the growing season when native plants respond best to fire. Bahiagrass pasture lacks vertical structure, so provides a uniform type of cover.

METHODS

Site Selection and Preparation

In Spring 2003, FWC set up a 50-acre plot for groundcover restoration which would be seeded using a methodology developed by Bissett (1996, 2004); this method is very expensive, but the most effective method currently available. Plot boundaries were adjusted to avoid burrowing-owl (*Athene cunicularia floridana*, FNAI: G4T3/S3, Federal: none, State: Species of Special Concern, Florida Natural Areas Inventory 2005) burrows and cutthroat grass (*Panicum abscissum,* southernmost vouchered occurrence, FNAI G2/S2, Federal: Candidate Category 2, State: endangered, Disney Wilderness Preserve, 1996); both listed species were discovered when locating the plot.

We also set up twelve 1-acre plots which were not seeded, to test several methods of removing bahiagrass and encouraging a more native groundcover.; three plots each were A) herbicided only, B) disked only, or C) herbicided and disked - the same as the seeded plot, and three plots were used as controls.

All of the bahiagrass pasture was burned in late February 2003 (Figure 2). Burned wax myrtle stems were cut with a Brown tree cutter to allow passage of a boom sprayer. Palmettos, palms and oaks were not cut; equipment was driven around them and herbicide was applied under the plants to the stem to eliminate groundcover vegetation.

Vegetation in all plots was quantitatively sampled in May 2003. Locations for sampling were chosen using a stratified random design.

The 50-acre plot was herbicided twice during the early and late summer using a 28-ft boom sprayer; after boom spraying, an ATV 15-gallon sprayer was used to spray any areas missed. The initial spraying could only be done for short periods of time after dew was gone and before summer afternoon rains. For the initial run, the boom sprayer application took from June 11 to June 17 (14 hours actual spraying) and touchup with ATV was done from July 1 to July 18, 2004 (39 hours of actually spraying). Most, but not all bahiagrass was killed by the first application, so a second application was necessary. The second boom sprayer application took from September 15 – October 9 (19 hours of actual spraying) and the ATV touchup from October 10 – October 25 (14 hours of actual spraying). Though many days were expended, actual hours spraying

Figure 2. Bahiagrass pasture photopoint before and 8 days after burning in late February 18, 2003. Aboveground portion of wax myrtle bushes were dead with singed leaves remaining. These shrubs were cut with a Brown tree-cutter and left to decompose.

averaged between one and two hours per day. Herbicide mix included 1.5- 2% glyphosate. The mix was as follows for 100 gallons of water: 3.35 gallons Roundup-Pro, one pound Ammonium sulfate, and one quart AD 100 surfactant, or 1.6 gallons Rodeo, and 3.6 gallons of Class Act surfactant. Blue dye was used to indicate where spray was applied.

When all bahiagrass was dead, the area was disked to break up the soil and create a level surface for planting. The ground was disked once with a seven-ft wide heavy disk, then once with a 12 ft wide finishing disk, and disked a third time with the 12 ft finishing disk and a 12 ft pipe fence gate used as a drag pulled behind the disk to level the ground (Figure 3). The area was then rolled with a 12-ft wide 32-in diameter roller filled with water to compact the soil (Figure 4). Disking took 75 hours, rolling took 26 hours, and actual seeding took 30 hours.

Twelve 1-acre sample plots were established to determine the effects of three levels of site preparation without seeding (Figure 5). Three 1-acre plots received the same treatment as the 50-acre plot except they were not seeded. Three more 1-acre plots were herbicided twice and spot-treated at the same time as the 50-acre plot, but received no other treatment or seed. Another three 1-acre plots were disked three times, dragged, and rolled at the same time as the 50-acre plot, but received no herbicide or seed. The final three 1-acre plots were not treated at all and were controls. Treatments were assigned randomly to the twelve plots.

Figure 3. Results of the second disking are shown on right. On the left are the results of the third disking and leveling with a pipe fence gate. A portion of the 12 ft pipe gate used as a drag can be seen behind the left side of the 12 ft finishing disk.

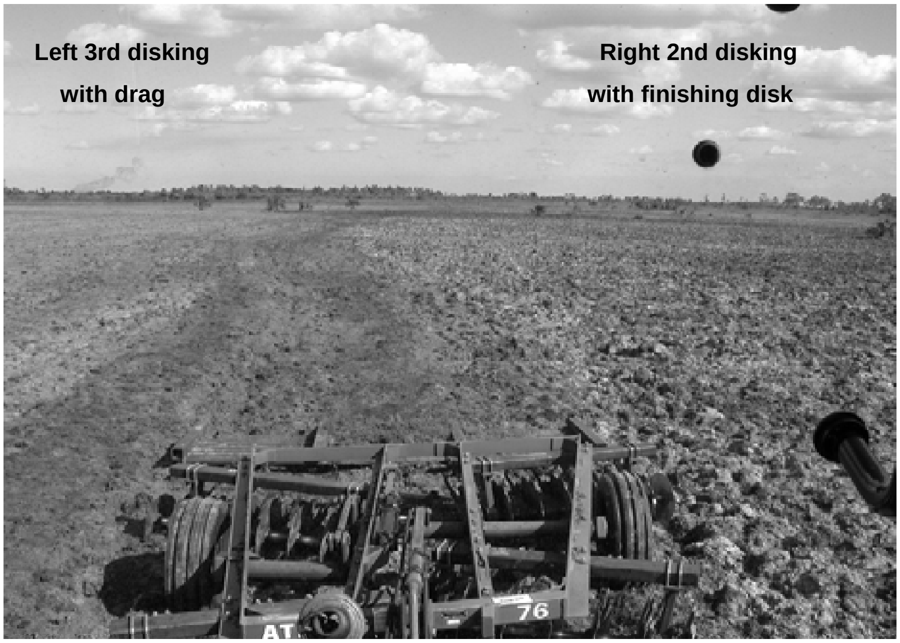
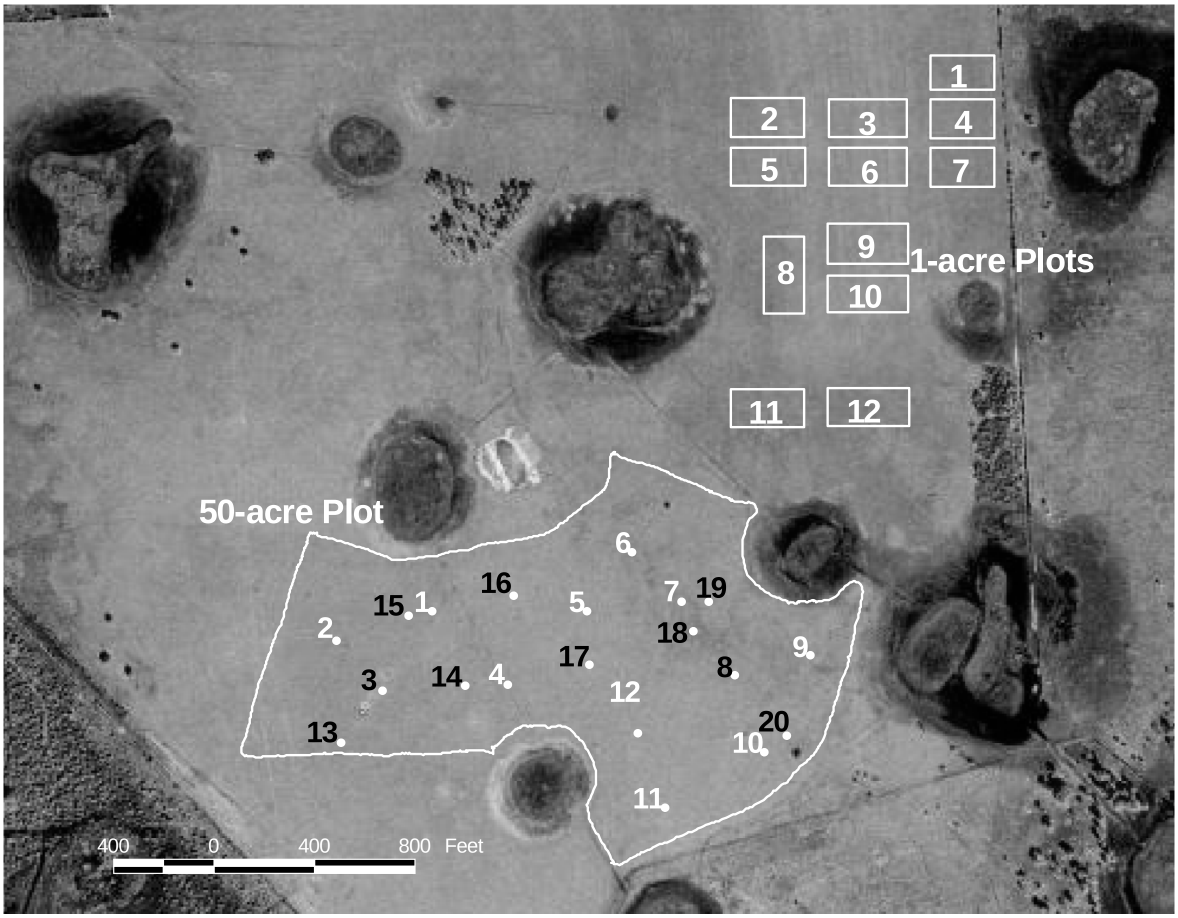


Figure 4. Twelve ft drum roller that was used to compact the soil after disking.

Figure 5. Aerial view of the groundcover restoration area. In the 50-acre plot in 2003, one 10 ft interval was sampled at all 20 locations. In the 50-acre plot in 2004, five 10 ft intervals were sampled at the 10 points numbered in white. In each of the one-acre plots, one 10 ft interval was sampled at three separate locations within the plot in both years. In the one-acre plots: Plots 3, 7, and 11 were Controls, Plots 1, 6, and 12 were Disked Treatment, Plots 2, 9, and 10 were Herbicided Treatments, and Plots 4, 5, and 8 were Herbicided & Disked Treatments. The 50-acre plot was the Seeded Treatment.



Planting, and Maintenance

In early December, ten large semi trailers of seed, leaves and stems were harvested with a green silage cutter (Figure 6) from native flatwoods on Avon Park Bombing Range. Each tractor trailer was dumped within the plot (Figure 7) and spread to a depth of about one ft to avoid seed overheating. This was mixed with seeds from 14 earlier ripening species (Table 1) that were collected with a flail-vac (Ag-Renewal Inc.) or by hand, air dried, and stored, then mixed into brown paper shopping bags or plastic bags for easy addition to the silage-cut seed at time of planting. The mixture was loaded into the

Figure 6. Green silage cutter used to harvest seed from Avon Park Bombing Range. The harvester projected seed directly into a tractor trailer.

Figure 7. Seed is dumped on the 50-acre plot where it was spread out to a thickness of about 1 ft to avoid overheating and fermenting of the seed.

Table 1. Species collected separately and added to the green silage cutter material before planting. Additional seed was hand-collected or collected with a Flail-vac in order to add species that were not present at the time of harvest, pioneering species that help to fill in the gaps, and some additional wildflower species. Some species are included with their total weights; however, most of the seed was not cleaned and can include stems as well as involucres and other flower parts. The lopsided indiangrass (*Sorgastrum secundum*) was closest to a cleaned weight.

Scientific name	Common Name	Weight, if available
Andropogon brachystachyus	shortspike bluestem	
Andropogon virginicus var. *glaucus*	chalky bluestem	
Coreopsis leavenworthii	Leavenworth's tickseed	38 oz.
Eragrostis elliottii & *Eragrostis virginica*	Elliott's lovegrass & coastal lovegrass mix	50 lbs
Eragrostis elliottii	Elliott's lovegrass	27 lbs
Liatris tenuifolia var. *quadriflora (L. laevigata)*	shortleaf gayfeather	
Panicum anceps	beaked panicum	
Pityopsis graminifolia	narrowleaf silkgrass	
Polygala rugellii	yellow milkwort	
Rhynchospora colorata	starrush whitetop	
Rudeckia hirta	blackeyed susan	25 oz.
Rudeckia hirta & *Coreopsis leavenworthii*	blackeyed susan & Leavenworth's tickseed mix	
Serenoa repens	saw palmetto	about 27,500 seeds
Sorghastrum secundum	lopsided indiangrass	150 lbs
Xyris sp.	yelloweyed grass	

seed spreader with a brush grappler and spread over the 50 ac with a planting machine with cultapacker on the front to create dibbles in the soil, then seed dropped with a modified tree sprigger, followed by coulters (disks) to wedge stems into soil so they won't blow away, and rollers to press seed into the soil (Figure 8).

Rain fell as seeding was finished on Dec 5, possibly several inches. The South Florida Water Management District rainfall recorder located on the north end of OK Slough State Forest began operation on December 18th, 2003. Rainfall for the months leading up to the 2004 rainy season were between two and three inches for January, February, and April, with virtually no rain in March and May (Table 2). By June summer rainfall patterns began.

In May 2004, we noted many tropical soda apple (*Solanum viarum*) seedlings coming up in the 50-acre plot, but not in the 1-acre plots. Five to six people walked the

Figure 8. Seed being loaded into seeder which was attached to a tractor. On the front of the seeder (left) the cultapacker can be seen. Below the white bag containing palmetto seed, which was added by hand to each load, are the disks that push the stems into the soil. At the back of the seeder are a series of tires that push seed into the soil to insure good soil contact and compress soil to better retain soil moisture.

Table 2. Rainfall on north OK Slough State Forest recorded at the South Florida Water Management District rainfall station OKALN, Section 19, Township 44, Range 30, Hendry County, Latitude 26.3800 N, Longitude -81.2124 W.

Date	Dec '03	Jan '04	Feb '04	Mar 04	Apr '04	May 04	Jun '04	Jul '04
Rainfall (inches)	1.94*	2.46	2.78	0.06	2.87	0.42	4.45	8.33

* Above recorder was not in operation for Dec. '03; rainfall shown here is from a weather station near Corkscrew Swamp Sanctuary.

plot and used dibble sticks to push out the small < 5cm tall seedlings; this took approximately 2 days.

In June, hog damage from rooting was becoming a serious problem, so a three-strand solar powered electric fence was constructed around the 50-acre plot to protect the area (Figure 9), based on a hog fence design used by Cyndi Gates and Steve Burger at Hilochee Wildlife Management Area (Gates 2004).

Figure 9. Electric fence around the 50-acre plot to keep hogs out of the seeded area.

Posts were spaced every 12 ft along the 1.4 mile fence line. Approximately forty 4-in wooden fence posts were installed at all corners, all bends of 35^{o}or more, and at least every 12^{th} post within the fence, 105 metal T-posts, were installed every fourth post for stability, and approximately 500 plastic posts with built-in wire holders were used for the remainder of the 1.4 mile fence line. The fence has one gate with three coiled electric wire pulls across a 14 ft opening and 4-in wood fence posts at each side. The electric charger was solar powered, designed for at least 10 miles of fence, mounted on sturdy wooden fence posts near a gate, and grounded with three six ft copper grounding rods at the charger plus an additional single grounding rod every 1300 ft. The top wire was 12 in -18 in above ground (set for hogs); top and bottom wires were charged, with the middle wire used as a ground; 14-gauge wire was used. A two-ft strip on either side of the fence was sprayed with herbicide (2% glyphosate) to prevent vegetation from touching the fence, and all objects including living or dead vegetation were cut so there was no contact with the wires. The work was quite labor-intensive and took approximately 23 person-days to complete including purchasing materials, clearing, constructing, travel time for crew, and spraying twice.

To determine if dogfennel (*Eupatorium capillifolium*) was dense enough to warrant treatment, a July 2004 survey of the 50-acre plot was conducted with Nancy Bissett. Dogfennel was not dense enough to warrant cutting or herbiciding it. There was sufficient space between the dogfennel plants to allow growth of other species.

In October 2004, we sampled vegetation after one growing season in the seeded 50-acre plot and twelve 1-acre unseeded plots. Photos were also taken. Plots were permanently marked at one end.

In May and June 2005 exotics were treated in the potentially successful treatment plots (Seeded, Herbicided, and Herbicided & Disked) totaling 56 ac. Applicators filled out a daily form (Table 3) which provides some information on how much of their time was spent searching for exotics vs. spraying ones they found which gives us a relative density of exotic plants treated. The applicators were also asked to roughly estimate the percentage of each exotic treated that day, giving us some idea the relative abundance of each exotic in the plots. From these data, we can compare the amount of effort used and success treating various species over time (Tables 4 and 5). Based on this information, we used 4 gallons of glyphosate/ac, spent 4 person-hours/ac (149 person-hours total), and approximately half of that time was spent searching for the exotics and half actively treating them. Smutgrass (*Sporobolus indicus*) and Vasey grass (*Paspalum urvellii*) were by far the most abundant exotics treated (Table 5). Scattered patches of bahiagrass, Bermudagrass (*Cynodon dactylon*), torpedograss (*Panicum repens),* and tropical soda apple were also found.

In September 2005, a site visit with Nancy Bissett of The Natives was conducted on the 50-acre plot. Dogfennel presence was reduced from the first growing season in both numbers and size. The area was dense with much desirable mixed native vegetation. No wiregrass (*Aristida stricta* var. *beyrichiana*) was encountered, during the walk through the plot; these plants should be big enough to see while walking by the end of the second growing season. Smutgrass was still present at about the same density as before the Spring herbicide treatment. Vaseygrass density was greatly reduced, but still present. Some hog rooting has occurred during the summer, when the electric fence could not be operated due to higher water levels with water in contact with the wire.

Vegetation Monitoring

Location and Installation of Permanent Monitoring Quadrats

Vegetation was initially sampled in May 2003, three months after burning, but before any treatment with herbicide or disking. The second sampling was conducted at the end of the first season (10 months after planting) in October 2004.

Table 3. Example of field form filled in by applicators at the end of each day. Information can be used to compare effort used between different treatments and to indicate relative amount of each exotic treated.

Exotics Treatment and Monitoring Field Sheet, OK Slough

Chemicals used (please include brand names and type):		Dilution rate
Herbicide:	Aquastar (glyphosate)	2%
Surfactants/ Adjuvants: 1	Sunwet (wetter/penetrater)	0.25%
2	indicator dye	0.25%
3		
4		

Crew Leader: M. Coffee (E.Thompson & J. McCollom spraying)

Project: Applied Aquatic, Spot Treat Restoration Spr 2005

Date	5/23/2005			
Area covered (please indicate portion of unit [example NW 1/3 of Unit3] or draw area on map)	Area on map marked E			
# of crew members	2			
Hour worked	16			
Hours spent spraying	8			
Amount Herbicide applied	15 gal			
		% Exotics treated		
Bahia grass	1			
Smutgrass	39			
Vasey grass	60			
Total Exotics treated:	**100%**	**100%**	**100%**	**100%**
Signature	MC			

Table 4. Average amount of herbicide and time spent on each acre to treat invasive exotic plants and the amount of time expended in actual spraying vs. searching for plants to treat.

	Unseeded plots 3 acres Herb 3 acres H&D	Seeded plot 50 acres	All
Gal. glyphosate/acre	5.5	3.8	4
Hours worked/acre	8.0	3.0	4
% time worked spent spraying	39%	48%	48%

Table 5. Relative Amount of each invasive exotic plant treated in the Spring 2005 herbicide treatment. Percentages estimates were made by applicators at the end of each day then multiplied by number of person-hours spent spraying.

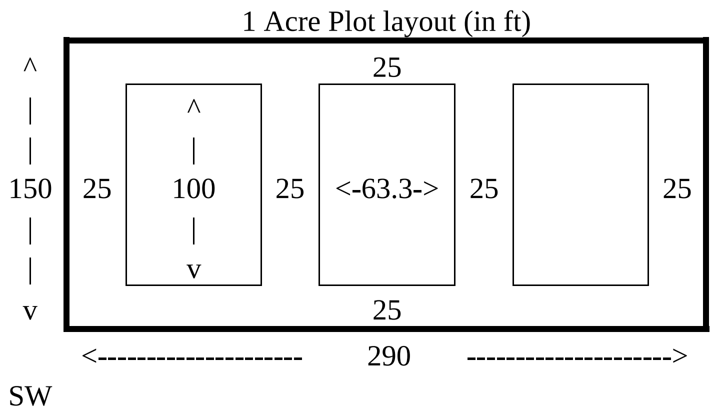
		Relative Amount		
Exotic	Seeded	H&D	H	All
Vasey grass	53%	17%	48%	49%
Smut grass	44%	56%	48%	45%
Bahia grass	2%	27%	0%	4%
Bermuda grass	2%	0%	4%	2%
Tropical Soda Apple	0.06%	44%	1%	0.15%
Torpedo grass	0.04%	0%	0%	0.03%

Monitoring quadrats were chosen using a stratified random design. In the May 2003 pre-treatment sampling, the 50-acre plot was divided into four areas to represent any within-site differences, and then five 2 ft x 10 ft intervals were randomly chosen within each area (Figure 5). Each area thus contained five 10 ft intervals which were not contiguous, comprising one quadrat. No intervals were chosen within 25 ft of the 50-acre plot edge.

In the October 2004 sampling, for the 50-acre plot, at ten of the original 10 ft intervals, four additional 10 ft intervals were added to create a 50 ft quadrat (Figure 5). The remaining initial intervals were not sampled. Each sampled quadrat was 50 ft long and composed of five contiguous 2 ft by 10 ft intervals.

Each 1-acre treatment plot was monitored during both 2003 and 2004 samplings using a stratified random design; three 63.3 ft x 100 ft subplots, each 25 ft from the edge and each other, were established and one 2 ft x10 ft interval was randomly chosen within each subplot (Figure 10). Each 1-acre treatment plot thus contained three 10 ft intervals which were not contiguous, comprising one quadrat.

Figure 10. Sample design for one-acre treatment plots. Each 290 ft x 150 ft one-acre plot was divided into three 63.3 ft x 100 ft subplots with 25 ft buffers around each subplot. A sample location was randomly chosen within each subplot where a 2 ft x 10 ft interval was sampled.



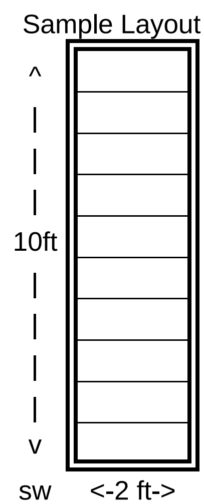
Latitude and longitude of each interval was recorded in 2003 so that they could be relocated after disking and seeding. In October 2004 the southwestern corner of each quadrat was permanently marked with a plastic fencepost.

Quantitative Monitoring Methodology

This sampling design, method, summary and pooled statistics and associated programming was developed by Peter M. Wallace and Robert A. Garren at Ecosystem Research Corporation (©ERC, 1992, Gainesville, Florida) and has been used on other groundcover restoration vegetation monitoring projects (Garren 1998, Berryman & Henigar, Inc. *et. al.* 1999, Bissett *et. al.* 2003). Portions of the text describing the methodology were adapted from these documents. Robert Garren produced the summary and pooled statistics for the 50-acre plot and the summary statistics for the 1-acre plots. FWC produced the pooled statistics for the 1-acre plots.

Monitoring of herbaceous vegetation was done within a 2 ft wide band located along the left side of the line of each permanent quadrat. Monitoring involved the collection of frequency and percent cover data for each plant species present within the 2 ft wide band. Using a 2 ft x 10 ft PVC frame marked in 1 ft sections, data were collected in 10 ft intervals along a quadrat (Figure 11). In addition to assessing each plant species present, data were collected on bare ground and standing water (if present).

Figure 11.   Monitoring of herbaceous vegetation was done within a 2 ft wide band located along the right side of a North/South line. A 10 ft x 2 ft PVC frame was marked every foot along the 10 ft length. Presence of each species and bare ground were recorded in each 1 ft x 2 ft section to obtain frequency. Percent cover of each species and bare ground were recorded for the whole 2 ft x10 ft area.



An example of a field datasheet showing how the data were recorded is included as Table 6. A six letter ID code was used to record each species.

Frequency data were obtained for each plant species by determining how many 1ft x 2 ft subintervals contained that species. Since the data were collected in ten ft intervals, each species entry within each interval can have a maximum value of 10 (if that species occurred within all 10 frequency sub-intervals).

Percent cover estimates, on the other hand, were made over each 10 ft interval as a whole. Thus, for a given species, a single percent cover estimate was made for the entire 10 ft interval. The percent cover estimates were made using a cover classification system based on ranges of vegetative cover (Table 7). Each number assigned represented a visual estimate of that particular plant species within a range of percent cover.

Thus, frequency and percent cover data were collected as "couplets" in 10 ft intervals along the established permanent quadrat.

Table 6. Example of a Field Data Sheet for vegetation sampling.

Groundcover Bigplot Sample Data OK Slough WMA			Cover Classes: **1**: 0-<1% **2**: 1-10% **3**:10-30% **4**: 30-50% **5**: 50-70% **6**: 70-90% **7**: >90%					
Date: 10/19/04 Collectors: JM			Recorder: JM			Page 1 of 1		
Photos for Quadrat# 11	Photo#s		6,7,8			Lat: Long:		
Quadrat #11 Sample # 1			Quadrat#11 Sample #3			Quadrat # Sample#		
	F	%C		F	%C		F	%C
Bare Ground	10	2	Bare Ground	10	2	Bare Ground		
EUP CAP	4	2	EUP CAP	7	3			
EUP LEP	7	2	EUP LEP	3	2			
EUT CAR	8	2	EUT CAR	5	3			
AND BRA	7	2	AND BRA	5	2			
AND VIR	10	3	AND VIR	9	3			
AND GCP	10	2	AND GCP	8	3			
HED UNI	10	6	HYP HYP	3	2			
CYP POL	10	3	BIG NUD	2	1			
RHY FER	10	2	LIA SPI	1	1			
PAS SET	1	1	PIT GRA	1	1			
AXO FIS	4	2	HED UNI	10	3			
PAN CHA	1	1	PAS SET	1	1			
SOR SEC	10	2	CEN ASI	6	1			
PIT GRA	1	1	RHY FER	5	2			
LIT SPI	2	1	CYP POL	10	3			
CEN ASI	5	1	SOR SEC	10	2			
ELE BAL	2	1	PAN CHA	2	1			
MAR TEN	2	1	AXO FIS	2	1			
RUD HIR	1	1	ELE BAL	3	1			
LUD ARC	4	1						

Table 7. The percent cover ranges and corresponding cover class values.

HERBACEOUS PERCENT COVER RANGES AND CORRESPONDING COVER CLASS VALUES	
Percent Cover Range	**Cover Class Value**
> 0 and ≤ 1%	1
> 1% and ≤ 10%	2
> 10% and ≤ 30%	3
> 30% and ≤ 50%	4
> 50% and ≤ 70%	5
> 70% and ≤ 90%	6
> 90%	7

Data Analysis

Summary Statistics

Data were entered in the computer twice and compared to check for input errors. Statistical summaries for each quadrat were calculated. An example is found in Table 8). The parameters shown in Table 8 are described in Table 9. Complete summary statistics for all quadrats for both May 2003 and October 2004 samplings are in Appendix A.

Pooled Treatment Statistics

Quadrat frequency and percent cover data were pooled by the treatments listed in Table 10. The total length included in each treatment is the sum total of the lengths of the individual quadrats that contributed to that pooled grouping (Table 11).

An example of pooled summary statistics by treatment is found in Table 12. Complete pooled summary statistics for all treatments for both samplings are in Appendix B. Relative frequency was calculated as the total number of 1 ft x 2 ft subintervals where a species occurred divided by the total number of subintervals within a treatment type. Total Quadrat Average Cover was calculated using the average of all quadrats for each species in each treatment. The “Total Quadrat Area, Probable Percent

Table 8. Example of herbaceous vegetation Summary Statistics. The 2004 data for one of three Herbicided & Disked 1-acre plots is shown here. Appendix A contains the complete dataset.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
																1	2	3	4	5	6	7							
			1	2	3	4	5				1	2	3	4	5	<1	1-10	10-30	30-50	50-70	70-90	>90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	H&D - Plot 4	BAR GRO	9	10	10			29	96.7		1	2	2			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	
2004	H&D - Plot 4	AMP MUH		2	1			3	10.0	23		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	23
2004	H&D - Plot 4	BAC HAL			2			2	6.7	29			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	BAC MON		2	3			5	16.7	19		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	23
2004	H&D - Plot 4	CEN ASI	5	6	8			19	63.3	7	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	9
2004	H&D - Plot 4	CYP POL	10	10	10			30	100.0	1	6	4	4			0	0	0	2	0	1	0	43.3	53.3	63.3	43.3	53.3	63.3	1
2004	H&D - Plot 4	CYP RET			1			1	3.3	36			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	DES TRI	10		8			18	60.0	8	3		2			0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	6
2004	H&D - Plot 4	DIG SER	3					3	10.0	23	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 4	DIO VIR	2					2	6.7	29	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	ERA VIR		3	1			4	13.3	21		2	1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	H&D - Plot 4	EUP CAP	10	10	10			30	100.0	1	3	3	3			0	0	3	0	0	0	0	10.0	20.0	30.0	10.0	20.0	30.0	4
2004	H&D - Plot 4	EUP LEP	3	6	8			17	56.7	9	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	9
2004	H&D - Plot 4	EUT CAR	6	2	5			13	43.3	11	2	1	2			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	12
2004	H&D - Plot 4	FIM CAR	4					4	13.3	21	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 4	FIM DIC		10	10			20	66.7	6		5	4			0	0	0	1	1	0	0	26.7	33.3	40.0	40.0	50.0	60.0	2
2004	H&D - Plot 4	HYD UMB		1				1	3.3	36		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	HYP TET	7					7	23.3	18	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 4	JUN MAR	2					2	6.7	29	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	JUN SCI	5					5	16.7	19	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 4	KYL BRE			3			3	10.0	23			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	LAC CAR	2	1				3	10.0	23	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	23
2004	H&D - Plot 4	LIN CRU		3	7			10	33.3	13		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	H&D - Plot 4	LUD ARC		2				2	6.7	29		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	LUD MAR	1	1				2	6.7	29	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	23
2004	H&D - Plot 4	LUD OCT	7	10	10			27	90.0	4	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	9
2004	H&D - Plot 4	LUD REP		1	2			3	10.0	23		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	H&D - Plot 4	MIK SCA			2			2	6.7	29			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	MUR NUD	2					2	6.7	29	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	OLD UNI	10	10	10			30	100.0	1	4	4	3			0	0	1	2	0	0	0	23.3	33.3	43.3	23.3	33.3	43.3	2
2004	H&D - Plot 4	PAS NOT	9		2			11	36.7	12	3		1			1	0	1	0	0	0	0	3.4	6.8	10.3	5.1	10.3	15.5	8
2004	H&D - Plot 4	PHY NOD		3	7			10	33.3	13		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	H&D - Plot 4	POL PRO	3	2	3			8	26.7	17	1	1	2			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	13
2004	H&D - Plot 4	RHE MAR			3			3	10.0	23			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	RHY FAS	10					10	33.3	13	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 4	SAC IND	9		6			15	50.0	10	3		2			0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	6
2004	H&D - Plot 4	SCL SP.	1					1	3.3	36	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	SCO DUL	6		3			9	30.0	16	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	23
2004	H&D - Plot 4	SET PAR	5	10	10			25	83.3	5	1	2	3			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	5

Table 9. Description of the parameters for herbaceous vegetation Summary Statistics.

Parameter	Description
Year	Year sampling was conducted
Quadrat	Name of quadrat including code for type treatment then quadrat name or number.
Species Code	6 letter code, usually the first 3 letters of the Genus and first 3 letters of the species (If there are duplicate 6 letter codes for 2 different species, a unique code is was created. See Appendix C for codes and full scientific names.
Frequency per Interval (n=10)	Number of 1ft x 2 ft subintervals containing this species within an interval (10 subintervals per interval). Below intervals are numbered from 1 to 5.
Total Frequency	Total number of 1 foot sub-intervals a species occurred in for a given 10 foot interval
Relative Frequency	Total frequency for a species divided by the total number of possible sub-intervals in the entire quadrat
Frequency Rank	Ranking for a given species based on its total frequency within the quadrat
Cover Category per Interval	Percent cover category for a given 2 ft x 10 ft interval. Below intervals are numbered from 1 to 5.
Cover Category Number / Range	Number of intervals that were recorded in each Category. Below Categories are numbered from 1 – 7 and percent cover they represent are listed below each Category number in the header.
Total Quadrat Area Probable Percent Cover Range	Information for the whole area, estimating the whole population
– Minimum, Average, Maximum	Minimum, average, and maximum predicted percent cover for a given species calculated over the entire quadrat
Total Occurrence Area Probable Percent Cover Range	Information on density when found (only intervals where the species occurs are used in calculation). Indicates if plants are found in dense clumps or sparsely distributed.
– Minimum, Average, Maximum	Minimum, average, and maximum predicted percent cover for a given species calculated for the area where it occurred only
Cover Rank	Ranking for a given species based on its Total Quadrat Area average probable percent cover

Table 10. Treatment categories.

Name	Code	Treatment	# & Size Plots
Control	C	no treatment or seeding	three 1-acre
Disked	D	disked only - not seeded	three 1-acre
Herbicided	H	herbicided only - not seeded	three 1-acre
Herbicided & Disked	H&D	herbicided and disked - not seeded	three 1-acre
Seeded	S	herbicided, disked, and seeded	one 50-acre

Table 11. Lengths sampled for each pooled treatment.

Treatment	2003	2004
Control	90 feet	90 feet
Disked	90 feet	90 feet
Herbicided	90 feet	90 feet
Herbicided & Disked	90 feet	90 feet
Seeded	200 feet	500 feet

Table 12. Example of herbaceous vegetation Pooled Summary Statistics. The 2004 sampling data for the Control Treatment is shown here; this treatment includes 3 quadrats. Appendix B contains the complete dataset for both Spring 2003 and Fall 2004 samplings.

Year	Treat-ment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2003	Control	BARE GROUND	BAR GRO	100.0	---	3	16.7	---
2003	Control	Andropogon glomeratus	AND GCP	4.4	15	1	2.3	8
2003	Control	Andropogon virginicus	AND VIR	10.0	7	1	3.3	7
2003	Control	Axonopus fissifolius	AXO FIS	21.1	4	3	4.1	6
2003	Control	Buchnera americana	BUC AME	2.2	19	1	0.1	19
2003	Control	Centella asiatica	CEN ASI	43.3	3	3	6.7	3
2003	Control	Chamaecrista fasciculata	CHA FAS	1.1	25	1	0.1	19
2003	Control	Cirsium nuttallii	CIR NUT	1.1	25	1	0.1	19
2003	Control	Cynodon dactylon	CYN DAC	2.2	19	2	0.1	19
2003	Control	Cyperus sp.	CYP SP.	63.3	2	3	7.9	2
2003	Control	Desmodium incanum	DES INC	7.8	10	2	1.1	11
2003	Control	Desmodium triflorum	DES TRI	6.7	11	2	0.2	18
2003	Control	Diodia virginiana	DIO VIR	5.6	14	2	0.6	12
2003	Control	Erechtites hieraciifolius	ERE HIE	2.2	19	2	0.1	19
2003	Control	Eupatorium capillifolium	EUP CAP	2.2	19	1	0.1	19
2003	Control	Fimbristylis autumnalis	FIM AUT	4.4	15	1	0.6	12
2003	Control	Fuirena scirpoidea	FUI SCI	3.3	17	1	0.6	12
2003	Control	Oldenlandia uniflora	HED UNI	2.2	19	2	0.1	19
2003	Control	Ipomoea sagittata	IPO SAG	6.7	1	1	0.6	12
2003	Control	Ludwigia maritima	LUD MAR	1.1	25	1	0.1	19
2003	Control	Ludwigia octovalvis	LUD OCT	1.1	25	1	0.1	19
2003	Control	Myrica cerifera	MYR CER	10.0	7	1	6.7	3
2003	Control	Ophioglossum nudicaule	OPH NUD	2.2	19	1	0.1	19
2003	Control	Paspalum notatum	PAS NOT	95.6	1	3	64.4	1
2003	Control	Paspalum setaceum	PAS SET	3.3	17	1	0.6	12
2003	Control	Phyla nodiflora	PHY NOD	16.7	6	1	1.7	9
2003	Control	Rhynchospora fascicularis	RHY FAS	6.7	1	1	0.6	12
2003	Control	Setaria parviflora	SET GEN	10.0	7	2	1.2	10
2003	Control	Sporobolus indicus	SPO IND	18.9	5	2	5.1	5

Cover - Average" (see Table 8) was used to calculate Total Quadrat Average Cover which is the pooled treatment cover.

The pooled frequency and cover statistics are of value in identifying those species which may be important due to either:

1. High Frequency - widely distributed throughout the area and therefore achieving a high pooled relative frequency ranking.

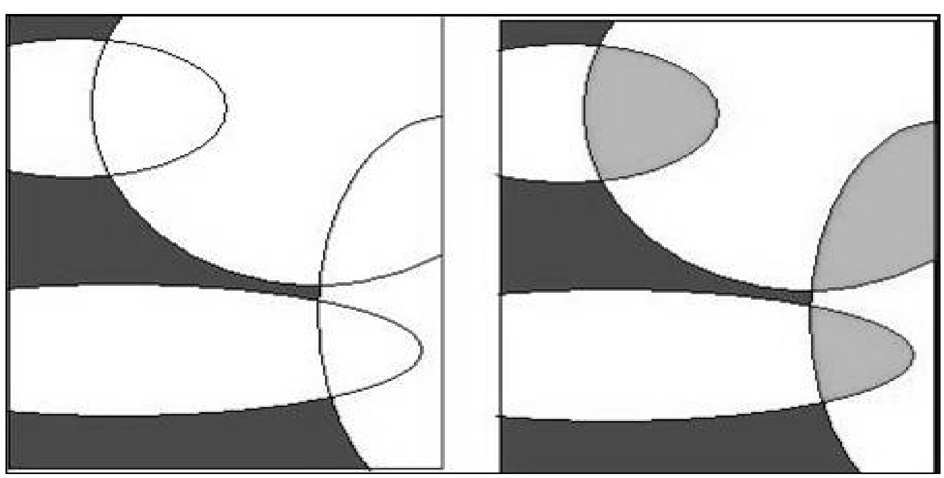
2. High Percent Cover - occurring in dense patches and therefore achieving a high pooled average percent cover ranking.

3. High Frequency and High Percent Cover - highly ranked based on both pooled frequency and average percent cover.

Stratification Indices

When reporting percent cover of vegetation species, one can describe both *stratified* and *unstratified* values. Stratified percent cover was obtained for a given quadrat or pooled grouping by simply summing up the percent cover values for each species present within that unit (Figure 12 right). Thus, total percent cover values in excess of 100% are common.

Figure 12. Unstratified percent cover (left) is depicted with four overlapping plants (ovals) shown in white and bare ground which the plants do not cover shown in black. The percent cover of plants plus bare ground equals 100%. Stratified percent cover (right) shows the same 4 plants (ovals). Percent cover is recorded for each species even where it is overlapped by another plant (areas in grey), and the sum of each plant's percent cover plus percent bare ground equals more than 100%. Stratified percent cover provides a vertical density estimate and gives a better representation layering of vegetation cover.



Unstratified cover values represent the *projection* of the stratified layers of vegetative cover onto a two dimensional plane such that total cover values cannot exceed 100% (Figure 12 left). This calculation essentially transforms the three dimensional dataset of stratified values into a two dimensional set of values. A shortcoming of many quantitative vegetation methods is failure to utilize stratified cover estimates such that vegetative layering cannot then be described. By collecting data as cover classes (minimizing operator differences and estimation errors) and, as well, retaining a numerical measure of stratification, the analyst has the opportunity to present both stratified and unstratified cover data and can then calculate a *Stratification Index*.

The Stratification Index is a simple statistic calculated by dividing the stratified cover value (for a given quadrat or pooled grouping) by the unstratified ("projected") cover value. The unstratified cover value for a given quadrat (or pooled grouping) was calculated by subtracting the percent cover (direct estimate) of bare ground from 100%. Thus, a completely unstratified community would have a Stratification Index of 1.0 while progressively higher values would indicate increased layering. For clarification purposes, bare ground was considered as *any area with no living vegetation.* Thus, bare ground would include dead standing vegetation, litterfall covering the ground, open water, and other uncolonized habitats.

Stratified and unstratified values were calculated and stratified cover values were used to quantify the amount of layering of the vegetation for each treatment.

Species Classification

Classification of the plant species found in the quantitative data samplings was done using both Floristic Status (aggressive, weedy, pioneer, or characteristic) and Origin (native or exotic) classification categories and assigned Coefficients of Conservation based on a modified version of a classification by Nancy Bissett for Central Florida. Beginning with the Central Florida classification, plant species were evaluated by Nancy Bissett and Jean McCollom and the classification was supplemented or altered as necessary to improve its applicability to South Florida.

Floristic Quality Classification

Geroud Wilhelm developed an approach to vegetation monitoring in northeastern Illinois that eventually became known as the Floristic Quality Assessment (Swink and Wilhelm, 1979). Coefficients of Conservation (CC) were assigned to each species using a scale of 0 to 10, with 0 indicating an introduced species and rare plants ranging up to 10. The species CCs were used to calculate a Floristic Quality Index for sites which reflect the species composition from common to unique. Variations of this system have been used throughout the Midwest (Nachlinger and Reese, 1996) and are now being implemented in the west and southeast (Cohen *et. al.* 2004, Reese et al., 1994).

A Floristic Natural Quality Assessment Index for flora in the Upper Lakes Basin Watershed in south central Florida was prepared for the South Florida Water Management District (Bridges and Reese, 1996). This report provided a "Coefficient of Community" system, with values ranging from 0 for introduced species up to 12 for rare or unusual species.

Nancy Bissett developed a 10-point system of Coefficient of Conservation values for Central Florida Groundcover Restoration analysis based on these previous studies, available literature, and personal knowledge of these plants in the Central Florida landscape (Bissett and Garren, 2005). Her view of pioneer species was more oriented toward disturbed systems undergoing restoration rather than the mature systems evaluated by Bridges and Reese. For example, using their scale from 1 to 12, Bridges and Reese probably rated wiregrass as a 4 because of its dominance in a natural system, but Bissett considered it a 6, in the characteristic rather than pioneer category, because it does not spread easily into disturbed areas or reseed easily.

Floristic Status and Native/Exotic Status

Bissett also compared the plant species and their Coefficient of Community values listed by Bridges and Reese with floristic quality classification called Floristic Status she had developed (Disney Wilderness Preserve 1998, Bissett *et. al.* 2003) (Table 13).

Table 13. Definitions of Floristic Status and Native/Exotic Status.

Floristic Status	**Definition**
Aggressive	Species that out-compete weedy species and sometimes will even out-compete characteristic species of stable ecosystems; these species are not native.
Weedy	Species that depend on unnatural[1] or severe disturbances to become established,
Pioneer	Species that readily reseed in unnatural or severely disturbed areas but persist and are characteristic of mature ecosystems also.
Characteristic	Species that are found in mature ecosystems.

[1] Unnatural or severe disturbances are caused by such means as bulldozing, disking, herbiciding, animal digging, severe long-term flooding followed by recession of water, etc., which open up areas of soil to new colonization. Natural changes due to fire or fire exclusion or changes in hydrology are not considered here. Therefore, species such as wax myrtle (Myrica cerifera) colonizing flatwoods, or oaks colonizing sandhills indicate a shift in ecosystems because of changes in natural events which can be reversed by natural events.

Native/Exotic Status	**Definition**
Native	Species native to this region
Exotic	Species native to another continent or another region, but not to this region

She found close agreement between Bridges and Reese’s point value and the Floristic Status and origin categories (Table 14). Some differences did occur; for example, corkscrew threeawn (*Aristida gyrans*), which they assigned a 5, Bissett frequently finds reseeding readily in disturbed or restoring systems and called it a pioneer species. In some instances there was also disagreement over species origin.

Table 14. General relationship of Floristic Status categories to Floristic Quality Coefficient of Conservation codes (CC codes).

Floristic Status categories	Coefficient of Conservation Points
Aggressive and Weedy Exotic Species	0 points
Native Weedy Species	1 - 2 points
Pioneer Species	2 - 4 points
Characteristic Species	4 - 10 points

In the above classification system, only exotic species were considered aggressive and only native species were considered pioneer or characteristic. Bissett also tended to give the benefit of doubt to questionable native species, as she felt there should be documented proof of species introduction.

Each species was assigned a Floristic Status and origin designation based on the above definitions and data are discussed by treatment in the Results. Appendix C contains information on Origin, Floristic Status, and Coefficient of Conservation values for all species in the quantitative sampling.

Photo Monitoring

Monitoring plots were photographed during quantitative samplings, first in May 2003, three months after burning, but before any treatment with herbicide, and again one growing season (10 months) after planting in October 2004. Two vertical photos were taken of each quadrat from the south end of the quadrat, with the 2’x10’ PVC sampling frame in the photo, one showing the whole frame and one showing from the closest edge of the frame to the horizon. An Olympus C3040 Digital Camera was used with maximum wide angle setting. Photos were taken at 1536 x 2048 dpi, approximately 700 KB files.

RESULTS AND DISCUSSION

Results were based on the October 2004 sampling data which were collected after the first growing season. Other restoration projects have reported weedy species being common initially, but diminishing over time (Bissett 2004). In looking at these data, a realistic approach is to assume that we have an early successional stage of development at this point, and that over time the species composition will succeed to a mix more characteristic of mature pine flatwoods. There is little data to indicate how long this will take, but we hope to document the transition over time on this project.

There were several questions that we investigated in this project: Was native species diversity increased? Did we get a sufficiently dense cover of non-aggressive species to limit the invasion of aggressive exotics? Were there more native species present and did they represent a greater proportion of the plants present? Has the species composition shifted more toward a mature flatwoods mix? Has species composition shifted to more desirable species and away from ruderal and exotic species? How well did we eliminate aggressive exotics present in the original improved pasture?

Sample size was different for the Seeded plot monitoring in Spring 2003 and Fall 2004 (Table 11). The 2003 monitoring included twenty 2 ft x10 ft intervals, which we felt were sufficient to capture the diversity present before restoration. The 2004 monitoring included fifty 2 ft x 10 ft intervals and was larger to encompass the anticipated increased diversity based on use of this sampling method on other sites. The sample size for the four treatments remained the same both years; each included nine 2 ft x 10 ft samples per treatment. So there were 56 2 ft x 10 ft intervals collected before restoration and 96 2 ft x10 ft intervals collected after restoration. Of these, there were 65 2 ft x10 ft intervals of unrestored pasture and nine of each unseeded treatment, and 60 of the Seeded treatment. Though sample sizes were not the same, all data from each treatment were used.

Visual Differences

Figures 13-16 show the four treatments after the first growing season in October 2004. From these photos, you can observe the general impression one might get if driving by or walking though the site. I am including my impressions of the plots so that those who visit other restoration sites can compare them with what they might see in the field without the benefit of in-depth investigation or monitoring data.

The Disked plots looked a lot like the Control plots; they were dominated by bahiagrass with no obvious increase in diversity. The Herbicided plots superficially

Figure 13. A Disked treatment interval after the first growing season, September 2004.

Figure 14. An Herbicided treatment interval after the first growing season, September 2004.

Figure 15. An Herbicided & Disked treatment interval after the first growing season, September 2004.

Figure 16. A Seeded treatment interval after the first growing season, September 2004.

looked like a field of bluestems (*Andropogon* sp.)with other species mixed in. The Herbicided & Disked plots and the Seeded plot looked like a field of dogfennel with other species mixed in, though the Seeded plot looked like it had more species including more long-lived perennials and forbs, many of them flowering in the Fall. Since plots herbicided and disked contained more dogfennel than just herbicided plots, we can assume the disking brought out the dogfennel.

Species Diversity

The area where all plots are located was an improved bahiagrass pasture; based on aerial photographs, the pasture was improved sometime between 1957 and 1963. Based on 2003 sampling data, bahiagrass was present in 99% of the 560 1 ft x 2 ft subintervals sampled. It was the dominant species, providing an average of 65% cover in the 56 2 ft x10 ft intervals sampled (bare ground averaged 22% cover).

The 2003 quantitative monitoring of all plots found 45 different plant species, while the 2004 monitoring ten months after planting included 131 species, a substantial increase in plant diversity (Table 15.) In the monitoring of the 50-acre seeded plot, only 25 species were found in the pasture in 2003, while 115 species were recorded after the first growing season in Fall 2004, an increase of 90 new plant species (Table 15).   There has definitely been an increase in the diversity when compared to the original pasture.

Table 15. Number of species found in original pasture sampling (2003) and first growing season after treatment sampling (2004).

	Number of Species					
Year	Control	Disked	Herbicided & Disked	Herbicided	Seeded	All
2003	29	22	21	16	25	45
2004	34	60	58	55	115	131
Increase in Number	17%	173%	176%	244%	360%	191%

The 1-acre Control plots had about the same number of plant species for both monitoring years (Table 15.) But all the unseeded treatments roughly tripled in species diversity the first growing season after treatment; the number of species found in 2004 was about the same for the Disked, Herbicided, and Herbicided & Disked treatments, indicating that any disturbance released seeds from additional species in the seedbank.

The Seeded plot more than quadrupled in species diversity, the largest increase, with about twice as many species as any of the unseeded treatments.

It is difficult to determine with certainty whether these additional species came from the seedbank already present on the OK Slough site or from the seed mix which was brought in, but we could draw some inferences from the presence or absence of individual species in various plots (Table 16). A little over half (74) of the species were found in both the unseeded (either before or after restoration) and Seeded plots after restoration, so we cannot draw any conclusions about the origins of the seed for these species. Likewise 22 species may not have been in the seed mix which was brought in, since they were not found in the Seeded plot but were present in the original pasture in 2003 or the treated but not seeded 1-acre plots in 2004. But 41 species could have come from the added seed mix since they were found only in the Seeded plot after planting and not in any of the original pasture monitoring or the unseeded plots after treatment. These 41 species could have been unique to the seed mix brought in for seeding.

Cover

It is important to have good cover in the early stages of restoration to hold soil moisture and so bare ground is not available for exotics. These data were examined using two measures of cover: Unstratified and Stratified.

Unstratified percent cover was calculated by subtracting percent bare ground (which includes dead plant material and bare ground) from 100%. When considering Unstratified percent cover, all treatments were fairly densely vegetated (Table 17, center column), with the Herbicided treatment slightly more open and the Seeded slightly more dense.

Stratified percent cover, however, gives a more three-dimensional look at the data. The Seeded treatment had more than three times the Stratified percent cover than all other treatments (Table 17, left column). Herbicided and Herbicided & Disked treatments were the same and somewhat higher than the Disked treatment. The untreated pasture Control had the lowest Stratified percent cover.

A good measure of cover and density is the Stratification Index, calculated by dividing the Stratified percent cover by the Unstratified percent cover. Table 17 shows that Stratified percent cover was by far the highest for the Seeded treatment (18.3), which indicates thicker, more layered vegetation. The Index for Herbicided plots were somewhat higher (7.3) than for the remaining treatments (5-5.9).

Since the Seeded plot had the same treatment as the Herbicided & Disked plots, the additional cover can be attributed to the seeding. Established bahiagrass pastures tend

Table 16. Species unique to the post-restoration Seeded 50-acre plot; these could have come from planted seed mix; other species could have come from either the seed mix or the seedbank. Species not found in the post-restoration Seeded plot and species found both in the post-restoration Seeded plot and other samples area also shown.

Only in seeded plot in 2004	Not in seeded plot '04 but in original sampling '03 or 1acre plots '03 or '04	Found in BOTH seeded plot '04 and in original sampling '03 or 1acre plots '03 or '04
Agalinis purpurea	Buchnera americana	Amphicarpum muhlenbergianum
Andropogon brachystachyus	Cirsium nuttallii	Andropogon glomeratus
Andropogon virginicus	Conyza canadensis	Andropogon virginicus
Andropogon glomeratus	Cyperus compressus	Axonopus fissifolius
Andropogon gyrans	Desmodium incanum	Axonopus furcatus
Aristida stricta var. beyrichiana	Erechtites hieraciifolius	Baccharis halimifolia
Bigelowia nudata	Fuirena scirpoidea	Bacopa monnieri
Callicarpa americana	Ipomoea sagittata	Centella asiatica
Carphephorus paniculatus	Leersia hexandra	Chamaecrista fasciculata
Chamaecrista nictitans	Ludwigia palustris	Crotalaria rotundifolia
Coreopsis floridana	Lygodium microphyllum	Cuphea carthagenensis
Coreopsis leavenworthii	Myrica pusilla	Cynodon dactylon
Elephantopus elatus	Ophioglossum nudicaule	Cyperus polystachyos
Eragrostis elliottii	Panicum hians	Cyperus retrorsus
Eragrostis spectabilis	Paspalum distichum	Cyperus surinamensis
Eupatorium mohrii	Polygala setacea	Desmodium triflorum
Eupatorium rotundifolium	Rhynchospora colorata	Dichanthelium portoricense
Gymnopogon chapmanianus	Schizachyrium scoparium	Digitaria serotina
Hypericum fasciculatum	Scleria ciliata	Diodia virginiana
Hypericum hypericoides	Spiranthes vernalis	Eleocharis baldwinii
Iva microcephala	Urochloa sp.	Eleocharis microcarpa
Juncus megacephalus	Utricularia subulata	Emilia fosbergii
Liatris gracilis		Eragrostis atrovirens
Liatris spicata		Eragrostis virginica
Lobelia glandulosa		Eryngium baldwinii
Lyonia fruticosa		Eupatorium capillifolium
Marshallia tenuifolia		Eupatorium leptophyllum
Melochia corchorifolia		Euthamia caroliniana
Panicum anceps		Fimbristylis autumnalis
Panicum dichotomiflorum		Fimbristylis caroliniana
Paspalum acuminatum		Fimbristylis dichotoma
Paspalum urvillei		Fimbristylis schoenoides
Pityopsis graminifolia		Fuirena breviseta
Rhynchospora fernaldii		Hydrocotyle umbellata
Rudbeckia hirta		Hypericum cistifolium
Sabal palmetto		Hypericum tetrapetalum
Salix caroliniana		Juncus marginatus

Table 16 continued.

Only in seeded plot in 2004	Not in seeded plot '04 but in original sampling '03 or 1acre plots '03 or '04	Found in BOTH seeded plot '04 and in original sampling '03 or 1acre plots '03 or '04
Solidago fistulosa		Juncus scirpoides
Solidago stricta		Kyllinga brevifolia
Sorghastrum secundum		Lachnanthes caroliniana
Viola lanceolata		Lindernia crustacea
		Lindernia grandiflora
		Ludwigia arcuata
		Ludwigia curtissii
		Ludwigia maritima
		Ludwigia octovalvis
		Ludwigia repens
		Macroptilium lathyroides
		Mikania scandens
		Murdannia nudiflora
		Myrica cerifera
		Oldenlandia uniflora
		Panicum chamaelonche
		Paspalum notatum
		Paspalum setaceum
		Phyla nodiflora
		Pluchea rosea
		Polypremum procumbens
		Polygala rugelii
		Rhexia mariana
		Rhus copallinum
		Rhynchospora fascicularis
		Rhynchospora microcarpa
		Rhynchospora nitens
		Sacciolepis indica
		Scleria reticularis
		Scoparia dulcis
		Setaria parviflora
		Solanum viarum
		Sporobolus indicus
		Symphyotrichum dumosum
		Vicia acutifolia
		Xyris ambigua
		Xyris brevifolia

Table 17. Percent Cover values by treatment.

Definition:	Average of: Sum of individual species Percent Cover for each 2 ft x10 ft Interval	Average of: 100Percent minus Percent Bare Ground for each 2 ft x 10ft Interval	Stratified Percent Cover divided by Unstratified Percent Cover
Treatment	**Stratified Percent Cover**	**Unstratified Percent Cover**	**Stratification Index**
Control	413	83	5.0
Disked	460	83	5.5
Herb & Disked	531	91	5.9
Herbicided	531	73	7.3
Seeded	1728	95	18.3

to have fairly dense groundcover, so it is encouraging that all treatments had at least as much cover as the original pasture. Reduced open space should limit evaporation and increase the amount of soil moisture available to plants and provide less area for exotic plant establishment.

Exotic vs. Native Species

Though species diversity increased dramatically, the ratio of exotic to native species changed less than 12% in any treatment (Table 18). Most of the additional exotic species were early successional non-aggressive species.

However, there was a definite change to more native cover (Table 19). The original pasture had 31% cover of native plants; after the first growing season, all treated plots averaged 79% native plants. In Table 19 the treatment data are Stratified percent cover (sum of % cover for each species, so the total can exceed 100%) because this gives a better estimate of density. The Disked treatment had about the same cover of exotics as the original pasture, but cover by natives did increase. The major differences were in the other three treatments, with the Herbicided treatment having the least cover of exotic plants and the Seeded treatment having the most cover of natives. The Herbicide and the Seeded treatments showed the greatest improvement with over five times few exotics and over five times more natives in both.

Since the only difference between the Seeded and the Herbicided & Disked treatments was the addition of seed, we could compare these two treatments to see

Table 18. Number and percent native or exotic species by year and treatment. Three species could not be classified.

Number		Treatment					
Year		**Control**	**Disked**	**Herb & Disked**	**Herbicided**	**Seeded**	**All**
2003	Exotic	5	5	5	3	6	9
	Native	24	17	16	14	19	36
	Total	29	22	21	17	26	45
2004	Exotic	9	12	11	11	18	20
	Native	24	47	47	44	97	111
	Total	34	60	58	55	115	131

Percent		Treatment					
Year	**Native or Exotic**	**Control**	**Disked**	**Herb & Disked**	**Herbicided**	**Seeded**	**All**
2003	Exotic	17%	23%	24%	18%	23%	20%
	Native	83%	77%	76%	82%	73%	80%
2004	Exotic	26%	20%	19%	20%	16%	15%
	Native	71%	78%	81%	80%	84%	85%
Change to Native		-12%	1%	5%	-2%	11%	5%

Table 19. Pooled Stratified Percent Cover (sum of individual species % cover) for each treatment before (2003) and after 1 growing season (2004). All untreated includes the 2004 Control data. All treated is all the 2004 data for treated plots (i.e. all except the Control data).

Year	**Treatment**	**Exotic**	**Native**
2003	Control	71	38
	Disked	68	32
	Herb & Disked	67	32
	Herbicided	61	25
	Seeded	71	21
2004	Control	83	38
	Disked	77	60
	Herb & Disked	32	136
	Herbicided	7	142
	Seeded	13	155

All Untreated	69%	31%
All Treated	21%	79%

changes from adding seed. The Seeded plot had 2.5 times less exotic cover (32 vs. 13) and 19% more native cover (136 vs. 155). Exotics comprise 19% of the Total Stratified Cover in the unseeded treatment (Herbicided and Disked) but only 8% in the Seeded treatment.

So any treatment was an improvement since all treatments show an increase in native cover over the original pasture. Three treatments had at least four times more native cover than pasture, a positive step in the right direction.

Species Composition based on Role in the Restoration Process

By defining the role individual species play in the restoration process, we can provide a more refined understanding of how the system is likely to function over time. Species Floristic Status can give us some clues about what may happen in the future.

Species Floristic Status divides exotics into two categories, Aggressive Exotics which are invasive and most likely to impede the restoration process and Weedy Exotics which are more innocuous and more likely to remain a minor part of the community (see Table 13). Aggressive Exotics include bahiagrass, which is very invasive when present in an area without established vegetation, and the FLEPPC Category 1 exotics like Old World climbing fern (*Lygodium microphyllum*) and tropical soda apple. From a management perspective, these are the species that need to be treated and retreated with herbicide to ensure the long-term success of the restoration.

There are many Weedy Exotic species that are not invasive, and thus not likely to function as significant competitors for native species. As such they are not considered a management problem requiring some form of control, even on restoration sites. Included in this group of Weedy exotics are such species as carpetgrass (*Axonopus* sp.), beggarweed (*Desmodium incanum*), shortleaf spikesedge (*Kyllinga brevifolia*), nakedstem dewflower (*Murdannia nudiflora*), or Florida tasselflower (*Emilia fosbergii*). A complete list of species and their species Floristic Status are in Appendix C.

Natives are divided into three Floristic Status categories. Weedy Natives are usually annuals; they are early successional ruderal species that will disappear over time. Weedy Natives include such species as dogfennel, sweetbroom (*Scoparia dulcis*), burnweed (*Erechtites hieracifolius*), and blanket crabgrass (*Digitaria serotina*).

Pioneering Natives are early successional species, but are also found in mature flatwoods communities. These are good cover in the initial stages of restoration and will persist as part of the community, usually representing less cover as the groundcover matures. Spadeleaf (*Centella asiatica*), Elliott's lovegrass (*Eragrostis elliottii*), seaside primrosewillow (*Ludwigia maritima*), and many species of flatsedge (*Cyperus* sp.) are in this group.

Characteristic Natives are species found mainly in an undisturbed, mature flatwoods understory. Many are perennials, slower growing, and less likely to be in the seedbank if an area has been converted to pasture. Wiregrass, lopsided Indiangrass (*Sorghastrum secundum*), fourpetal Saint John’s-wort (*Hypericum tetrapetalum*), winged sumac (*Rhus copallinum*), and slender gayfeather (Liatris gracilis) are a few examples of this large group.

Numbers of species increased in all Floristic Status categories (Table 20). Bahiagrass and Bermudagrass were the only Aggressive Exotics in the 2003 pre-restoration sampling. One growing season after treatment there were also tropical soda apple and one Old World climbing fern recorded. The desirable Pioneer Natives and Characteristic Natives increased most in the Seeded treatment, which had 94 species present one year after treatment, the maximum number in the other treatments was 45 species in the Disked treatment. The Herbicided treatment was lower than the other treatments in number of Pioneer and Characteristic species with only 39 species.

Table 20. Number of species in each Floristic Status category by year and treatment.

Year	Treatment	Aggressive Exotic	Weedy Exotic	Weedy Native	Pioneer Native	Characteristic Native	Total Pioneer and Characteristic
2003	Control	2	3	2	13	9	22
	Disked	1	4	2	10	5	15
	Herb & Disked	1	4	2	10	4	14
	Herbicided	1	2		6	8	14
	Seeded	2	4	1	7	11	18
2004	Control	1	8	2	11	11	22
	Disked	2	10	2	19	26	45
	Herb & Disked	2	9	3	20	24	44
	Herbicided	2	9	5	21	18	39
	Seeded	3	15	3	30	64	94

Cover changes were even more dramatic (Table 21). Aggressive Exotic stratified percent cover went from a range of 60-71% to less than 2% in the Herbicided, Herbicided & Disked, and Seeded treatments. The Control and Disked were no better than the previous year. Did we get rid of bahiagrass? With the Seeded plot having only 0.1%, the Herbicided only 1%, and the Herbicided & Disked only 2%, bahiagrass and other Aggressive Exotics have been seriously reduced and all but eliminated from the sample plots. This was one critical step in the success of the restoration.

Table 21. Stratified Percent Cover for each Floristic Status category by year and Treatment.

Year	Treatment	Exotic Aggressive	Exotic Weedy	Native Weedy	Native Pioneer	Native Characteristic	Pioneer + Native Characteristic
2003	Control	65	6	0	30	8	38
	Disked	67	2	0	27	5	32
	Herb & Disked	66	1	0	28	4	32
	Herbicided	60	1		17	8	25
	Seeded	71	1	0	16	5	21
2004	Control	71	12	1	18	19	37
	Disked	70	7	2	29	29	58
	Herb & Disked	2	29	24	86	26	112
	Herbicided	1	7	13	69	60	129
	Seeded	0	12	14	90	51	141

Weedy Exotics showed a modest increase, with the highest stratified percent cover of 29% in the Herbicided & Disked treatment. Native Weedy plants, which were virtually absent in the original pasture, but after treatments had cover ranging from 13-24% in all but the Disked treatment. Both Native and Exotic Weedy plant cover was highest the Herbicided & Disked treatment.

The more desirable Pioneer Natives fell into the same range before and after restoration in the Control and Disked treatment. But in the other three treatments, Pioneer Natives cover was about three times more after treatment, reaching from 69-90% stratified percent cover.

The Characteristic Native cover was below 9% before restoration and increased to 29% in the Disked treatment and 26% in the Herbicided & Disked treatment. There were larger increases in the Seeded treatment (51%) and the Herbicided treatment (60%).

Based on species Floristic Status, the Herbicided and the Seeded treatments have the most desirable cover, with both the least cover of unwanted Aggressive Exotics and the most cover of "mature" flatwoods native species. The Herbicided & Disked treatment was also a decided improvement but with more weedy species cover and less cover of Characteristic Native species. Again, the Disked treatment shows little improvement from the original pasture. Native species from all three Floristic Status categories seem to be present in substantial amounts in the seedbank.

Though the Herbicided treatment contains the highest stratified percent cover of Pioneering and Characteristic Natives, it has the lowest number of Pioneering and Characteristic species of any treatment (Tables 20 and 21). Of the 60% Native Characteristic unstratified percent cover in the Herbicided treatment, 41% was bluestems (*Andropogon virginicus* var. *virginicus* and *Andropogon glomeratus* var. *glaucopsis*). Only 15% of the 51% total Characteristic Native cover in the Seeded plot was composed of these two bluestems and that treatment was not dominated by any other single species.

Floristic Quality

The final metric to evaluate restoration progress is the Floristic Quality Index using the Coefficient of Conservation (CC) discussed above on page 27. Floristic Quality assessment is in the developmental stage in Florida, and a variety of methods and classifications are being tried (Bridges and Reese 1996, Cohen *et. al*. 2004, Bissett 2005). This makes comparison difficult. For example, we used the same CC classification for species as that used by Bissett (2005) in Table 22. Table 23 uses a different assignment of CC codes scaled on a 1 to 12 scale which is more conservative than that used in this study (Bridges and Reese 1996).

Table 22. Examples of Floristic Quality Assessments from Central Florida (Bissett, pers. comm). The Coefficient of Conservation is based on a 10-point scale like the one used in this report.

Community and Location	Mean Coefficient of Conservation (Mean CC)
Field previously planted in millet, Dovefield at Hilochee WMA	1.3
Bahia Pasture	2.4
5-year old successful groundcover restoration area, Reedy Creek Restoration Area	4.8
Area with high number of rare and endangered plants, Hickey Creek Scrub	6.4

Table 23. An example of Mean "Coefficient of Community" (CC) for Flatwoods communities in Florida from (Bridges and Reese 1996). Bridges and Reese used a 12-point scale for CC; this report uses a 10-point scale, so the Mean CCs have been converted to a 10-point scale equivalent.

Mesic Flatwoods

Number of Native Species	Number of Exotic Species	Mean CC based on 12-point scale	Mean CC converted to 10-point scale	Condition
62	0	4.2	3.5	saw palmetto and low shrub dominated groundcover
49	0	4	3.3	cutover, few or no remaining trees
56	0	3.8	3.2	wiregrass dominated groundcover
27	0	3.8	3.2	saw palmetto and low shrub dominated groundcover
41	1	3.7	3.1	wiregrass dominated groundcover
45	0	3.6	3.0	saw palmetto and low shrub dominated groundcover
54	0	3.6	3.0	overgrown with dense mixed shrubby groundcover
60	2	3.4	2.8	disturbed, groundcover cleared or scraped
28	0	3.3	2.8	saw palmetto and low shrub dominated groundcover
70	0	3.3	2.8	saw palmetto and low shrub dominated groundcover
56	1	3.2	2.7	cutover, few or no remaining trees
32	0	3.1	2.6	disturbed, groundcover cleared or scraped
26	0	3.1	2.6	overgrown with dense mixed shrubby groundcover
32	3	2.9	2.4	cutover, few or no remaining trees
		3.5	**2.9**	**Average for Mesic Flatwoods N=14**

Table 23 continued.

Wet Flatwoods

Number of Native Species	Number of Exotic Species	Mean CC based on 12-point scale	Mean CC converted to 10-point scale	Condition
20	0	3.8	3.2	overgrown with dense mixed shrubby groundcover
39	0	3.8	3.2	overgrown with dense mixed shrubby groundcover
57	0	3.7	3.1	overgrown with dense mixed shrubby groundcover
25	1	3.5	2.9	cutover, few or no remaining trees
31	0	3.5	2.9	overgrown with dense mixed shrubby groundcover
42	1	3.2	2.7	cutover, few or no remaining trees
67	2	3.2	2.7	overgrown with dense mixed shrubby groundcover
29	1	3.1	2.6	overgrown with dense mixed shrubby groundcover
51	2	3	2.5	overgrown with dense mixed shrubby groundcover
17	0	2.9	2.4	overgrown with dense mixed shrubby groundcover
12	0	2.5	2.1	disturbed, groundcover cleared or scraped
41	6	2.4	2.0	overgrown with dense mixed shrubby groundcover
		3.2	**2.7**	**Average for Wet Flatwoods N=12**

Though each species is assigned a CC code ranging from exotics as 0 to extremely rare as 10, community Mean CCs have a much smaller range. Examples from Florida shown in Tables 22 and 23 give some indication of this range. The Hickey Creek Scrub in Table 22 is on the very high end and its Mean CC of 6.4 is probably much higher than any pristine flatwoods. Bridges and Reese have sampled Save Our Rivers lands in the Upper Lakes Basin Watershed in Central Florida (Table 23); they documented 162 sites in a variety of communities including scrub, hammocks, wetlands, and flatwoods. Their highest Mean CC was the equivalent of 4.3 (5.2 on Bridges 12-point scale converted to a 10-point scale to match the data in this study) and lowest was the equivalent of 1.8 (2.1 on their 12-point scale). Table 23 lists the mesic and wet flatwoods sites they sampled, which had an average Mean CC of 2.9 and 2.7 respectively.

Mean CCs for treatments in this study cover a small range of values ranging from 2.5 to 3.9, with variation from before and after restoration ranging from -0.1 to 0.7 (Table 24). The Seeded treatment has the highest post-restoration Mean CC of 3.9.

The Floristic Quality Index (FQI), which further emphasizes the number of species present, shows a little more consistent change with treatment. Untreated sites had FQIs from 10.0-15.4. Treated sites had FQIs from 19.3-38.0. The Seeded treatment had the highest FQI score of 38.0, 15 points higher than the any other treatment. Since this was

Table 24. Floristic Quality assessment for treatment plots before and one growing season after restoration. Coefficient of Conservation codes for each species are in Appendix C.

		Sum Coefficient of Conservation codes for each species		Sum Coefficient of Conservation codes for each species / # species	Mean Coefficient of Conservation * SquareRoot of # species
Year	**Treatment**	**Sum of Coefficient of Conservation Codes (CC)**	**# Species**	**Mean Coefficient of Conservatism (Mean CC)**	**Floristic Quality Index (FQI)**
2003	Control	66	24	2.8	13.5
	Disked	45	17	2.6	10.9
	Herb & Disked	40	16	2.5	10.0
	Herbicided	42	14	3.0	11.2
	Seeded	67	19	3.5	15.4
2004	Control	73	24	3.0	14.9
	Disked	158	47	3.4	23.0
	Herb & Disked	142	47	3.0	20.7
	Herbicided	128	44	2.9	19.3
	Seeded	374	97	3.9	38.0

	Sum CC	**# Species**	**Mean CC**	**FQI**
Untreated (all 2003+2004 Control)	146	47	3.1	21.3
Treated (H&D, H, & Seeded)	409	107	3.8	39.5

the first year after disturbance, there were a lot of early successional weedy and pioneer species present on all treatments, which have lower CC values. As the sites mature, these types of species should become less common, and if some drop out completely, there would be in increase in FQI over time.

Floristic quality reflects species composition, not distribution, and should be viewed in conjunction with cover data to get the whole picture. For example, the Disked treatment had the second highest FQI, but from the cover data we know that there was a 70% Stratified percent cover of Aggressive Exotics present, so the overall quality of the Disked treatment was much inferior to the other three treatments which had less than 2% cover of Aggressive Exotics.

CONCLUSIONS AND RECOMMENDATIONS

Comparison of the Three Most Effective Treatments

The Seeded treatment was the most effective on all levels: very low in aggressive exotics, dense cover, high number and cover of native species, and higher quality native species; this method is the most expensive and most effective but may be the only way to reintroduce a lot of the long-term perennial species to a restoration site.

The Herbicided & Disked treatment was the same treatment as the Seeded except no seed was planted. It had less than half the higher quality Characteristic Native species number and cover, and about two times more Weedy cover, both native and exotic. Aggressive exotics covered only 2%. This is the second most expensive treatment.

The Herbicided treatment had about the same overall cover as the Herbicided & Disked treatment. It had a higher cover of Native Characteristics, but 68% of this cover was just two species of bluestems. The number of Characteristic Natives was also lower than in the Herbicided & Disked plots. There was only 1% cover of Aggressive Exotics. This was the least expensive effective treatment.

Seeding would definitely be the restoration method of choice. Since this was only one year after treatment, it was difficult to tell whether the two more effective unseeded methods were much different. Based on the information we have, it seems that the Herbicided & Disked treatment might have some advantage because it had more Native Characteristic species present. The dominance of bluestems may not persist over time and the outcome if they decrease is not clear. If funds are available, the Herbicided & Disked method might be a better approach over the long run than the Herbicide only method.

Disking alone was not effective, since the sites were still dominated by bahiagrass to the same extent as before treatment.

Comparison of the Two Less Expensive Treatments with No Treatment

Herbiciding alone and Herbiciding & Disking were both definite improvements over untreated bahiagrass pasture. Since bahiagrass and other Aggressive Exotics were reduced to 2% cover and the areas had good overall cover, the threat of encroachment by bahiagrass and invasive species was greatly reduced. Stratified cover went from about 30% before treatments to roughly 140% after treatments. Since both treatments were more diverse, they had greater value for wildlife by providing a greater variety of foods ripening throughout the year and a more structurally varied cover. Bahiagrass itself, which dominates the pasture, has little value as wildlife food except when in seed.

The structure of both these treated sites was much closer to a flatwoods understory structure. This will allow for a more natural burning regime including growing season burns, which should encourage native species establishment and persistence.

Management Issues

Hog rooting could easily destroy a restoration project. If hogs pose a potential threat to the success of a project, some method of control should be used, either repeated intense periods of shooting or trapping in and around the restoration area, or fencing if removal is not an option.

Exotics that posed the greatest problem after treatment were smutgrass and Vaseygrass; both species produced seed quickly and bloomed throughout most of the year. Treatment of Vaseygrass was fairly effective, but smutgrass is still a problem. In South Florida, smutgrass is much more prevalent than in Central Florida and should probably be classified as an Aggressive Exotic. Both species seem to be coming from the seedbank rather than persisting plants. If possible, it would be good to avoid areas with heavy smutgrass populations.   The spring after planting, many seedling tropical soda apple seedlings were effectively removed with a dibble stick and did not reappear once new vegetation filled in the site. Bermudagrass was present in a few areas, appeared to have been killed, but still persists in those spots; it may take more than one growing season to be sure that it is eliminated. It was not clear if the plants were from seed or unkilled roots, but we suspect unkilled roots. Site prep for restoration efforts in the future will entail longer periods to retreat smutgrass, Vaseygrass, Bermudagrass, and tropical soda apple.

An early summer and fall herbicide treatment of glyphosate with follow-up spot treatments was quite effective on bahiagrass.

Future Seeding

Seeding was the best method of those tried. Forty-one species were unique to the Seeded plot and most likely came from the planted seed mix (Table 16. It requires substantial additional time and cost to collect seeds from additional species that would enhance the success of the restoration. Most of the species collected separately and added to the general mix had good representation in the Seeded samples (Table 25) and

Table 25. Species collected separately and added to the mix before planting. The seed could have come from the green silage mix or the on-site seedbank, but presence in only the seeded plot would suggest that they are not from the on-site seedbank. Presence in a higher percent of samples would encourage continued addition of those species to the mix.

		Presence in Samples	
Scientific name	**Common Name**	**Seeded** (n=10)	**Unseeded** (n=12)
Rudeckia hirta	blackeyed susan	100%	0%
Eragrostis elliottii,	Elliott's lovegrass	90%	0%
Eragrostis virginica	Coastal lovegrass	80%	33%
Sorghastrum secundum	lopsided indiangrass	80%	0%
Coreopsis leavenworthii	Leavenworth's tickseed	70%	0%
Pityopsis graminifolia	narrowleaf silkgrass	60%	0%
Andropogon brachystachyus	shortspike bluestem	50%	0%
Xyris sp.	yelloweyed grass	30-50%	30-80%
Polygala rugellii	yellow milkwort	40%	8%
Andropogon virginicus var. *glaucus*	chalky bluestem	30%	0%
Panicum anceps	beaked panicum	10%	0%
Liatris tenuifolia var. *quadriflora* . *(L. laevigata)**	shortleaf gayfeather	0%	0%
Rhynchospora colorata	starrush whitetop	0%	0%
Serenoa repens	saw palmetto	0%	0%

* Two other species of Liatris, *L. gracilis* and *L. spicata*, were found only in 20% and 70% the Seeded samples respectively.

didn't appear in the unseeded samples, especially the lovegrasses (*Eragrostis* sp.), blackeyed susan (*Rudbeckia hirta*) , and lopsided indiangrass. Continued collection of seed from these species would be beneficial.

Interpreting Results

It is important to remember that this is an early stage in restoration. It would be unrealistic to expect an "old-growth" groundcover after one growing season. Only one year after disturbance, the presence of many weedy species, many of them apparently plentiful in the seedbank, is to be expected and appreciated, since they fill a niche that might otherwise be taken by invasive exotics.

Long-lived perennials take years to reach maturity, and their presence is important even if they don't cover a lot of area yet. Wiregrass was about 6 in tall and very hard to spot in the extremely thick vegetation in the Seeded samples. Future monitoring will likely give a better representation of these long-lived grasses and sedges.

Though we cannot determine the ultimate success of the restoration, there are signs that we are moving in the right direction. We have more species, more natives, more characteristic natives, and virtually no bahiagrass. Since groundcover restoration techniques are relatively new, little data are available on how successful restorations look after only one year. Recording the results of these methods after one year will add to the data currently available and hopefully provide guideposts for future efforts on what conditions might indicate long term success.

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APPENDIX A.

Original Data and Quadrat Summary Statistics

See Appendix C. for full scientific and common names.

C=Control, D=Disked, H=Herbicided, H&D=Herbicided & Disked

Parameter	Description
Year	Year sampling was conducted
Quadrat	Name of quadrat including code for type treatment then quadrat name or number.
Species Code	6 letter code, usually the first 3 letters of the Genus and first 3 letters of the species (If there are duplicate 6 letter codes for 2 different species, a unique code is was created. See Appendix C for codes and full scientific names.
Frequency per Interval (n=10)	Number of 1ft x 2 ft subintervals containing this species within an interval (10 subintervals per interval). Below intervals are numbered from 1 to 5.
Total Frequency	Total number of 1 foot sub-intervals a species occurred in for a given 10 foot interval
Relative Frequency	Total frequency for a species divided by the total number of possible sub-intervals in the entire quadrat
Frequency Rank	Ranking for a given species based on its total frequency within the quadrat
Cover Category per Interval	Percent cover category for a given 2 ft x 10 ft interval. Below intervals are numbered from 1 to 5.
Cover Category Number / Range	Number of intervals that were recorded in each Category. Below Categories are numbered from 1 – 7 and percent cover they represent are listed below each Category number in the header.
Total Quadrat Area Probable Percent Cover Range	Information for the whole area, estimating the whole population
– Minimum, Average, Maximum	Minimum, average, and maximum predicted percent cover for a given species calculated over the entire quadrat
Total Occurrence Area Probable Percent Cover Range	Information on density when found (only intervals where the species occurs are used in calculation). Indicates if plants are found in dense clumps or sparsely distributed.
– Minimum, Average, Maximum	Minimum, average, and maximum predicted percent cover for a given species calculated for the area where it occurred only
Cover Rank	Ranking for a given species based on its Total Quadrat Area average probable percent cover

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2003	C - Plot 3	BAR GRO	10	10	10			30	100.0		3	3	3			0	0	3	0	0	0	0	10.0	20.0	30.0	10.0	20.0	30.0	
2003	C - Plot 3	AND GCP		3	1			4	13.3	6		3	1			1	0	1	0	0	0	0	3.4	6.8	10.3	5.1	10.3	15.5	3
2003	C - Plot 3	AND VIR	1	3	5			9	30.0	2	2	2	3			0	2	1	0	0	0	0	4.0	10.0	16.7	4.0	10.0	16.7	2
2003	C - Plot 3	AXO FIS	5	1	2			8	26.7	3	2	1	1			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	4
2003	C - Plot 3	CEN ASI			2			2	6.7	10			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	10
2003	C - Plot 3	CYP SP.		3	3			6	20.0	4		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	8
2003	C - Plot 3	ERE HIE			1			1	3.3	11			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	10
2003	C - Plot 3	FUI SCI			3			3	10.0	8			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	C - Plot 3	HED UNI			1			1	3.3	11			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	10
2003	C - Plot 3	LUD OCT		1				1	3.3	11		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	10
2003	C - Plot 3	PAS NOT	10	10	10			30	100.0	1	6	5	6			0	0	0	0	1	2	0	63.3	73.3	83.3	63.3	73.3	83.3	1
2003	C - Plot 3	PAS SET		3				3	10.0	8		2				0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	C - Plot 3	RHY FAS			6			6	20.0	4			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	C - Plot 3	SPO IND	2	2				4	13.3	6	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	8
2003	C - Plot 7	BAR GRO	10	10	10			30	100.0		3	3	2			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	
2003	C - Plot 7	AXO FIS		1	1			2	6.7	9		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	4
2003	C - Plot 7	CEN ASI		5	8			13	43.3	3		2	2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	3
2003	C - Plot 7	CIR NUT	1					1	3.3	11	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	10
2003	C - Plot 7	CYN DAC	1					1	3.3	11	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	10
2003	C - Plot 7	CYP SP.	10	10	10			30	100.0	1	2	3	3			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	2
2003	C - Plot 7	DES INC			5			5	16.7	4			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	C - Plot 7	DES TRI		3	1			4	13.3	5		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	9
2003	C - Plot 7	DIO VIR	4					4	13.3	5	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	C - Plot 7	EUP CAP	2					2	6.7	9	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	10
2003	C - Plot 7	FIM AUT	4					4	13.3	5	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	C - Plot 7	PAS NOT	10	10	10			30	100.0	1	6	5	5			0	0	0	0	2	1	0	56.7	66.7	76.7	56.7	66.7	76.7	1
2003	C - Plot 7	SET GEN			3			3	10.0	8			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	C - Plot 11	BAR GRO	10	10	10			30	100.0		2	3	3			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	
2003	C - Plot 11	AXO FIS		3	6			9	30.0	6		2	3			0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	6
2003	C - Plot 11	BUC AME			2			2	6.7	10			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	C - Plot 11	CEN ASI	6	8	10			24	80.0	2	2	2	4			0	2	0	1	0	0	0	10.7	16.7	23.3	10.7	16.7	23.3	3
2003	C - Plot 11	CHA FAS			1			1	3.3	14			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	C - Plot 11	CYN DAC	1					1	3.3	14	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	C - Plot 11	CYP SP.	1	10	10			21	70.0	3	1	3	2			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	5
2003	C - Plot 11	DES INC			2			2	6.7	10			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	9
2003	C - Plot 11	DES TRI		2				2	6.7	10		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	C - Plot 11	DIO VIR		1				1	3.3	14		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	C - Plot 11	ERE HIE		1				1	3.3	14		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	C - Plot 11	HED UNI			1			1	3.3	14			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	C - Plot 11	IPO SAG	6					6	20.0	8	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	9
2003	C - Plot 11	LUD MAR		1				1	3.3	14		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	C - Plot 11	MYR CER	9					9	30.0	6	5					0	0	0	0	1	0	0	16.7	20.0	23.3	50.0	60.0	70.0	2
2003	C - Plot 11	OPH NUD		2				2	6.7	10		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	C - Plot 11	PAS NOT	6	10	10			26	86.7	1	4	5	5			0	0	0	1	2	0	0	43.3	53.3	63.3	43.3	53.3	63.3	1
2003	C - Plot 11	PHY NOD	6	6	3			15	50.0	4	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	7
2003	C - Plot 11	SET GEN	1	5				6	20.0	8	1	2				1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	8
2003	C - Plot 11	SPO IND		5	8			13	43.3	5		2	4			0	1	0	1	0	0	0	10.3	15.0	20.0	15.5	22.5	30.0	4
2003	C - Plot 11	VIC ACU		1				1	3.3	14		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	D - Plot 1	BAR GRO	10	10	10			30	100.0		2	3	3			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	
2003	D - Plot 1	AND VIR		2	6			8	26.7	3		2	3			0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	3

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range 1	2	3	4	5	6	7	Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	<1	1-10	10-30	30-50	50-70	70-90	>90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2003	D - Plot 1	AXO FIS	2	1				3	10.0	6	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	6
2003	D - Plot 1	CEN ASI		1	2			3	10.0	6		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	6
2003	D - Plot 1	CUP CAR	2					2	6.7	8	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	D - Plot 1	CYP SP.	10	4	10			24	80.0	2	3	3	2			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	2
2003	D - Plot 1	DES TRI	4					4	13.3	5	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	D - Plot 1	ERE HIE		1				1	3.3	11		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	D - Plot 1	EUP CAP			2			2	6.7	8			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	D - Plot 1	FIM AUT		2	4			6	20.0	4		2	1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	4
2003	D - Plot 1	PAS NOT	10	10	10			30	100.0	1	6	6	6			0	0	0	0	0	3	0	70.0	80.0	90.0	70.0	80.0	90.0	1
2003	D - Plot 1	PHY NOD	2					2	6.7	8	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	D - Plot 1	PLU ROS	1					1	3.3	11	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	D - Plot 6	BAR GRO	10	10	10			30	100.0		4	4	4			0	0	0	3	0	0	0	30.0	40.0	50.0	30.0	40.0	50.0	
2003	D - Plot 6	AMP MUH	5					5	16.7	5	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	D - Plot 6	AND VIR	2					2	6.7	7	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	D - Plot 6	AXO FIS	3	5	2			10	33.3	2	2	2	1			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	2
2003	D - Plot 6	CEN ASI	4		3			7	23.3	3	2		2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	3
2003	D - Plot 6	CYP SP.		2	4			6	20.0	4		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	4
2003	D - Plot 6	HED UNI			1			1	3.3	10			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	D - Plot 6	LUD MAR	2					2	6.7	7	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	D - Plot 6	PAS NOT	10	10	10			30	100.0	1	5	5	5			0	0	0	0	3	0	0	50.0	60.0	70.0	50.0	60.0	70.0	1
2003	D - Plot 6	PAS SET			2			2	6.7	7			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	D - Plot 6	PLU ROS			1			1	3.3	10			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	D - Plot 6	RHY FAS	4					4	13.3	6	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	D - Plot 12	BAR GRO	10	10	10			30	100.0		2	3	2			0	2	1	0	0	0	0	4.0	10.0	16.7	4.0	10.0	16.7	
2003	D - Plot 12	AXO FIS	5	4	10			19	63.3	4	3	2	3			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	2
2003	D - Plot 12	CEN ASI	10	10	9			29	96.7	2	3	2	2			0	2	1	0	0	0	0	4.0	10.0	16.7	4.0	10.0	16.7	4
2003	D - Plot 12	CYP SP.	10	10	9			29	96.7	2	3	2	3			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	2
2003	D - Plot 12	DES INC	7					7	23.3	7	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	8
2003	D - Plot 12	DIO VIR			4			4	13.3	8			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	8
2003	D - Plot 12	EUP CAP	1		1			2	6.7	11	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	11
2003	D - Plot 12	EUT CAR			3			3	10.0	10			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	8
2003	D - Plot 12	FIM AUT			1			1	3.3	12			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	12
2003	D - Plot 12	FIM DIC	2		2			4	13.3	8	2		2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	7
2003	D - Plot 12	LUD MAR			1			1	3.3	12			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	12
2003	D - Plot 12	PAS NOT	10	10	10			30	100.0	1	5	6	4			0	0	0	1	1	1	0	50.0	60.0	70.0	50.0	60.0	70.0	1
2003	D - Plot 12	PHY NOD	5	3				8	26.7	6	3	1				1	0	1	0	0	0	0	3.4	6.8	10.3	5.1	10.3	15.5	5
2003	D - Plot 12	SET GEN	8	3	3			14	46.7	5	2	1	2			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	6
2003	H - Plot 2	BAR GRO	10	10	10			30	100.0		3	4	4			0	0	1	2	0	0	0	23.3	33.3	43.3	23.3	33.3	43.3	
2003	H - Plot 2	AMP MUH	1					1	3.3	9	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	5
2003	H - Plot 2	AND GCP			2			2	6.7	4			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	3
2003	H - Plot 2	AND VIR		2				2	6.7	4		2				0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	3
2003	H - Plot 2	AXO FIS			2			2	6.7	4			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	5
2003	H - Plot 2	CEN ASI	10		6			16	53.3	2	3		2			0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	2
2003	H - Plot 2	CYP SP.	1					1	3.3	9	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	5
2003	H - Plot 2	ELE BAL		1				1	3.3	9		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	5
2003	H - Plot 2	JUN SCI	2					2	6.7	4	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	5
2003	H - Plot 2	LUD MAR		2				2	6.7	4		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	5
2003	H - Plot 2	PAS NOT	10	10	10			30	100.0	1	6	5	5			0	0	0	0	2	1	0	56.7	66.7	76.7	56.7	66.7	76.7	1
2003	H - Plot 2	RHY FAS		5				5	16.7	3		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	5
2003	H - Plot 9	BAR GRO	10	10	10			30	100.0		4	4	3			0	0	1	2	0	0	0	23.3	33.3	43.3	23.3	33.3	43.3	

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2003	H - Plot 9	CEN ASI		8	3			11	36.7	2		3	1			1	0	1	0	0	0	0	3.4	6.8	10.3	5.1	10.3	15.5	2
2003	H - Plot 9	CYP SP.		7				7	23.3	3		2				0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	4
2003	H - Plot 9	FUI SCI	5	2				7	23.3	3	2	1				1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	3
2003	H - Plot 9	PAS NOT	10	10	10			30	100.0	1	5	5	5			0	0	0	0	3	0	0	50.0	60.0	70.0	50.0	60.0	70.0	1
2003	H - Plot 9	PLU ROS			1			1	3.3	6			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	6
2003	H - Plot 9	RHY FAS	5					5	16.7	5	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	4
2003	H - Plot 10	BAR GRO	10	10	10			30	100.0		3	3	3			0	0	3	0	0	0	0	10.0	20.0	30.0	10.0	20.0	30.0	
2003	H - Plot 10	AMP MUH	1					1	3.3	12	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	H - Plot 10	AND GCP	2					2	6.7	10	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	H - Plot 10	AND VIR	8					8	26.7	6	3					0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	4
2003	H - Plot 10	AXO FIS		3	4			7	23.3	7		2	2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	6
2003	H - Plot 10	CEN ASI	10	10	10			30	100.0	1	3	3	3			0	0	3	0	0	0	0	10.0	20.0	30.0	10.0	20.0	30.0	2
2003	H - Plot 10	CYP SP.		8	6			14	46.7	4		2	1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	7
2003	H - Plot 10	ELE SP.			2			2	6.7	10			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	9
2003	H - Plot 10	EUT CAR	10		5			15	50.0	3	3		2			0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	3
2003	H - Plot 10	FIM DIC		1				1	3.3	12		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	11
2003	H - Plot 10	FUI SCI			10			10	33.3	5			3			0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	4
2003	H - Plot 10	PAS NOT	10	10	10			30	100.0	1	4	5	5			0	0	0	1	2	0	0	43.3	53.3	63.3	43.3	53.3	63.3	1
2003	H - Plot 10	RHY FAS	2		3			5	16.7	8	1		2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	7
2003	H - Plot 10	SPO IND			4			4	13.3	9			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	9
2003	H&D - Plot 4	BAR GRO	10	10	10			30	100.0		3	3	2			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	
2003	H&D - Plot 4	CEN ASI		10				10	33.3	3		4				0	0	0	1	0	0	0	10.0	13.3	16.7	30.0	40.0	50.0	3
2003	H&D - Plot 4	CYP SP.	10	7	10			27	90.0	2	3	1	4			1	0	1	1	0	0	0	13.4	20.2	27.0	13.4	20.2	27.0	2
2003	H&D - Plot 4	DES TRI	5					5	16.7	6	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	7
2003	H&D - Plot 4	EMI FOS			3			3	10.0	8			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	7
2003	H&D - Plot 4	ERE HIE			1			1	3.3	10			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	7
2003	H&D - Plot 4	EUP CAP	1		5			6	20.0	4	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	5
2003	H&D - Plot 4	HED UNI	3		3			6	20.0	4	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	5
2003	H&D - Plot 4	PAS NOT	10	10	10			30	100.0	1	5	6	4			0	0	0	1	1	1	0	50.0	60.0	70.0	50.0	60.0	70.0	1
2003	H&D - Plot 4	PHY NOD			4			4	13.3	7			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	4
2003	H&D - Plot 4	RHY FAS	1					1	3.3	10	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	7
2003	H&D - Plot 4	SAC IND			1			1	3.3	10			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	7
2003	H&D - Plot 4	SET GEN			3			3	10.0	8			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	7
2003	H&D - Plot 5	BAR GRO	10	10	10			30	100.0		4	2	4			0	1	0	2	0	0	0	20.3	28.3	36.7	20.3	28.3	36.7	
2003	H&D - Plot 5	AMP MUH	1					1	3.3	9	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	H&D - Plot 5	AXO FIS			5			5	16.7	6			3			0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	3
2003	H&D - Plot 5	CEN ASI	4	10				14	46.7	2	1	3				1	0	1	0	0	0	0	3.4	6.8	10.3	5.1	10.3	15.5	2
2003	H&D - Plot 5	CYP SP.	6	2				8	26.7	5	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	7
2003	H&D - Plot 5	EUT CAR		9				9	30.0	4		3				0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	3
2003	H&D - Plot 5	LUD OCT		2				2	6.7	7		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	H&D - Plot 5	MYR CER		10				10	33.3	3		3				0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	3
2003	H&D - Plot 5	PAS NOT	10	10	10			30	100.0	1	5	6	4			0	0	0	1	1	1	0	50.0	60.0	70.0	50.0	60.0	70.0	1
2003	H&D - Plot 5	PAS SET	1					1	3.3	9	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	H&D - Plot 5	RHY FAS	1		1			2	6.7	7	1		2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	6
2003	H&D - Plot 8	BAR GRO	10	10	10			30	100.0		3	3	2			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	
2003	H&D - Plot 8	AND GCP	6					6	20.0	4	3					0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	3
2003	H&D - Plot 8	AXO FIS		3				3	10.0	6		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	H&D - Plot 8	CEN ASI	8	9	10			27	90.0	2	3	2	3			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	2
2003	H&D - Plot 8	CYP SP.	7	6	6			19	63.3	3	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	4
2003	H&D - Plot 8	DES INC			3			3	10.0	6			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2003	H&D - Plot 8	DES TRI	2		1			3	10.0	6	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	7
2003	H&D - Plot 8	PAS NOT	10	10	10			30	100.0	1	5	6	7			0	0	0	0	1	1	1	70.0	78.3	86.7	70.0	78.3	86.7	1
2003	H&D - Plot 8	PAS SET		1				1	3.3	10		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	H&D - Plot 8	PLU ROS		2				2	6.7	9		2				0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	5
2003	H&D - Plot 8	RHY FAS	4					4	13.3	5	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	8
2003	Seeded - W	BAR GRO	10	10	10	10	10	50	100.0		3	3	3	2	3	0	1	4	0	0	0	0	8.2	17.0	26.0	8.2	17.0	26.0	
2003	Seeded - W	AND GCP	2	5				7	14.0	5	1	3				1	0	1	0	0	0	0	2.0	4.1	6.2	5.1	10.3	15.5	4
2003	Seeded - W	AND VIR			2			2	4.0	10			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	12
2003	Seeded - W	AXO FIS			2	2		4	8.0	8			1	2		1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	7
2003	Seeded - W	CEN ASI			10	5	6	21	42.0	3			3	1	3	1	0	2	0	0	0	0	4.0	8.1	12.2	6.7	13.5	20.3	2
2003	Seeded - W	CYN DAC				10		10	20.0	4				4		0	0	0	1	0	0	0	6.0	8.0	10.0	30.0	40.0	50.0	3
2003	Seeded - W	CYP SP.	5	3	5	4	10	27	54.0	2	2	1	1	2	2	2	3	0	0	0	0	0	0.6	3.2	6.4	0.6	3.2	6.4	6
2003	Seeded - W	DES TRI			1			1	2.0	13			2			0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	8
2003	Seeded - W	EMI FOS		1				1	2.0	13		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	12
2003	Seeded - W	LUD PAL				1		1	2.0	13				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	12
2003	Seeded - W	LUD SP.				1	1	2	4.0	10				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	11
2003	Seeded - W	PAS NOT	10	10	10	10	10	50	100.0	1	6	5	5	5	6	0	0	0	0	3	2	0	58.0	68.0	78.0	58.0	68.0	78.0	1
2003	Seeded - W	PHY NOD				7		7	14.0	5				2		0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	8
2003	Seeded - W	RHY MCC				3		3	6.0	9				2		0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	8
2003	Seeded - W	RHY FAS	2					2	4.0	10	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	12
2003	Seeded - W	SCL CIL					6	6	12.0	7					3	0	0	1	0	0	0	0	2.0	4.0	6.0	10.0	20.0	30.0	5
2003	Seeded - W	SPO IND		1				1	2.0	13		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	12
2003	Seeded - C	BAR GRO	10	10	10	10	10	50	100.0		4	3	3	4	2	0	1	2	2	0	0	0	16.2	25.0	34.0	16.2	25.0	34.0	
2003	Seeded - C	AND VIR			4	2		6	12.0	5			2	1		1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	4
2003	Seeded - C	AXO FIS		1				1	2.0	8		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	8
2003	Seeded - C	CEN ASI		8	10		5	23	46.0	3		2	4		2	0	2	0	1	0	0	0	6.4	10.0	14.0	10.7	16.7	23.3	2
2003	Seeded - C	CYP SP.	10		2	7	9	28	56.0	2	3		1	1	1	3	0	1	0	0	0	0	2.1	4.3	6.6	2.6	5.4	8.3	3
2003	Seeded - C	DES INC	2					2	4.0	7	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	5
2003	Seeded - C	ELE BAL		1				1	2.0	8		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	8
2003	Seeded - C	ERE HIE	7					7	14.0	4	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	5
2003	Seeded - C	PAS NOT	10	10	10	10	10	50	100.0	1	5	5	6	5	7	0	0	0	0	3	1	1	62.0	71.0	80.0	62.0	71.0	80.0	1
2003	Seeded - C	PAS SET			4			4	8.0	6			2			0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	5
2003	Seeded - C	SPI VER				1		1	2.0	8				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	8
2003	Seeded - NE	BAR GRO	10	10	10	10	10	50	100.0		3	4	3	3	3	0	0	4	1	0	0	0	14.0	24.0	34.0	14.0	24.0	34.0	
2003	Seeded - NE	AND GCP			1			1	2.0	8			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	6
2003	Seeded - NE	AND VIR	4		2	1	2	9	18.0	5	2		1	1	2	2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	5
2003	Seeded - NE	AXO FIS		2	7	2		11	22.0	4		1	3	2		1	1	1	0	0	0	0	2.2	5.1	8.2	3.7	8.5	13.7	4
2003	Seeded - NE	AXO FUR				2		2	4.0	6				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	6
2003	Seeded - NE	CEN ASI	10			10		20	40.0	3	3			4		0	0	1	1	0	0	0	8.0	12.0	16.0	20.0	30.0	40.0	2
2003	Seeded - NE	CYP SP.	10	8	8	1	10	37	74.0	2	2	2	3	1	3	1	2	2	0	0	0	0	4.4	10.1	16.2	4.4	10.1	16.2	3
2003	Seeded - NE	DES TRI			1			1	2.0	8			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	6
2003	Seeded - NE	EUT CAR	1					1	2.0	8	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	6
2003	Seeded - NE	IPO SAG			1			1	2.0	8			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	6
2003	Seeded - NE	PAS NOT	10	10	10	10	10	50	100.0	1	5	5	6	6	6	0	0	0	0	2	3	0	62.0	72.0	82.0	62.0	72.0	82.0	1
2003	Seeded - NE	PHY NOD			2			2	4.0	6			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	6
2003	Seeded - SE	BAR GRO	10	10	10	10	10	50	100.0		4	3	3	3	2	0	1	3	1	0	0	0	12.2	21.0	30.0	12.2	21.0	30.0	
2003	Seeded - SE	AND GCP					3	3	6.0	7					2	0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	7
2003	Seeded - SE	AND VIR	1	2	3			6	12.0	4	1	2	1			2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	5
2003	Seeded - SE	AXO FIS	2		4			6	12.0	4	1		2			1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	6
2003	Seeded - SE	CEN ASI	1	2	10			13	26.0	3	1	1	3			2	0	1	0	0	0	0	2.0	4.2	6.4	3.4	7.0	10.7	2

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2003	Seeded - SE	CYP SP.	9	3	4	1	2	19	38.0	2	2	1	1	1	1	4	1	0	0	0	0	0	0.3	1.4	2.8	0.3	1.4	2.8	4
2003	Seeded - SE	PAN HIA			3			3	6.0	7			2			0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	7
2003	Seeded - SE	PAS NOT	10	10	10	10	9	49	98.0	1	5	6	5	6	4	0	0	0	1	2	2	0	54.0	64.0	74.0	54.0	64.0	74.0	1
2003	Seeded - SE	SCH SCO					5	5	10.0	6					3	0	0	1	0	0	0	0	2.0	4.0	6.0	10.0	20.0	30.0	3
2004	C - Plot 3	BAR GRO	10	10	10			30	100.0		4	3	3			0	0	2	1	0	0	0	16.7	26.7	36.7	16.7	26.7	36.7	
2004	C - Plot 3	AMP MUH	3					3	10.0	13	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	14
2004	C - Plot 3	AND GCP	2		2			4	13.3	11	1		2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	8
2004	C - Plot 3	AND VIR	3		7			10	33.3	6	2		3			0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	3
2004	C - Plot 3	AXO FIS	6	8	4			18	60.0	3	2	2	1			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	5
2004	C - Plot 3	CEN ASI	10	5	4			19	63.3	2	2	2	1			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	5
2004	C - Plot 3	CYP POL	2	4	2			8	26.7	7	1	2	1			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	7
2004	C - Plot 3	CYP RET			1			1	3.3	16			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	14
2004	C - Plot 3	DES TRI			4			4	13.3	11			3			0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	4
2004	C - Plot 3	ELE BAL	2	1	2			5	16.7	10	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	12
2004	C - Plot 3	EUT CAR	6					6	20.0	9	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	9
2004	C - Plot 3	FUI SCI			7			7	23.3	8			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	9
2004	C - Plot 3	IPO SAG		3				3	10.0	13		2				0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	9
2004	C - Plot 3	LUD SP.			1			1	3.3	16			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	14
2004	C - Plot 3	MUR NUD			1			1	3.3	16			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	14
2004	C - Plot 3	OLD UNI	4	4	4			12	40.0	5	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	12
2004	C - Plot 3	PAS NOT	10	10	10			30	100.0	1	5	6	5			0	0	0	0	2	1	0	56.7	66.7	76.7	56.7	66.7	76.7	1
2004	C - Plot 3	RHY FAS	2	9	7			18	60.0	3	1	3	2			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	2
2004	C - Plot 3	XYR AMB	2					2	6.7	15	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	14
2004	C - Plot 7	BAR GRO	10	10	10			30	100.0		1	3	2			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	
2004	C - Plot 7	AND VIR	1	6				7	23.3	6	1	3				1	0	1	0	0	0	0	3.4	6.8	10.3	5.1	10.3	15.5	2
2004	C - Plot 7	AXO FIS	2		4			6	20.0	7	1		2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	6
2004	C - Plot 7	CEN ASI		3	10			13	43.3	3		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	6
2004	C - Plot 7	CYP POL	5	5	5			15	50.0	2	2	1	2			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	4
2004	C - Plot 7	DES INC	1					1	3.3	17	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	13
2004	C - Plot 7	DES TRI	6	2	2			10	33.3	4	2	1	2			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	4
2004	C - Plot 7	DIO VIR			2			2	6.7	14			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	9
2004	C - Plot 7	ELE BAL		1				1	3.3	17		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	13
2004	C - Plot 7	HYD UMB	5					5	16.7	10	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	13
2004	C - Plot 7	IPO SAG			2			2	6.7	14			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	13
2004	C - Plot 7	KYL BRE			9			9	30.0	5			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	9
2004	C - Plot 7	LUD OCT	3					3	10.0	13	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	13
2004	C - Plot 7	OLD UNI		3	3			6	20.0	7		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	6
2004	C - Plot 7	PAS NOT	10	10	10			30	100.0	1	7	6	6			0	0	0	0	0	2	1	76.7	85.0	93.3	76.7	85.0	93.3	1
2004	C - Plot 7	PHY NOD	2					2	6.7	14	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	13
2004	C - Plot 7	SAC IND	3	3				6	20.0	7	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	11
2004	C - Plot 7	SET PAR	3		1			4	13.3	11	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	11
2004	C - Plot 7	SPO IND	4					4	13.3	11	3					0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	3
2004	C - Plot 11	BAR GRO	10	10	10			30	100.0		3	3	2			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	
2004	C - Plot 11	AND VIR	5	4				9	30.0	11	3	2				0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	5
2004	C - Plot 11	AXO FIS		3	7			10	33.3	9		1	3			1	0	1	0	0	0	0	3.4	6.8	10.3	5.1	10.3	15.5	6
2004	C - Plot 11	CEN ASI	8	10	5			23	76.7	3	2	2	1			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	7
2004	C - Plot 11	CYP POL	3	7	7			17	56.7	4	1	1	2			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	9
2004	C - Plot 11	DES TRI		3	9			12	40.0	8		2	4			0	1	0	1	0	0	0	10.3	15.0	20.0	15.5	22.5	30.0	2
2004	C - Plot 11	ERE HIE		2				2	6.7	16		2				0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	13
2004	C - Plot 11	FIM DIC			1			1	3.3	19			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	17

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	C - Plot 11	HYD UMB	6	2	2			10	33.3	9	2	1	1			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	9
2004	C - Plot 11	IPO SAG	2					2	6.7	16	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	17
2004	C - Plot 11	LEE HEX	6		8			14	46.7	5	2		2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	8
2004	C - Plot 11	MAC LAT			1			1	3.3	19			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	17
2004	C - Plot 11	MIK SCA	3					3	10.0	15	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	13
2004	C - Plot 11	MYR PUS	9					9	30.0	11	4					0	0	0	1	0	0	0	10.0	13.3	16.7	30.0	40.0	50.0	4
2004	C - Plot 11	OLD UNI		4				4	13.3	14		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	17
2004	C - Plot 11	PAS NOT	8	10	10			28	93.3	2	5	6	4			0	0	0	1	1	1	0	50.0	60.0	70.0	50.0	60.0	70.0	1
2004	C - Plot 11	PHY NOD	10	10	9			29	96.7	1	3	3	2			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	2
2004	C - Plot 11	SAC IND	2	6	6			14	46.7	5	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	16
2004	C - Plot 11	SCO DUL	2					2	6.7	16	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	13
2004	C - Plot 11	SET PAR	6	4	3			13	43.3	7	2	1	1			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	9
2004	C - Plot 11	SPO IND	5		4			9	30.0	11	2		1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	12
2004	D - Plot 1	BAR GRO	10	10	10			30	100.0		3	2	3			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	
2004	D - Plot 1	AND VIR	1	2	6			9	30.0	8	1	2	2			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	4
2004	D - Plot 1	AXO FIS	1	1				2	6.7	19	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	12
2004	D - Plot 1	CEN ASI	1	10	6			17	56.7	5	1	2	2			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	4
2004	D - Plot 1	CYP POL	10	8	9			27	90.0	3	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	2
2004	D - Plot 1	CYP RET	1	1	1			3	10.0	13	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	10
2004	D - Plot 1	DES TRI	7		5			12	40.0	6	2		2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	6
2004	D - Plot 1	DIO VIR	3					3	10.0	13	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	16
2004	D - Plot 1	ELE BAL	10	4	8			22	73.3	4	1	1	2			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	7
2004	D - Plot 1	EUP CAP			4			4	13.3	11			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	8
2004	D - Plot 1	EUP LEP	1		2			3	10.0	13	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	12
2004	D - Plot 1	EUT CAR	1		2			3	10.0	13	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	12
2004	D - Plot 1	FIM CAR			2			2	6.7	19			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	16
2004	D - Plot 1	HYP TET	3					3	10.0	13	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	16
2004	D - Plot 1	LIN CRU			5			5	16.7	10			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	8
2004	D - Plot 1	LUD OCT	3					3	10.0	13	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	16
2004	D - Plot 1	MUR NUD	4	2	1			7	23.3	9	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	10
2004	D - Plot 1	OLD UNI	10	8	10			28	93.3	2	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	2
2004	D - Plot 1	PAN CHA	1					1	3.3	22	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	16
2004	D - Plot 1	PAS NOT	10	10	10			30	100.0	1	6	6	6			0	0	0	0	0	3	0	70.0	80.0	90.0	70.0	80.0	90.0	1
2004	D - Plot 1	PHY NOD			1			1	3.3	22			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	16
2004	D - Plot 1	POL PRO			1			1	3.3	22			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	16
2004	D - Plot 1	RHU COP	1					1	3.3	22	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	16
2004	D - Plot 1	RHY FAS	8		2			10	33.3	7	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	12
2004	D - Plot 1	SCO DUL	2					2	6.7	19	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	16
2004	D - Plot 1	SET PAR	4					4	13.3	11	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	16
2004	D - Plot 1	XYR AMB	1					1	3.3	22	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	16
2004	D - Plot 6	BAR GRO	10	10	10			30	100.0		3	3	3			0	0	3	0	0	0	0	10.0	20.0	30.0	10.0	20.0	30.0	
2004	D - Plot 6	AND GCP	9		6			15	50.0	5	2		2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	5
2004	D - Plot 6	AND VIR	4	2	2			8	26.7	9	2	1	1			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	7
2004	D - Plot 6	AXO FIS		6	1			7	23.3	10		2	1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	10
2004	D - Plot 6	AXO FUR	2		3			5	16.7	15	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	16
2004	D - Plot 6	CEN ASI	4		7			11	36.7	8	2		2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	5
2004	D - Plot 6	CYP POL	3	7	4			14	46.7	7	1	2	1			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	7
2004	D - Plot 6	CYP RET		1				1	3.3	27		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	23
2004	D - Plot 6	DES TRI		2	2			4	13.3	19		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	16
2004	D - Plot 6	DIC POR			1			1	3.3	27			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	23

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	D - Plot 6	ELE BAL			6			6	20.0	13			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	11
2004	D - Plot 6	ELE MIC	10	10	9			29	96.7	2	3	2	2			0	2	1	0	0	0	0	4.0	10.0	16.7	4.0	10.0	16.7	3
2004	D - Plot 6	ELE Sp.		2				2	6.7	24		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	23
2004	D - Plot 6	EUP CAP	1	3	1			5	16.7	15	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	14
2004	D - Plot 6	EUT CAR		2	2			4	13.3	19		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	16
2004	D - Plot 6	FIM DIC		2				2	6.7	24		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	23
2004	D - Plot 6	FIM SCH	5	2				7	23.3	10	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	16
2004	D - Plot 6	HYP TET	4		1			5	16.7	15	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	16
2004	D - Plot 6	LUD CUR			2			2	6.7	24			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	23
2004	D - Plot 6	LUD MAR	3					3	10.0	23	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	11
2004	D - Plot 6	LUD OCT	4	3				7	23.3	10	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	16
2004	D - Plot 6	MUR NUD	2	2				4	13.3	19	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	16
2004	D - Plot 6	OLD UNI	10	8	10			28	93.3	3	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	4
2004	D - Plot 6	PAN CHA	1	1	2			4	13.3	19	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	14
2004	D - Plot 6	PAS NOT	10	10	10			30	100.0	1	4	6	5			0	0	0	1	1	1	0	50.0	60.0	70.0	50.0	60.0	70.0	1
2004	D - Plot 6	PAS SET			1			1	3.3	27			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	23
2004	D - Plot 6	POL PRO		1				1	3.3	27		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	23
2004	D - Plot 6	POL RUG	1					1	3.3	27	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	23
2004	D - Plot 6	POL SET	1					1	3.3	27	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	23
2004	D - Plot 6	RHY FAS	6	7	9			22	73.3	4	3	2	3			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	2
2004	D - Plot 6	SCO DUL			6			6	20.0	13			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	11
2004	D - Plot 6	UTR SUB	5					5	16.7	15	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	23
2004	D - Plot 6	XYR BRE	9	4	2			15	50.0	5	2	1	1			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	7
2004	D - Plot 12	BAR GRO	10	10	10			30	100.0		2	3	3			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	
2004	D - Plot 12	AST DUM	10	10				20	66.7	2	3	5				0	0	1	0	1	0	0	20.0	26.7	33.3	30.0	40.0	50.0	2
2004	D - Plot 12	AXO FIS		7				7	23.3	17		2				0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	20
2004	D - Plot 12	AXO FUR	7					7	23.3	17	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	20
2004	D - Plot 12	BAC MON	2		1			3	10.0	28	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	27
2004	D - Plot 12	CEN ASI		10	10			20	66.7	2		2	2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	8
2004	D - Plot 12	CUP CAR	1	1				2	6.7	32	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	27
2004	D - Plot 12	CYN DAC	5		2			7	23.3	17	2		1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	D - Plot 12	CYP COM	2					2	6.7	32	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	CYP POL	7	4	5			16	53.3	8	2	2	1			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	7
2004	D - Plot 12	CYP SUR		2				2	6.7	32		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	DES TRI		3	3			6	20.0	21		2	2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	8
2004	D - Plot 12	DIC POR		1				1	3.3	39		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	DIO VIR		2	6			8	26.7	14		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	D - Plot 12	ELE MIC	6	10				16	53.3	8	2	2				0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	8
2004	D - Plot 12	ERA ATR			1			1	3.3	39			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	EUP CAP	3	1	1			5	16.7	24	2	1	1			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	13
2004	D - Plot 12	EUT CAR		10	4			14	46.7	11		4	2			0	1	0	1	0	0	0	10.3	15.0	20.0	15.5	22.5	30.0	3
2004	D - Plot 12	FIM DIC		8	10			18	60.0	5		2	2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	8
2004	D - Plot 12	FIM SCH		1				1	3.3	39		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	FUI BRE	5					5	16.7	24	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	20
2004	D - Plot 12	HYD UMB	6		4			10	33.3	13	2		1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	D - Plot 12	HYP TET		2	1			3	10.0	28		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	27
2004	D - Plot 12	KYL BRE	5	2	1			8	26.7	14	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	26
2004	D - Plot 12	LIN CRU		2	5			7	23.3	17		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	27
2004	D - Plot 12	LUD CUR	6	2				8	26.7	14	2	1				1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	D - Plot 12	LUD MAR		1				1	3.3	39		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10: 1	2	3	4	5	Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval: 1	2	3	4	5	Cover Category Number/Range: 1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Total Quadrat Area, Probable Percent Cover Range: Minimum	Average	Maximum	Total Occurrence Area, Probable Percent Cover Range: Minimum	Average	Maximum	Cover Rank
2004	D - Plot 12	LUD OCT	3	5	9			17	56.7	6	2	2	3			0	2	1	0	0	0	0	4.0	10.0	16.7	4.0	10.0	16.7	5
2004	D - Plot 12	MIK SCA	2					2	6.7	32	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	20
2004	D - Plot 12	MUR NUD		3				3	10.0	28		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	OLD UNI	4	8				12	40.0	12	1	2				1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	D - Plot 12	PAS DCH	3					3	10.0	28	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	PAS NOT	10	10	10			30	100.0	1	5	5	6			0	0	0	0	2	1	0	56.7	66.7	76.7	56.7	66.7	76.7	1
2004	D - Plot 12	PHY NOD	10		5			15	50.0	10	2		1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	D - Plot 12	POL PRO			4			4	13.3	27			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	RHE MAR		1				1	3.3	39		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	RHY COL	2					2	6.7	32	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	RHY MCC	2		4			6	20.0	21	2		2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	8
2004	D - Plot 12	RHY NIT	6					6	20.0	21	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	20
2004	D - Plot 12	RHY Sp.	2					2	6.7	32	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	20
2004	D - Plot 12	SAC IND	2	7	8			17	56.7	6	1	1	3			2	0	1	0	0	0	0	3.4	7.0	10.7	3.4	7.0	10.7	6
2004	D - Plot 12	SCO DUL			5			5	16.7	24			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	SET PAR	10		10			20	66.7	2	3		3			0	0	2	0	0	0	0	6.7	13.3	20.0	10.0	20.0	30.0	4
2004	D - Plot 12	SPO IND			2			2	6.7	32			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	D - Plot 12	URO Sp.	1					1	3.3	39	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	31
2004	H - Plot 2	BAR GRO	10	10	10			30	100.0		4	5	3			0	0	1	1	1	0	0	30.0	40.0	50.0	30.0	40.0	50.0	
2004	H - Plot 2	AND GCP	10	10	10			30	100.0	1	4	2	4			0	1	0	2	0	0	0	20.3	28.3	36.7	20.3	28.3	36.7	1
2004	H - Plot 2	AND VIR	5	10	9			24	80.0	4	2	3	3			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	3
2004	H - Plot 2	AXO FIS	2	8	5			15	50.0	7	1	2	2			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	9
2004	H - Plot 2	BAC HAL		1				1	3.3	29		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	CEN ASI	4		5			9	30.0	11	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	17
2004	H - Plot 2	CYP POL	8	3	10			21	70.0	5	3	1	3			1	0	2	0	0	0	0	6.7	13.5	20.3	6.7	13.5	20.3	4
2004	H - Plot 2	CYP RET			1			1	3.3	29			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	DES TRI		4				4	13.3	17		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	DIC POR	2					2	6.7	25	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	11
2004	H - Plot 2	DIG SER		3	1			4	13.3	17		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	17
2004	H - Plot 2	ELE MIC	10	10	10			30	100.0	1	3	1	2			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	5
2004	H - Plot 2	ERA VIR		2				2	6.7	25		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	EUP CAP		8	4			12	40.0	9		3	1			1	0	1	0	0	0	0	3.4	6.8	10.3	5.1	10.3	15.5	8
2004	H - Plot 2	EUT CAR	9	7	4			20	66.7	6	4	2	2			0	2	0	1	0	0	0	10.7	16.7	23.3	10.7	16.7	23.3	2
2004	H - Plot 2	FIM AUT		1				1	3.3	29		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	FIM DIC		1				1	3.3	29		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	FIM SCH			1			1	3.3	29			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	HYD UMB		1				1	3.3	29		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	HYP TET		2				2	6.7	25		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	JUN SCI	3					3	10.0	21	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	11
2004	H - Plot 2	LIN CRU		7	2			9	30.0	11		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	17
2004	H - Plot 2	LUD CUR		1				1	3.3	29		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	LUD MAR		1	3			4	13.3	17		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	17
2004	H - Plot 2	LUD OCT	1	2				3	10.0	21	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	17
2004	H - Plot 2	MAC LAT		2				2	6.7	25		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	MYR CER			1			1	3.3	29			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	OLD UNI	10	10	9			29	96.7	3	3	2	1			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	5
2004	H - Plot 2	PAN CHA		3				3	10.0	21		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24
2004	H - Plot 2	PAS SET	2	1	1			4	13.3	17	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	15
2004	H - Plot 2	POL PRO		4	1			5	16.7	15		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	17
2004	H - Plot 2	RHE MAR		1				1	3.3	29		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	24

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area			Total Occurrence Area			Cover Rank
																1	2	3	4	5	6	7	Probable Percent Cover Range			Probable Percent Cover Range			
			1	2	3	4	5				1	2	3	4	5	<1	1-10	10-30	30-50	50-70	70-90	>90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	H - Plot 2	RHY FAS	8	1	4			13	43.3	8	3	1	1			2	0	1	0	0	0	0	3.4	7.0	10.7	3.4	7.0	10.7	7
2004	H - Plot 2	SAC IND		5				5	16.7	15		2				0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	11
2004	H - Plot 2	SCL RET	3					3	10.0	21	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	11
2004	H - Plot 2	SCO DUL	2	9	1			12	40.0	9	1	2	1			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	10
2004	H - Plot 2	UTR SUB		5	2			7	23.3	14		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	17
2004	H - Plot 2	XYR BRE	5	2	1			8	26.7	13	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	15
2004	H - Plot 9	BAR GRO	10	10	10			30	100.0		4	3	2			0	1	1	1	0	0	0	13.7	21.7	30.0	13.7	21.7	30.0	
2004	H - Plot 9	AND GCP	6	4	8			18	60.0	7	2	2	3			0	2	1	0	0	0	0	4.0	10.0	16.7	4.0	10.0	16.7	6
2004	H - Plot 9	AND VIR	10	8	10			28	93.3	2	4	3	3			0	0	2	1	0	0	0	16.7	26.7	36.7	16.7	26.7	36.7	1
2004	H - Plot 9	AXO FIS	5		8			13	43.3	9	2		2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	12
2004	H - Plot 9	BAC HAL			5			5	16.7	22			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	15
2004	H - Plot 9	BAC MON			1			1	3.3	31			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	CEN ASI	10	10	10			30	100.0	1	3	3	2			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	4
2004	H - Plot 9	CON CAN			3			3	10.0	25			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	15
2004	H - Plot 9	CRO ROT			6			6	20.0	16			3			0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	9
2004	H - Plot 9	CYP POL	9	6	9			24	80.0	5	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	11
2004	H - Plot 9	CYP RET	4					4	13.3	23	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	DES TRI			2			2	6.7	27			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	DIC POR		1				1	3.3	31		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	DIO VIR		7				7	23.3	13		2				0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	15
2004	H - Plot 9	ELE MIC	10	10				20	66.7	6	3	3				0	0	2	0	0	0	0	6.7	13.3	20.0	10.0	20.0	30.0	5
2004	H - Plot 9	ERA VIR		4				4	13.3	23		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	ERE HIE			1			1	3.3	31			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	EUP CAP	7		4			11	36.7	10	2		3			0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	7
2004	H - Plot 9	EUP LEP	1					1	3.3	31	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	EUT CAR	9	9	10			28	93.3	2	3	3	4			0	0	2	1	0	0	0	16.7	26.7	36.7	16.7	26.7	36.7	1
2004	H - Plot 9	FIM AUT		1				1	3.3	31		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	FIM DIC	2	2	2			6	20.0	16	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	23
2004	H - Plot 9	FIM SCH	3		3			6	20.0	16	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	24
2004	H - Plot 9	JUN MAR	1					1	3.3	31	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	KYL BRE			2			2	6.7	27			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	LIN CRU	5		6			11	36.7	10	2		2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	12
2004	H - Plot 9	LIN GRA			6			6	20.0	16			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	15
2004	H - Plot 9	LUD CUR		6				6	20.0	16		3				0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	9
2004	H - Plot 9	LUD MAR			1			1	3.3	31			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	LUD OCT	7		1			8	26.7	12	2		1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	H - Plot 9	MIK SCA	1					1	3.3	31	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	MUR NUD	1					1	3.3	31	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	MYR CER	2					2	6.7	27	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	15
2004	H - Plot 9	OLD UNI	10	6	10			26	86.7	4	2	2	4			0	2	0	1	0	0	0	10.7	16.7	23.3	10.7	16.7	23.3	3
2004	H - Plot 9	PAS SET		1				1	3.3	31		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	PHY NOD			1			1	3.3	31			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	PLU ROS			1			1	3.3	31			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	POL PRO			3			3	10.0	25			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	15
2004	H - Plot 9	RHE MAR			7			7	23.3	13			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	15
2004	H - Plot 9	RHY FAS	3	3				6	20.0	16	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	24
2004	H - Plot 9	SAC IND			1			1	3.3	31			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	SCO DUL		8	9			17	56.7	8		1	3			1	0	1	0	0	0	0	3.4	6.8	10.3	5.1	10.3	15.5	8
2004	H - Plot 9	SET PAR		3	4			7	23.3	13		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	24
2004	H - Plot 9	SOL VIA			1			1	3.3	31			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	15

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	H - Plot 9	UTR SUB		1				1	3.3	31		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 9	XYR BRE		2				2	6.7	27		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H - Plot 10	BAR GRO	10	10	10			30	100.0		3	3	3			0	0	3	0	0	0	0	10.0	20.0	30.0	10.0	20.0	30.0	
2004	H - Plot 10	AND GCP	5	5	9			19	63.3	6	2	2	3			0	2	1	0	0	0	0	4.0	10.0	16.7	4.0	10.0	16.7	4
2004	H - Plot 10	AND VIR	10	10	8			28	93.3	1	4	4	3			0	0	1	2	0	0	0	23.3	33.3	43.3	23.3	33.3	43.3	1
2004	H - Plot 10	AXO FIS		3	6			9	30.0	13		2	2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	11
2004	H - Plot 10	BAC HAL	1		3			4	13.3	21	1		2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	15
2004	H - Plot 10	CEN ASI	9	3	10			22	73.3	4	2	1	3			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	5
2004	H - Plot 10	CYP POL	4	7	10			21	70.0	5	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	9
2004	H - Plot 10	CYP RET		2	1			3	10.0	25		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	24
2004	H - Plot 10	DES INC		1				1	3.3	32		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H - Plot 10	DES TRI		3	1			4	13.3	21		2	1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	15
2004	H - Plot 10	DIC POR	8	5				13	43.3	10	3	2				0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	7
2004	H - Plot 10	DIG SER			2			2	6.7	27			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	20
2004	H - Plot 10	ELE MIC	2	6				8	26.7	14	1	2				1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	15
2004	H - Plot 10	EUP CAP	5	2	9			16	53.3	9	2	1	3			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	5
2004	H - Plot 10	EUP LEP			3			3	10.0	25			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	20
2004	H - Plot 10	EUT CAR	10	10	7			27	90.0	2	4	3	1			1	0	1	1	0	0	0	13.4	20.2	27.0	13.4	20.2	27.0	3
2004	H - Plot 10	FIM AUT	2	2				4	13.3	21	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	24
2004	H - Plot 10	FIM DIC	1		3			4	13.3	21	1		3			1	0	1	0	0	0	0	3.4	6.8	10.3	5.1	10.3	15.5	8
2004	H - Plot 10	FIM SCH		1				1	3.3	32		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H - Plot 10	HYP TET		5				5	16.7	19		2				0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	20
2004	H - Plot 10	JUN MAR		3	4			7	23.3	15		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	15
2004	H - Plot 10	JUN SCI			7			7	23.3	15			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	20
2004	H - Plot 10	KYL BRE			1			1	3.3	32			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H - Plot 10	LIN CRU		8	10			18	60.0	7		2	2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	11
2004	H - Plot 10	LIN GRA		2				2	6.7	27		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H - Plot 10	LUD MAR	3	3				6	20.0	17	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	24
2004	H - Plot 10	LUD OCT			2			2	6.7	27			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H - Plot 10	LYG MIC			1			1	3.3	32			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H - Plot 10	OLD UNI	10	7	10			27	90.0	2	4	2	3			0	1	1	1	0	0	0	13.7	21.7	30.0	13.7	21.7	30.0	2
2004	H - Plot 10	PAN CHA	2					2	6.7	27	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H - Plot 10	PAS SET	5	7				12	40.0	11	2	2				0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	11
2004	H - Plot 10	PHY NOD		2	3			5	16.7	19		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	15
2004	H - Plot 10	PLU ROS			1			1	3.3	32			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H - Plot 10	POL PRO		1				1	3.3	32		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H - Plot 10	RHY MCC			2			2	6.7	27			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H - Plot 10	SAC IND		4	2			6	20.0	17		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	24
2004	H - Plot 10	SCO DUL	2	9	6			17	56.7	8	1	2	2			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	10
2004	H - Plot 10	SET PAR	4		7			11	36.7	12	2		2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	11
2004	H - Plot 10	UTR SUB			1			1	3.3	32			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H - Plot 10	XYR BRE			1			1	3.3	32			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	BAR GRO	9	10	10			29	96.7		1	2	2			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	
2004	H&D - Plot 4	AMP MUH		2	1			3	10.0	23		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	23
2004	H&D - Plot 4	BAC HAL			2			2	6.7	29			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	BAC MON		2	3			5	16.7	19		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	23
2004	H&D - Plot 4	CEN ASI	5	6	8			19	63.3	7	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	9
2004	H&D - Plot 4	CYP POL	10	10	10			30	100.0	1	6	4	4			0	0	0	2	0	1	0	43.3	53.3	63.3	43.3	53.3	63.3	1
2004	H&D - Plot 4	CYP RET			1			1	3.3	36			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	DES TRI	10		8			18	60.0	8	3		2			0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	6

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	H&D - Plot 4	DIG SER	3					3	10.0	23	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 4	DIO VIR	2					2	6.7	29	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	ERA VIR		3	1			4	13.3	21		2	1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	H&D - Plot 4	EUP CAP	10	10	10			30	100.0	1	3	3	3			0	0	3	0	0	0	0	10.0	20.0	30.0	10.0	20.0	30.0	4
2004	H&D - Plot 4	EUP LEP	3	6	8			17	56.7	9	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	9
2004	H&D - Plot 4	EUT CAR	6	2	5			13	43.3	11	2	1	2			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	12
2004	H&D - Plot 4	FIM CAR	4					4	13.3	21	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 4	FIM DIC		10	10			20	66.7	6		5	4			0	0	0	1	1	0	0	26.7	33.3	40.0	40.0	50.0	60.0	2
2004	H&D - Plot 4	HYD UMB		1				1	3.3	36		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	HYP TET	7					7	23.3	18	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 4	JUN MAR	2					2	6.7	29	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	JUN SCI	5					5	16.7	19	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 4	KYL BRE			3			3	10.0	23			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	LAC CAR	2	1				3	10.0	23	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	23
2004	H&D - Plot 4	LIN CRU		3	7			10	33.3	13		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	H&D - Plot 4	LUD ARC		2				2	6.7	29		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	LUD MAR	1	1				2	6.7	29	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	23
2004	H&D - Plot 4	LUD OCT	7	10	10			27	90.0	4	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	9
2004	H&D - Plot 4	LUD REP		1	2			3	10.0	23		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	H&D - Plot 4	MIK SCA			2			2	6.7	29			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	MUR NUD	2					2	6.7	29	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	OLD UNI	10	10	10			30	100.0	1	4	4	3			0	0	1	2	0	0	0	23.3	33.3	43.3	23.3	33.3	43.3	2
2004	H&D - Plot 4	PAS NOT	9		2			11	36.7	12	3		1			1	0	1	0	0	0	0	3.4	6.8	10.3	5.1	10.3	15.5	8
2004	H&D - Plot 4	PHY NOD		3	7			10	33.3	13		1	2			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	14
2004	H&D - Plot 4	POL PRO	3	2	3			8	26.7	17	1	1	2			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	13
2004	H&D - Plot 4	RHE MAR			3			3	10.0	23			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	RHY FAS	10					10	33.3	13	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 4	SAC IND	9		6			15	50.0	10	3		2			0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	6
2004	H&D - Plot 4	SCL SP.	1					1	3.3	36	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	28
2004	H&D - Plot 4	SCO DUL	6		3			9	30.0	16	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	23
2004	H&D - Plot 4	SET PAR	5	10	10			25	83.3	5	1	2	3			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	5
2004	H&D - Plot 5	BAR GRO	10	10	10			30	100.0		3	3	3			0	0	3	0	0	0	0	10.0	20.0	30.0	10.0	20.0	30.0	
2004	H&D - Plot 5	AXO FUR	2					2	6.7	27	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	BAC MON			3			3	10.0	24			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	CEN ASI	10	10				20	66.7	6	2	3				0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	8
2004	H&D - Plot 5	CHA FAS		4				4	13.3	19		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	CRO ROT		2				2	6.7	27		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	CYP POL	10	10	10			30	100.0	1	3	2	2			0	2	1	0	0	0	0	4.0	10.0	16.7	4.0	10.0	16.7	5
2004	H&D - Plot 5	CYP RET		1				1	3.3	30		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	DES TRI	10	10				20	66.7	6	2	2				0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	12
2004	H&D - Plot 5	DIC POR	1	1	2			4	13.3	19	1	1	2			2	1	0	0	0	0	0	0.4	2.0	4.0	0.4	2.0	4.0	15
2004	H&D - Plot 5	DIG SER	4					4	13.3	19	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	DIO VIR	4					4	13.3	19	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 5	ELE BAL		3	10			13	43.3	11		2	2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	12
2004	H&D - Plot 5	ELE MIC			10			10	33.3	14			3			0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	9
2004	H&D - Plot 5	ERA VIR	1					1	3.3	30	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	EUP CAP	8	6	9			23	76.7	4	3	2	3			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	2
2004	H&D - Plot 5	EUP LEP	2		2			4	13.3	19	2		1			1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	16
2004	H&D - Plot 5	EUT CAR	5	6	7			18	60.0	9	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	10
2004	H&D - Plot 5	FIM DIC		5				5	16.7	18		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	H&D - Plot 5	HYP CIS			1			1	3.3	30			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	HYP TET	4	2				6	20.0	16	2	2				0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	12
2004	H&D - Plot 5	KYL BRE			1			1	3.3	30			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	LIN CRU	1	8				9	30.0	15	1	2				1	1	0	0	0	0	0	0.4	1.8	3.7	0.6	2.8	5.5	16
2004	H&D - Plot 5	LUD CUR	1					1	3.3	30	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	LUD MAR	1					1	3.3	30	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	LUD OCT	2	1	9			12	40.0	12	2	1	3			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	6
2004	H&D - Plot 5	LUD REP			6			6	20.0	16			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	18
2004	H&D - Plot 5	MAC LAT			1			1	3.3	30			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	OLD UNI	10	10	10			30	100.0	1	3	2	4			0	1	1	1	0	0	0	13.7	21.7	30.0	13.7	21.7	30.0	1
2004	H&D - Plot 5	PAN CHA	8	10	4			22	73.3	5	3	3	2			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	2
2004	H&D - Plot 5	PAS NOT	3					3	10.0	24	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	PAS SET	3					3	10.0	24	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	POL PRO	7	8	4			19	63.3	8	2	2	1			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	11
2004	H&D - Plot 5	RHY FAS	2	10	6			18	60.0	9	1	3	2			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	6
2004	H&D - Plot 5	SCO DUL	10	10	4			24	80.0	3	3	3	2			0	1	2	0	0	0	0	7.0	15.0	23.3	7.0	15.0	23.3	2
2004	H&D - Plot 5	SET PAR	5	3	4			12	40.0	12	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	20
2004	H&D - Plot 5	UTR SUB			1			1	3.3	30			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	XYR AMB	1					1	3.3	30	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 5	XYR BRE		2				2	6.7	27		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	21
2004	H&D - Plot 8	BAR GRO	10	10	10			30	100.0		2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	
2004	H&D - Plot 8	AXO FUR			2			2	6.7	29			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	BAC HAL	1	1				2	6.7	29	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	18
2004	H&D - Plot 8	BAC MON	4	1				5	16.7	19	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	18
2004	H&D - Plot 8	CEN ASI	10	9	10			29	96.7	3	2	2	3			0	2	1	0	0	0	0	4.0	10.0	16.7	4.0	10.0	16.7	5
2004	H&D - Plot 8	CRO ROT	2		3			5	16.7	19	1		1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	18
2004	H&D - Plot 8	CYN DAC	2					2	6.7	29	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	CYP POL	10	10	10			30	100.0	1	3	3	4			0	0	2	1	0	0	0	16.7	26.7	36.7	16.7	26.7	36.7	1
2004	H&D - Plot 8	CYP RET		1	1			2	6.7	29		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	18
2004	H&D - Plot 8	DES INC		1				1	3.3	37		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	DES TRI	9	10	4			23	76.7	4	3	3	3			0	0	3	0	0	0	0	10.0	20.0	30.0	10.0	20.0	30.0	2
2004	H&D - Plot 8	DIC POR		4	9			13	43.3	12		2	2			0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	13
2004	H&D - Plot 8	DIG SER		2	2			4	13.3	21		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	18
2004	H&D - Plot 8	DIO VIR		2				2	6.7	29		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	ELE Sp.	4					4	13.3	21	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	ERY BAL		1				1	3.3	37		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	EUP CAP	6	5	7			18	60.0	6	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	10
2004	H&D - Plot 8	EUP LEP	2	4	1			7	23.3	15	2	2	1			1	2	0	0	0	0	0	0.7	3.5	7.0	0.7	3.5	7.0	12
2004	H&D - Plot 8	EUT CAR	4	7	4			15	50.0	11	2	2	2			0	3	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	10
2004	H&D - Plot 8	FIM DIC	10	8				18	60.0	6	2	3				0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	7
2004	H&D - Plot 8	FIM SCH	4					4	13.3	21	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	HYP TET	1	8	9			18	60.0	6	1	2	3			1	1	1	0	0	0	0	3.7	8.5	13.7	3.7	8.5	13.7	6
2004	H&D - Plot 8	JUN MAR		1				1	3.3	37		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	JUN SCI		4				4	13.3	21		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	KYL BRE	2	1				3	10.0	25	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	18
2004	H&D - Plot 8	LIN CRU	5	1				6	20.0	17	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	18
2004	H&D - Plot 8	LUD CUR	2					2	6.7	29	2					0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	15
2004	H&D - Plot 8	LUD MAR			2			2	6.7	29			1			1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	LUD OCT		3				3	10.0	25		1				1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	MUR NUD	3					3	10.0	25	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27

67

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range 1	2	3	4	5	6	7	Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	<1	1-10	10-30	30-50	50-70	70-90	>90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	H&D - Plot 8	OLD UNI	10	10	10			30	100.0	1	3	3	3			0	0	3	0	0	0	0	10.0	20.0	30.0	10.0	20.0	30.0	2
2004	H&D - Plot 8	PAN CHA			10			10	33.3	14			3			0	0	1	0	0	0	0	3.3	6.7	10.0	10.0	20.0	30.0	9
2004	H&D - Plot 8	PAS SET			6			6	20.0	17			2			0	1	0	0	0	0	0	0.3	1.7	3.3	1.0	5.0	10.0	15
2004	H&D - Plot 8	PHY NOD	1	2				3	10.0	25	1	1				2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	18
2004	H&D - Plot 8	POL PRO	6	10				16	53.3	9	2	2				0	2	0	0	0	0	0	0.7	3.3	6.7	1.0	5.0	10.0	13
2004	H&D - Plot 8	RHY FAS		3	4			7	23.3	15		1	1			2	0	0	0	0	0	0	0.1	0.3	0.7	0.1	0.5	1.0	18
2004	H&D - Plot 8	RHY MCC	2					2	6.7	29	1					1	0	0	0	0	0	0	0.0	0.2	0.3	0.1	0.5	1.0	27
2004	H&D - Plot 8	SAC IND	4	6	2			12	40.0	13	1	1	1			3	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	17
2004	H&D - Plot 8	SCO DUL	10	10	2			22	73.3	5	3	3	1			1	0	2	0	0	0	0	6.7	13.5	20.3	6.7	13.5	20.3	4
2004	H&D - Plot 8	SET PAR	10	6				16	53.3	9	3	2				0	1	1	0	0	0	0	3.7	8.3	13.3	5.5	12.5	20.0	7
2004	Seeded - 1	BAR GRO	10	10	10	10	10	50	100.0		2	2	2	2	1	1	4	0	0	0	0	0	0.8	4.1	8.2	0.8	4.1	8.2	
2004	Seeded - 1	AND GCP	2	4	4	3	4	17	34.0	13	1	1	1	2	1	4	1	0	0	0	0	0	0.3	1.4	2.8	0.3	1.4	2.8	19
2004	Seeded - 1	AND GLA			2			2	4.0	34			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	AND HIR				4		4	8.0	29				2		0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	26
2004	Seeded - 1	AND VIR	10	8	10	10	10	48	96.0	3	2	3	3	3	3	0	1	4	0	0	0	0	8.2	17.0	26.0	8.2	17.0	26.0	3
2004	Seeded - 1	AST DUM			1			1	2.0	43			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	AXO FIS	10	8	5	3	9	35	70.0	7	2	2	2	2	3	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	7
2004	Seeded - 1	BAC HAL	1			2		3	6.0	31	1			1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	32
2004	Seeded - 1	BAC MON		1				1	2.0	43		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	BIG NUD			1			1	2.0	43			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	CEN ASI	6		2	10	10	28	56.0	8	2		1	2	2	1	3	0	0	0	0	0	0.6	3.1	6.2	0.8	3.9	7.8	12
2004	Seeded - 1	COR FLO		1	1			2	4.0	34		1	1			2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	32
2004	Seeded - 1	COR LEA	1	7	2	4	2	16	32.0	14	1	2	1	2	1	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	15
2004	Seeded - 1	CRO ROT				2		2	4.0	34				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	CYN DAC		2				2	4.0	34		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	CYP POL	10	9	10	10	10	49	98.0	2	3	3	4	4	3	0	0	3	2	0	0	0	18.0	28.0	38.0	18.0	28.0	38.0	1
2004	Seeded - 1	DES TRI		9			9	18	36.0	12		3			3	0	0	2	0	0	0	0	4.0	8.0	12.0	10.0	20.0	30.0	7
2004	Seeded - 1	DIG SER				4	3	7	14.0	26				2	1	1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	23
2004	Seeded - 1	ELE ELA	2		2			4	8.0	29	2		1			1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	23
2004	Seeded - 1	EMI FOS	1					1	2.0	43	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	ERA ELL		6	8	8	4	26	52.0	9		2	2	3	2	0	3	1	0	0	0	0	2.6	7.0	12.0	3.3	8.8	15.0	10
2004	Seeded - 1	ERA SPE		5	1	10		16	32.0	14		2	1	3		1	1	1	0	0	0	0	2.2	5.1	8.2	3.7	8.5	13.7	11
2004	Seeded - 1	ERA VIR		2			4	6	12.0	27		1			2	1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	23
2004	Seeded - 1	EUP CAP	8	8	7	10	7	40	80.0	4	3	3	2	3	2	0	2	3	0	0	0	0	6.4	14.0	22.0	6.4	14.0	22.0	4
2004	Seeded - 1	EUP LEP				1		1	2.0	43				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	EUP MOH	1					1	2.0	43	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	EUP ROT		1				1	2.0	43		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	EUT CAR	2	3				5	10.0	28	2	2				0	2	0	0	0	0	0	0.4	2.0	4.0	1.0	5.0	10.0	18
2004	Seeded - 1	FIM DIC	6	9	8	10	4	37	74.0	6	2	3	2	2	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	7
2004	Seeded - 1	HYD UMB	1					1	2.0	43	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	HYP TET		1	2	3	2	8	16.0	24		1	1	1	2	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	20
2004	Seeded - 1	JUN MAR		1				1	2.0	43		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	KYL BRE	3	8		2		13	26.0	20	1	2		1		2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	21
2004	Seeded - 1	LIA SPI		2				2	4.0	34		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	LIN CRU				3		3	6.0	31				2		0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	26
2004	Seeded - 1	LUD ARC				2		2	4.0	34				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	LUD CUR	1	2				3	6.0	31	1	1				2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	32
2004	Seeded - 1	LUD MAR	4	1	5			10	20.0	22	1	1	1			3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	30
2004	Seeded - 1	LUD OCT	2	1	6			9	18.0	23	1	1	2			2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	21
2004	Seeded - 1	LUD REP		2				2	4.0	34		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	Seeded - 1	MUR NUD				2		2	4.0	34				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	OLD UNI	10	10	10	10	10	50	100.0	1	3	2	4	4	3	0	1	2	2	0	0	0	16.2	25.0	34.0	16.2	25.0	34.0	2
2004	Seeded - 1	PAN CHA	6	1		4	1	12	24.0	21	2	1		2	1	2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	17
2004	Seeded - 1	PHY NOD	1	2	4	8	1	16	32.0	14	1	1	2	2	1	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	15
2004	Seeded - 1	POL PRO		4		1	3	8	16.0	24		1		1	1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	30
2004	Seeded - 1	RHU COP		2				2	4.0	34		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	RHY FER				1		1	2.0	43				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	RUD HIR	4	10	10	8	6	38	76.0	5	2	4	2	2	2	0	4	0	1	0	0	0	6.8	12.0	18.0	6.8	12.0	18.0	5
2004	Seeded - 1	SAC IND	7	4	5	6	2	24	48.0	10	1	1	1	1	1	5	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	28
2004	Seeded - 1	SCO DUL	2	4	3	3	2	14	28.0	18	1	1	1	1	1	5	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	28
2004	Seeded - 1	SET PAR		7	1	5	8	21	42.0	11		2	1	2	2	1	3	0	0	0	0	0	0.6	3.1	6.2	0.8	3.9	7.8	12
2004	Seeded - 1	SOL VIA				1		1	2.0	43				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 1	SOR SEC	3	4	2	5		14	28.0	18	2	1	2	2		1	3	0	0	0	0	0	0.6	3.1	6.2	0.8	3.9	7.8	12
2004	Seeded - 1	SPO IND	6	5	2	3		16	32.0	14	3	3	1	2		1	1	2	0	0	0	0	4.2	9.1	14.2	5.3	11.4	17.8	6
2004	Seeded - 2	BAR GRO	10	10	10	10	10	50	100.0		2	2	3	1	2	1	3	1	0	0	0	0	2.6	7.1	12.2	2.6	7.1	12.2	
2004	Seeded - 2	AND BRA			1			1	2.0	48			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	AND GCP	4	2			5	11	22.0	19	2	2			2	0	3	0	0	0	0	0	0.6	3.0	6.0	1.0	5.0	10.0	12
2004	Seeded - 2	AND HIR	2					2	4.0	42	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	AND VIR	9	10	6	6	9	40	80.0	5	2	2	2	1	2	1	4	0	0	0	0	0	0.8	4.1	8.2	0.8	4.1	8.2	8
2004	Seeded - 2	AXO FIS	10	10	4	8	10	42	84.0	4	2	3	2	2	3	0	3	2	0	0	0	0	4.6	11.0	18.0	4.6	11.0	18.0	4
2004	Seeded - 2	AXO FUR			2			2	4.0	42			2			0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	29
2004	Seeded - 2	BAC HAL	1					1	2.0	48	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	BAC MON				2	1	3	6.0	37				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	38
2004	Seeded - 2	CEN ASI	10	8	4	5		27	54.0	6	3	2	2	1		1	2	1	0	0	0	0	2.4	6.1	10.2	3.0	7.6	12.8	7
2004	Seeded - 2	COR FLO			1	1		2	4.0	42			1	1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	38
2004	Seeded - 2	COR LEA	1	5	6	3		15	30.0	14	1	2	2	1		2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	17
2004	Seeded - 2	CYP POL	10	10	10	10	10	50	100.0	1	3	4	2	4	4	0	1	1	3	0	0	0	20.2	29.0	38.0	20.2	29.0	38.0	2
2004	Seeded - 2	CYP RET	5	2	6	3	3	19	38.0	11	2	1	2	1	1	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	15
2004	Seeded - 2	DES TRI	6	3	1	1		11	22.0	19	2	1	1	1		3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	19
2004	Seeded - 2	DIC POR		2		1		3	6.0	37		1		1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	38
2004	Seeded - 2	DIG SER	1		1	2		4	8.0	33	1		1	1		3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	35
2004	Seeded - 2	DIO VIR	1					1	2.0	48	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	ELE BAL				2		2	4.0	42				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	ELE ELA	2	1			2	5	10.0	30	2	2			2	0	3	0	0	0	0	0	0.6	3.0	6.0	1.0	5.0	10.0	12
2004	Seeded - 2	ELE MIC			7			7	14.0	28			3			0	0	1	0	0	0	0	2.0	4.0	6.0	10.0	20.0	30.0	10
2004	Seeded - 2	ERA ELL	6	5	4	8	4	27	54.0	6	2	2	2	3	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	6
2004	Seeded - 2	EUP CAP	9	9	7	10	9	44	88.0	3	2	3	3	3	3	0	1	4	0	0	0	0	8.2	17.0	26.0	8.2	17.0	26.0	3
2004	Seeded - 2	EUP ROT	2					2	4.0	42	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	FIM DIC		3	9	4	1	17	34.0	12		1	2	1	1	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	19
2004	Seeded - 2	HYD UMB					5	5	10.0	30					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	HYP CIS	4	2		1	3	10	20.0	21	2	1		1	1	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	19
2004	Seeded - 2	HYP TET		3	4		5	12	24.0	17		2	2		2	0	3	0	0	0	0	0	0.6	3.0	6.0	1.0	5.0	10.0	12
2004	Seeded - 2	JUN MAR			1	4		5	10.0	30			1	2		1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	26
2004	Seeded - 2	JUN SCI		8				8	16.0	25		2				0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	29
2004	Seeded - 2	KYL BRE		3	1	4	6	14	28.0	16		1	1	1	2	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	19
2004	Seeded - 2	LIA GRA	1					1	2.0	48	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	LIA SPI				1	2	3	6.0	37				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	38
2004	Seeded - 2	LIN CRU			4			4	8.0	33			2			0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	29
2004	Seeded - 2	LUD ARC	2			4		6	12.0	29	1			1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	38
2004	Seeded - 2	LUD MAR	2	7	4	3		16	32.0	13	1	2	1	1		3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	19

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10: 1	2	3	4	5	Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval: 1	2	3	4	5	Cover Category Number/Range: 1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Total Quadrat Area, Probable Percent Cover Range: Minimum	Average	Maximum	Total Occurrence Area, Probable Percent Cover Range: Minimum	Average	Maximum	Cover Rank
2004	Seeded - 2	LUD OCT	3	5	5	7	6	26	52.0	8	1	2	2	2	2	1	4	0	0	0	0	0	0.8	4.1	8.2	0.8	4.1	8.2	8
2004	Seeded - 2	LUD REP	2		4	1	5	12	24.0	17	1		2	1	1	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	19
2004	Seeded - 2	MAC LAT		1				1	2.0	48		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	MUR NUD			3			3	6.0	37			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	MYR CER		1				1	2.0	48		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	OLD UNI	10	10	10	10	10	50	100.0	1	4	4	4	6	5	0	0	0	3	1	1	0	42.0	52.0	62.0	42.0	52.0	62.0	1
2004	Seeded - 2	PAN CHA	3					3	6.0	37	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	29
2004	Seeded - 2	PAS SET			1			1	2.0	48			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	PHY NOD	4	2	2	2	5	15	30.0	14	2	1	1	1	2	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	15
2004	Seeded - 2	PIT GRA	1	3				4	8.0	33	1	2				1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	26
2004	Seeded - 2	PLU ROS					1	1	2.0	48					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	POL PRO		2	1	1		4	8.0	33		1	1	1		3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	35
2004	Seeded - 2	RHE MAR					1	1	2.0	48					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	RHY FER				3	6	9	18.0	23				1	2	1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	26
2004	Seeded - 2	RUD HIR	5		4	10	5	24	48.0	9	2		2	4	2	0	3	0	1	0	0	0	6.6	11.0	16.0	8.3	13.8	20.0	4
2004	Seeded - 2	SAB PAL	2					2	4.0	42	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	29
2004	Seeded - 2	SAC IND	2		3	3		8	16.0	25	1		1	1		3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	35
2004	Seeded - 2	SCO DUL	1	4	2	2	1	10	20.0	21	1	1	1	1	1	5	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	34
2004	Seeded - 2	SET PAR	5	3		5	8	21	42.0	10	2	2		2	2	0	4	0	0	0	0	0	0.8	4.0	8.0	1.0	5.0	10.0	10
2004	Seeded - 2	SOL STR	1					1	2.0	48	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 2	SOR SEC	5		4			9	18.0	23	2		2			0	2	0	0	0	0	0	0.4	2.0	4.0	1.0	5.0	10.0	18
2004	Seeded - 2	SPO IND	1	5	2			8	16.0	25	1	2	1			2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	25
2004	Seeded - 2	XYR AMB			1			1	2.0	48			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	43
2004	Seeded - 4	BAR GRO	10	10	10	10	10	50	100.0		2	3	2	1	2	1	3	1	0	0	0	0	2.6	7.1	12.2	2.6	7.1	12.2	
2004	Seeded - 4	AGA PUR			2			2	4.0	39			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	AND BRA		1				1	2.0	41		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	AND GCP	5	5	1	2	4	17	34.0	14	2	2	1	1	1	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	15
2004	Seeded - 4	AND VIR	10	10	10		4	34	68.0	6	3	3	2		2	0	2	2	0	0	0	0	4.4	10.0	16.0	5.5	12.5	20.0	5
2004	Seeded - 4	AST DUM	4				1	5	10.0	30	2				1	1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	23
2004	Seeded - 4	AXO FIS	10	10	10	10	8	48	96.0	3	2	3	3	3	3	0	1	4	0	0	0	0	8.2	17.0	26.0	8.2	17.0	26.0	3
2004	Seeded - 4	BAC HAL					1	1	2.0	41					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	BAC MON		3		1		4	8.0	31		1		1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	33
2004	Seeded - 4	CEN ASI	10	10	10	9	5	44	88.0	4	3	2	2	2	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	8
2004	Seeded - 4	CHA FAS				2	5	7	14.0	28				2	2	0	2	0	0	0	0	0	0.4	2.0	4.0	1.0	5.0	10.0	18
2004	Seeded - 4	COR LEA					1	1	2.0	41					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	CYN DAC				1		1	2.0	41				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	CYP POL	10	10	10	10	10	50	100.0	1	2	4	3	3	4	0	1	2	2	0	0	0	16.2	25.0	34.0	16.2	25.0	34.0	1
2004	Seeded - 4	CYP RET				7		7	14.0	28				2		0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	24
2004	Seeded - 4	DES TRI			2	7	1	10	20.0	23			1	2	1	2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	21
2004	Seeded - 4	DIG SER					3	3	6.0	36					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	ERA ELL	4		8	4	6	22	44.0	11	2		2	2	2	0	4	0	0	0	0	0	0.8	4.0	8.0	1.0	5.0	10.0	12
2004	Seeded - 4	ERA VIR	2	7		1		10	20.0	23	1	2		1		2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	21
2004	Seeded - 4	EUP CAP	8	9	6	8	9	40	80.0	5	2	3	1	3	3	1	1	3	0	0	0	0	6.2	13.1	20.2	6.2	13.1	20.2	4
2004	Seeded - 4	EUP LEP		3				3	6.0	36		2				0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	24
2004	Seeded - 4	EUT CAR	4	5	4	3	2	18	36.0	13	2	2	2	2	1	1	4	0	0	0	0	0	0.8	4.1	8.2	0.8	4.1	8.2	10
2004	Seeded - 4	FIM DIC	10	7	3	10	2	32	64.0	8	2	3	1	3	1	2	1	2	0	0	0	0	4.2	9.2	14.4	4.2	9.2	14.4	6
2004	Seeded - 4	HYD UMB		1	3	1	4	9	18.0	25		1	1	1	1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	26
2004	Seeded - 4	HYP CIS		1	3			4	8.0	31		1	1			2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	33
2004	Seeded - 4	HYP TET	5	3	2		3	13	26.0	18	2	1	1		1	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	19
2004	Seeded - 4	KYL BRE				4		4	8.0	31				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	Seeded - 4	LIA SPI		1				1	2.0	41		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	LUD ARC		1	2		5	8	16.0	26		1	1		1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	30
2004	Seeded - 4	LUD CUR		2				2	4.0	39		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	LUD MAR		1	2	5	3	11	22.0	21		1	1	1	1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	26
2004	Seeded - 4	LUD OCT	8	6	5	5	10	34	68.0	6	2	2	1	2	2	1	4	0	0	0	0	0	0.8	4.1	8.2	0.8	4.1	8.2	10
2004	Seeded - 4	LUD REP		4		4	3	11	22.0	21		1		2	2	1	2	0	0	0	0	0	0.4	2.1	4.2	0.7	3.5	7.0	17
2004	Seeded - 4	MAC LAT		1	2	5	5	13	26.0	18		1	1	2	1	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	19
2004	Seeded - 4	MYR CER	1					1	2.0	41	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	OLD UNI	10	10	10	10	10	50	100.0	1	3	3	3	3	4	0	0	4	1	0	0	0	14.0	24.0	34.0	14.0	24.0	34.0	2
2004	Seeded - 4	PAN CHA	2	5	2	1	3	13	26.0	18	1	2	1	1	2	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	15
2004	Seeded - 4	PAS SET					1	1	2.0	41					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	PHY NOD		3	1	5	5	14	28.0	17		1	1	1	1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	26
2004	Seeded - 4	PLU ROS		1				1	2.0	41		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	POL PRO		1		1	2	4	8.0	31		1		1	1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	30
2004	Seeded - 4	POL RUG			1			1	2.0	41			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	RHE MAR			1			1	2.0	41			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 4	RHY FAS	5	2	4	3	3	17	34.0	14	2	2	2	1	1	2	3	0	0	0	0	0	0.6	3.2	6.4	0.6	3.2	6.4	13
2004	Seeded - 4	RHY FER	10	6	4	3		23	46.0	10	3	3	1	1		2	0	2	0	0	0	0	4.0	8.2	12.4	5.1	10.3	15.5	7
2004	Seeded - 4	RUD HIR	4	5	5	3	3	20	40.0	12	2	2	2	1	1	2	3	0	0	0	0	0	0.6	3.2	6.4	0.6	3.2	6.4	13
2004	Seeded - 4	SAC IND				1	3	4	8.0	31				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	33
2004	Seeded - 4	SCO DUL	3	4		5	3	15	30.0	16	1	1		1	1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	26
2004	Seeded - 4	SET PAR	4	2		2		8	16.0	26	1	1		1		3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	30
2004	Seeded - 4	SOR SEC	7	3	2	7	5	24	48.0	9	3	2	1	2	2	1	3	1	0	0	0	0	2.6	7.1	12.2	2.6	7.1	12.2	9
2004	Seeded - 4	XYR BRE		2			1	3	6.0	36		1			1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	33
2004	Seeded - 5	BAR GRO	10	10	10	10	10	50	100.0		2	1	2	2	2	1	4	0	0	0	0	0	0.8	4.1	8.2	0.8	4.1	8.2	
2004	Seeded - 5	AND BRA			2			2	4.0	37			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	AND GCP	5		3	4	3	15	30.0	13	1		2	1	2	2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	13
2004	Seeded - 5	AND GLA			1			1	2.0	43			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	AND HIR			2			2	4.0	37			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	AND VIR	10	10	9	10	10	49	98.0	2	3	3	3	3	3	0	0	5	0	0	0	0	10.0	20.0	30.0	10.0	20.0	30.0	3
2004	Seeded - 5	ARI STR	2	1	2			5	10.0	26	1	1	1			3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	28
2004	Seeded - 5	AXO FIS	8	8	6	10	10	42	84.0	4	2	2	2	3	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	7
2004	Seeded - 5	AXO FUR					2	2	4.0	37					2	0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	21
2004	Seeded - 5	BAC HAL				1		1	2.0	43				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	CAR PAN					2	2	4.0	37					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	CEN ASI	5	5	2	10	4	26	52.0	9	1	2	1	2	1	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	12
2004	Seeded - 5	COR FLO	1			2		3	6.0	32	1			1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	31
2004	Seeded - 5	COR LEA	2			2		4	8.0	29	1			1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	31
2004	Seeded - 5	CYP POL	8	5	4	10	8	35	70.0	5	2	1	1	3	3	2	1	2	0	0	0	0	4.2	9.2	14.4	4.2	9.2	14.4	6
2004	Seeded - 5	CYP RET				4		4	8.0	29				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	DIC POR					1	1	2.0	43					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	DIG SER				9		9	18.0	19				2		0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	21
2004	Seeded - 5	ELE BAL	1		2			3	6.0	32	1		1			2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	31
2004	Seeded - 5	ELE ELA	3		2			5	10.0	26	2		2			0	2	0	0	0	0	0	0.4	2.0	4.0	1.0	5.0	10.0	14
2004	Seeded - 5	ERA ELL	6	7	8	9		30	60.0	8	2	2	2	4		0	3	0	1	0	0	0	6.6	11.0	16.0	8.3	13.8	20.0	4
2004	Seeded - 5	ERA VIR	2			4		6	12.0	22	1			2		1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	20
2004	Seeded - 5	EUP CAP	7	5	5	7	10	34	68.0	7	2	2	1	3	3	1	2	2	0	0	0	0	4.4	10.1	16.2	4.4	10.1	16.2	5
2004	Seeded - 5	EUP LEP	1					1	2.0	43	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	EUT CAR	1			4	3	8	16.0	20	1			2	1	2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	18
2004	Seeded - 5	FIM DIC				6		6	12.0	22				2		0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	21

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	Seeded - 5	HYD UMB			3			3	6.0	32			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	HYP CIS	1	3	2		6	12	24.0	15	1	1	1		2	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	15
2004	Seeded - 5	HYP TET	6	7	5	7	10	35	70.0	5	2	2	2	2	3	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	7
2004	Seeded - 5	LAC CAR	3	6	1			10	20.0	18	1	2	1			2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	18
2004	Seeded - 5	LIA SPI	1					1	2.0	43	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	LIN CRU	1					1	2.0	43	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	LUD ARC	2	2	2	3	2	11	22.0	17	1	1	1	1	1	5	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	25
2004	Seeded - 5	LUD CUR				1		1	2.0	43				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	LUD MAR	1	1	2		2	6	12.0	22	1	1	1		1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	26
2004	Seeded - 5	LUD OCT	4	6		8	4	22	44.0	10	1	1		2	1	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	15
2004	Seeded - 5	LUD REP		1				1	2.0	43		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	MAC LAT	1					1	2.0	43	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	MYR CER			1			1	2.0	43			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	OLD UNI	10	10	10	10	10	50	100.0	1	4	5	5	3	3	0	0	2	1	2	0	0	30.0	40.0	50.0	30.0	40.0	50.0	1
2004	Seeded - 5	PAN CHA	4	2	4	2	10	22	44.0	10	2	1	2	1	3	2	2	1	0	0	0	0	2.4	6.2	10.4	2.4	6.2	10.4	9
2004	Seeded - 5	PAS SET	2	2	2			6	12.0	22	1	1	1			3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	28
2004	Seeded - 5	PHY NOD				5	3	8	16.0	20				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	31
2004	Seeded - 5	PIT GRA	1		1			2	4.0	37	1		1			2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	31
2004	Seeded - 5	POL PRO	1			2	1	4	8.0	29	1			1	1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	28
2004	Seeded - 5	POL RUG				1		1	2.0	43				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	RHE MAR	2	1		1	1	5	10.0	26	1	1		1	1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	26
2004	Seeded - 5	RHY FAS			5	3	4	12	24.0	15			2	2	2	0	3	0	0	0	0	0	0.6	3.0	6.0	1.0	5.0	10.0	11
2004	Seeded - 5	RHY FER	10	10	10	9	10	49	98.0	2	4	5	3	3	2	0	1	2	1	1	0	0	20.2	29.0	38.0	20.2	29.0	38.0	2
2004	Seeded - 5	RUD HIR	4	3		4	2	13	26.0	14	2	1		1	1	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	15
2004	Seeded - 5	SAC IND					1	1	2.0	43					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	SCL RET					2	2	4.0	37					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	SCO DUL	2			1		3	6.0	32	1			1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	31
2004	Seeded - 5	SOL FIS					3	3	6.0	32					2	0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	21
2004	Seeded - 5	SOR SEC	8	6		1	4	19	38.0	12	3	2		1	2	1	2	1	0	0	0	0	2.4	6.1	10.2	3.0	7.6	12.8	10
2004	Seeded - 5	VIO LAN			1			1	2.0	43			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 5	XYR AMB			1			1	2.0	43			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	BAR GRO	10	10	10	10	10	50	100.0		2	2	2	3	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	
2004	Seeded - 6	AND HIR			2			2	4.0	36			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	AND VIR	10	10	8	2	7	37	74.0	9	2	3	2	1	2	1	3	1	0	0	0	0	2.6	7.1	12.2	2.6	7.1	12.2	10
2004	Seeded - 6	AST DUM				3	1	4	8.0	29				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	29
2004	Seeded - 6	AXO FIS	10	10	10	9		39	78.0	8	3	3	3	2		0	1	3	0	0	0	0	6.2	13.0	20.0	7.8	16.3	25.0	4
2004	Seeded - 6	BAC HAL	2					2	4.0	36	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	23
2004	Seeded - 6	BAC MON	2	4	5	1	1	13	26.0	21	1	1	2	1	1	4	1	0	0	0	0	0	0.3	1.4	2.8	0.3	1.4	2.8	21
2004	Seeded - 6	CEN ASI	10	10	10	10	9	49	98.0	2	3	3	2	2	2	0	3	2	0	0	0	0	4.6	11.0	18.0	4.6	11.0	18.0	5
2004	Seeded - 6	COR LEA				1		1	2.0	44				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	CUP CAR	1					1	2.0	44	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	CYN DAC			4	1	3	8	16.0	23			1	1	1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	27
2004	Seeded - 6	CYP POL	10	10	10	10	10	50	100.0	1	3	3	4	3	3	0	0	4	1	0	0	0	14.0	24.0	34.0	14.0	24.0	34.0	2
2004	Seeded - 6	CYP RET	1					1	2.0	44	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	CYP SUR	1		1			2	4.0	36	1		1			2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	29
2004	Seeded - 6	DES TRI	6		5	9	7	27	54.0	15	2		2	2	2	0	4	0	0	0	0	0	0.8	4.0	8.0	1.0	5.0	10.0	13
2004	Seeded - 6	DIO VIR					1	1	2.0	44					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	ELE ELA	2					2	4.0	36	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	ERA ATR	2					2	4.0	36	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	ERA ELL	6		5		7	18	36.0	18	2		2		2	0	3	0	0	0	0	0	0.6	3.0	6.0	1.0	5.0	10.0	15

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	Seeded - 6	ERA VIR		9	2	10		21	42.0	16		3	1	3		1	0	2	0	0	0	0	4.0	8.1	12.2	6.7	13.5	20.3	7
2004	Seeded - 6	ERY BAL				1		1	2.0	44				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	EUP CAP	10	7	8	8	8	41	82.0	5	3	2	2	2	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	8
2004	Seeded - 6	EUT CAR	1	1			1	3	6.0	32	2	1			1	2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	22
2004	Seeded - 6	FIM DIC	7	10	10	10	5	42	84.0	4	2	3	3	3	2	0	2	3	0	0	0	0	6.4	14.0	22.0	6.4	14.0	22.0	3
2004	Seeded - 6	FUI BRE		3				3	6.0	32		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	HYD UMB		1	3	1	1	6	12.0	25		1	1	1	1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	26
2004	Seeded - 6	HYP CIS	1	1				2	4.0	36	1	1				2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	29
2004	Seeded - 6	HYP TET	6					6	12.0	25	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	23
2004	Seeded - 6	JUN MAR		3	1			4	8.0	29		1	1			2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	29
2004	Seeded - 6	JUN MEG		1				1	2.0	44		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	JUN SCI			1		2	3	6.0	32			1		1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	29
2004	Seeded - 6	KYL BRE	3	7	4	5	2	21	42.0	16	1	1	1	1	1	5	0	0	0	0	0	0	0.1	0.5	1.0	0.1	0.5	1.0	25
2004	Seeded - 6	LIN CRU	6	1				7	14.0	24	1	1				2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	29
2004	Seeded - 6	LUD CUR	6	3	7		1	17	34.0	19	2	2	2		1	1	3	0	0	0	0	0	0.6	3.1	6.2	0.8	3.9	7.8	14
2004	Seeded - 6	LUD MAR	2		2		2	6	12.0	25	1		1		1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	27
2004	Seeded - 6	LUD OCT	7	6	10	10	8	41	82.0	5	2	2	3	2	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	8
2004	Seeded - 6	LUD REP		1				1	2.0	44		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	MAC LAT	3	1				4	8.0	29	1	1				2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	29
2004	Seeded - 6	MUR NUD				5		5	10.0	28				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	OLD UNI	10	10	8		6	34	68.0	10	3	3	2		2	0	2	2	0	0	0	0	4.4	10.0	16.0	5.5	12.5	20.0	6
2004	Seeded - 6	PAN CHA	2					2	4.0	36	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	PAS URV	8	4				12	24.0	22	2	2				0	2	0	0	0	0	0	0.4	2.0	4.0	1.0	5.0	10.0	20
2004	Seeded - 6	PHY NOD	9	6	4	6	3	28	56.0	14	2	2	1	1	1	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	16
2004	Seeded - 6	PLU ROS			1			1	2.0	44			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	POL PRO	7	9	4	7	7	34	68.0	10	2	3	2	1	2	1	3	1	0	0	0	0	2.6	7.1	12.2	2.6	7.1	12.2	10
2004	Seeded - 6	RHY FER		2				2	4.0	36		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	RHY MCC		1			2	3	6.0	32		1			1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	29
2004	Seeded - 6	RHY NIT			1			1	2.0	44			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 6	RUD HIR	6		2	3	6	17	34.0	19	2		1	1	2	2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	19
2004	Seeded - 6	SAC IND	10	7	4	6	5	32	64.0	12	2	2	1	1	1	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	16
2004	Seeded - 6	SCO DUL	2	5	8	8	7	30	60.0	13	1	1	2	1	2	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	16
2004	Seeded - 6	SET PAR	10	9	9	6	6	40	80.0	7	2	2	2	2	2	0	5	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	12
2004	Seeded - 6	SPO IND	4	9	10	10	10	43	86.0	3	2	3	3	4	5	0	1	2	1	1	0	0	20.2	29.0	38.0	20.2	29.0	38.0	1
2004	Seeded - 6	VIC ACU	1					1	2.0	44	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	37
2004	Seeded - 7	BAR GRO	10	10	10	10	10	50	100.0		2	2	2	1	2	1	4	0	0	0	0	0	0.8	4.1	8.2	0.8	4.1	8.2	
2004	Seeded - 7	AMP MUH	2		1	3		6	12.0	26	1		1	1		3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	28
2004	Seeded - 7	AND GCP		5	1		2	8	16.0	25		1	1		1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	28
2004	Seeded - 7	AND HIR	3					3	6.0	32	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	23
2004	Seeded - 7	AND VIR	10	7	10	10	10	47	94.0	4	3	2	3	3	2	0	2	3	0	0	0	0	6.4	14.0	22.0	6.4	14.0	22.0	3
2004	Seeded - 7	AST DUM			2			2	4.0	36			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	AXO FIS	10	10	10	10	10	50	100.0	1	3	3	3	3	2	0	1	4	0	0	0	0	8.2	17.0	26.0	8.2	17.0	26.0	1
2004	Seeded - 7	BAC MON	3	3	5	1	1	13	26.0	19	1	1	2	1	1	4	1	0	0	0	0	0	0.3	1.4	2.8	0.3	1.4	2.8	18
2004	Seeded - 7	BIG NUD	2					2	4.0	36	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	CEN ASI	10	9	10	10	10	49	98.0	3	2	2	3	3	3	0	2	3	0	0	0	0	6.4	14.0	22.0	6.4	14.0	22.0	3
2004	Seeded - 7	COR FLO					1	1	2.0	46					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	CYP POL	9	10	10	8	10	47	94.0	4	2	4	2	2	2	0	4	0	1	0	0	0	6.8	12.0	18.0	6.8	12.0	18.0	5
2004	Seeded - 7	CYP RET				1		1	2.0	46				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	DIO VIR				4		4	8.0	29				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	ELE BAL			1			1	2.0	46			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	Seeded - 7	ELE MIC			1			1	2.0	46			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	ERA ELL	2	3	2	6	7	20	40.0	13	1	1	1	2	2	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	12
2004	Seeded - 7	ERA VIR		6	5	4	3	18	36.0	15		2	2	1	1	2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	13
2004	Seeded - 7	ERY BAL		9		1	2	12	24.0	20		2		1	1	2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	21
2004	Seeded - 7	EUP CAP	5	3	5	8	8	29	58.0	10	2	2	2	3	3	0	3	2	0	0	0	0	4.6	11.0	18.0	4.6	11.0	18.0	6
2004	Seeded - 7	EUP LEP				2		2	4.0	36				2		0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	23
2004	Seeded - 7	EUT CAR	3		1	3	2	9	18.0	23	2		1	2	1	2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	13
2004	Seeded - 7	FIM AUT		1				1	2.0	46		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	FIM DIC	1	7	3	4	7	22	44.0	11	1	3	1	2	2	2	2	1	0	0	0	0	2.4	6.2	10.4	2.4	6.2	10.4	9
2004	Seeded - 7	FIM SCH				1		1	2.0	46				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	HYD UMB				4		4	8.0	29				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	HYP CIS	3	7		1		11	22.0	21	2	2		1		1	2	0	0	0	0	0	0.4	2.1	4.2	0.7	3.5	7.0	17
2004	Seeded - 7	HYP FAS	2					2	4.0	36	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	HYP TET		3	3		4	10	20.0	22		1	1		1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	28
2004	Seeded - 7	IVA MIC	3					3	6.0	32	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	23
2004	Seeded - 7	JUN MAR		2	1			3	6.0	32		1	1			2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	33
2004	Seeded - 7	KYL BRE		1				1	2.0	46		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	LIA SPI	2					2	4.0	36	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	LIN CRU	7	6		3	5	21	42.0	12	2	2		1	1	2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	13
2004	Seeded - 7	LIN GRA		1	2	2		5	10.0	27		1	1	1		3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	28
2004	Seeded - 7	LUD CUR	8	8	10	9	6	41	82.0	6	2	3	2	2	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	8
2004	Seeded - 7	LUD MAR		3				3	6.0	32		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	LUD OCT	8	9	9	8	7	41	82.0	6	2	2	2	2	2	0	5	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	10
2004	Seeded - 7	LUD REP	6	3	8	2		19	38.0	14	2	1	2	1		2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	13
2004	Seeded - 7	MEL COR	5					5	10.0	27	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	23
2004	Seeded - 7	MYR CER			2			2	4.0	36			2			0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	23
2004	Seeded - 7	OLD UNI	10	10	10	10	10	50	100.0	1	2	2	3	2	3	0	3	2	0	0	0	0	4.6	11.0	18.0	4.6	11.0	18.0	6
2004	Seeded - 7	PAS ACU	2					2	4.0	36	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	PHY NOD	6	3	2	4		15	30.0	16	2	1	1	1		3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	20
2004	Seeded - 7	PLU ROS	2					2	4.0	36	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	POL PRO		7	8	8	8	31	62.0	8		2	2	2	2	0	4	0	0	0	0	0	0.8	4.0	8.0	1.0	5.0	10.0	11
2004	Seeded - 7	RHE MAR				2		2	4.0	36				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	RHY FAS				2		2	4.0	36				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	RHY MCC	5	7	4	7	8	31	62.0	8	2	2	2	2	5	0	4	0	0	1	0	0	10.8	16.0	22.0	10.8	16.0	22.0	2
2004	Seeded - 7	RHY NIT			2	9	3	14	28.0	17			1	2	1	2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	21
2004	Seeded - 7	RUD HIR	1	3	1	3	6	14	28.0	17	1	1	1	1	2	4	1	0	0	0	0	0	0.3	1.4	2.8	0.3	1.4	2.8	18
2004	Seeded - 7	SAC IND		2		5	2	9	18.0	23		1		1	1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	28
2004	Seeded - 7	SAL CAR				1		1	2.0	46				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	35
2004	Seeded - 7	SCO DUL				2	2	4	8.0	29				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	33
2004	Seeded - 9	BAR GRO	10	10	10	10	10	50	100.0		1	2	1	1	2	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	
2004	Seeded - 9	AND GCP	2	3	4	5	6	20	40.0	12	1	1	2	1	2	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	14
2004	Seeded - 9	AND GLA					1	1	2.0	38					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	AND VIR	10	9	10	9	10	48	96.0	2	2	2	3	2	3	0	3	2	0	0	0	0	4.6	11.0	18.0	4.6	11.0	18.0	4
2004	Seeded - 9	AST DUM			2		1	3	6.0	27			1		1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	28
2004	Seeded - 9	AXO FIS	10	9	10	10	10	49	98.0	1	2	3	2	2	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	8
2004	Seeded - 9	BAC HAL		1		1		2	4.0	32		1		1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	28
2004	Seeded - 9	BAC MON				1		1	2.0	38				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	CAR PAN		1				1	2.0	38		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	CEN ASI	7	6	10	10	7	40	80.0	4	2	2	2	2	2	0	5	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	12
2004	Seeded - 9	CHA NIC			1			1	2.0	38			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	Seeded - 9	COR FLO			3	4	2	9	18.0	20			1	1	1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	23
2004	Seeded - 9	CRO ROT				1		1	2.0	38				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	CYP POL	9	9	4	8	9	39	78.0	6	2	2	2	3	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	8
2004	Seeded - 9	CYP RET		1				1	2.0	38		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	DES TRI	3	2		5	1	11	22.0	19	2	1		1	1	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	16
2004	Seeded - 9	DIC POR				1		1	2.0	38				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	DIG SER				1		1	2.0	38				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	ERA ELL	4		10		10	24	48.0	11	2		3		3	0	1	2	0	0	0	0	4.2	9.0	14.0	7.0	15.0	23.3	7
2004	Seeded - 9	ERA VIR	9	8		6	3	26	52.0	9	3	3		3	2	0	1	3	0	0	0	0	6.2	13.0	20.0	7.8	16.3	25.0	2
2004	Seeded - 9	EUP CAP	4	9	10	9	6	38	76.0	7	1	2	3	3	2	1	2	2	0	0	0	0	4.4	10.1	16.2	4.4	10.1	16.2	5
2004	Seeded - 9	EUP LEP			1			1	2.0	38			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	EUP MOH	1		1			2	4.0	32	1		1			2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	28
2004	Seeded - 9	EUT CAR	2					2	4.0	32	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	19
2004	Seeded - 9	FIM CAR		1				1	2.0	38		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	FIM DIC	10	4		2		16	32.0	14	3	1		1		2	0	1	0	0	0	0	2.0	4.2	6.4	3.4	7.0	10.7	13
2004	Seeded - 9	FIM SCH					1	1	2.0	38					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	HYP CIS	2	7		3		12	24.0	17	1	2		1		2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	18
2004	Seeded - 9	HYP TET	10	9	10	9	9	47	94.0	3	3	2	2	2	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	8
2004	Seeded - 9	LAC CAR	1			1		2	4.0	32	1			1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	28
2004	Seeded - 9	LIA GRA					1	1	2.0	38					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	LIA SPI					3	3	6.0	27					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	LIN CRU	1	1		1	2	5	10.0	25	1	1		1	1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	21
2004	Seeded - 9	LOB GLA			2			2	4.0	32			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	36
2004	Seeded - 9	LUD ARC		2		1		3	6.0	27		1		1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	28
2004	Seeded - 9	LUD MAR		3		3	3	9	18.0	20		1		1	1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	23
2004	Seeded - 9	LUD OCT	2	4		2		8	16.0	22	1	1		1		3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	23
2004	Seeded - 9	OLD UNI	10	10	10		10	40	80.0	4	5	4	5		4	0	0	0	2	2	0	0	32.0	40.0	48.0	40.0	50.0	60.0	1
2004	Seeded - 9	PHY NOD	3	5		3	2	13	26.0	15	1	1		1	1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	21
2004	Seeded - 9	PIT GRA				2	1	3	6.0	27				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	28
2004	Seeded - 9	POL PRO		1		1	2	4	8.0	26		1		1	1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	23
2004	Seeded - 9	RHE MAR			1	5		6	12.0	23			1	1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	28
2004	Seeded - 9	RHY FER		8	7	7	10	32	64.0	8		3	3	2	3	0	1	3	0	0	0	0	6.2	13.0	20.0	7.8	16.3	25.0	2
2004	Seeded - 9	RHY MCC	1	3	2			6	12.0	23	1	1	1			3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	23
2004	Seeded - 9	RUD HIR	4	4		4	7	19	38.0	13	2	1		1	3	2	1	1	0	0	0	0	2.2	5.2	8.4	2.8	6.5	10.5	11
2004	Seeded - 9	SAC IND				1	1	2	4.0	32				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	28
2004	Seeded - 9	SCO DUL	2	5	3	2		12	24.0	17	1	1	2	1		3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	16
2004	Seeded - 9	SET PAR	2	1	3	7		13	26.0	15	1	1	2	2		2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	15
2004	Seeded - 9	SOR SEC	2	4	7	5	7	25	50.0	10	2	1	3	2	3	1	2	2	0	0	0	0	4.4	10.1	16.2	4.4	10.1	16.2	5
2004	Seeded - 9	SPO IND	3					3	6.0	27	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	19
2004	Seeded - 10	BAR GRO	10	10	10	10	10	50	100.0		2	2	2	1	3	1	3	1	0	0	0	0	2.6	7.1	12.2	2.6	7.1	12.2	
2004	Seeded - 10	AND GCP	5	2	6	1	2	16	32.0	15	2	1	2	1	1	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	13
2004	Seeded - 10	AND HIR					4	4	8.0	31					2	0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	27
2004	Seeded - 10	AND PER			2			2	4.0	45			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	AND VIR	10	2	10	8	8	38	76.0	5	3	2	2	1	3	1	2	2	0	0	0	0	4.4	10.1	16.2	4.4	10.1	16.2	6
2004	Seeded - 10	ARI STR	3					3	6.0	38	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	AST DUM					1	1	2.0	52					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	AXO FIS	10	10	10	9	9	48	96.0	1	2	3	2	3	2	0	3	2	0	0	0	0	4.6	11.0	18.0	4.6	11.0	18.0	4
2004	Seeded - 10	BAC MON			3	4	3	10	20.0	20			1	1	1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	31
2004	Seeded - 10	BIG NUD	1					1	2.0	52	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	CEN ASI	10	10	10	6	4	40	80.0	3	4	3	3	2	2	0	2	2	1	0	0	0	10.4	18.0	26.0	10.4	18.0	26.0	2

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range 1	2	3	4	5	6	7	Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	<1	1-10	10-30	30-50	50-70	70-90	>90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	Seeded - 10	COR LEA		4				4	8.0	31		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	CYN DAC			1			1	2.0	52			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	CYP POL	10	7	4	4	7	32	64.0	7	3	2	2	2	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	7
2004	Seeded - 10	DIG SER	1					1	2.0	52	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	DIO VIR			3			3	6.0	38			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	ERA ELL	5	3	8	5	2	23	46.0	9	2	2	2	2	2	0	5	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	8
2004	Seeded - 10	ERA VIR				1	3	4	8.0	31				1	2	1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	24
2004	Seeded - 10	ERY BAL			1	2	1	4	8.0	31			1	1	1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	31
2004	Seeded - 10	EUP CAP	7	6	7	6	10	36	72.0	6	2	2	2	3	3	0	3	2	0	0	0	0	4.6	11.0	18.0	4.6	11.0	18.0	4
2004	Seeded - 10	EUP LEP	1					1	2.0	52	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	EUT CAR	4	2		3		9	18.0	21	2	1		1		2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	22
2004	Seeded - 10	FIM AUT		2		1		3	6.0	38		1		1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	36
2004	Seeded - 10	FIM DIC	2	5	10	5		22	44.0	11	1	1	2	2		2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	15
2004	Seeded - 10	FIM SCH			2	2		4	8.0	31			1	2		1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	24
2004	Seeded - 10	FUI BRE				3		3	6.0	38				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	GYM CHA	2					2	4.0	45	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	HYP CIS	2					2	4.0	45	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	27
2004	Seeded - 10	HYP TET	4	4				8	16.0	25	2	2				0	2	0	0	0	0	0	0.4	2.0	4.0	1.0	5.0	10.0	20
2004	Seeded - 10	JUN MAR					1	1	2.0	52					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	LAC CAR	4	4		1		9	18.0	21	2	2		1		1	2	0	0	0	0	0	0.4	2.1	4.2	0.7	3.5	7.0	17
2004	Seeded - 10	LIN CRU			7	6	10	23	46.0	9			1	1	2	2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	22
2004	Seeded - 10	LIN GRA			3			3	6.0	38			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	LUD ARC	4		2	1	2	9	18.0	21	1		1	1	1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	30
2004	Seeded - 10	LUD CUR	3	2	5	3	7	20	40.0	13	1	1	2	1	2	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	13
2004	Seeded - 10	LUD MAR	1		3		1	5	10.0	28	1		1		1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	31
2004	Seeded - 10	LUD OCT	10	7	10	10	10	47	94.0	2	2	2	2	2	2	0	5	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	8
2004	Seeded - 10	OLD UNI	10	10		10	10	40	80.0	3	4	3		3	3	0	0	3	1	0	0	0	12.0	20.0	28.0	15.0	25.0	35.0	1
2004	Seeded - 10	PAN DIC	2	3	4	5		14	28.0	17	2	2	2	2		0	4	0	0	0	0	0	0.8	4.0	8.0	1.0	5.0	10.0	10
2004	Seeded - 10	PAS SET	2					2	4.0	45	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	PAS URV				2		2	4.0	45				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	PHY NOD	2		3		2	7	14.0	26	1		1		1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	31
2004	Seeded - 10	PIT GRA			1			1	2.0	52			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	PLU ROS		1			2	3	6.0	38		1			1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	36
2004	Seeded - 10	POL PRO	2	3	5	3	5	18	36.0	14	2	1	2	1	2	2	3	0	0	0	0	0	0.6	3.2	6.4	0.6	3.2	6.4	11
2004	Seeded - 10	POL RUG		2				2	4.0	45		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 10	RHE MAR		1	3	10	8	22	44.0	11		1	1	2	2	2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	15
2004	Seeded - 10	RHY FAS	6	6	4			16	32.0	15	2	2	2			0	3	0	0	0	0	0	0.6	3.0	6.0	1.0	5.0	10.0	12
2004	Seeded - 10	RHY FER	7			4		11	22.0	19	2			1		1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	24
2004	Seeded - 10	RHY MCC	4					4	8.0	31	2					0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	27
2004	Seeded - 10	RHY NIT			10	10	10	30	60.0	8			3	3	3	0	0	3	0	0	0	0	6.0	12.0	18.0	10.0	20.0	30.0	3
2004	Seeded - 10	RUD HIR		2		3		5	10.0	28		1		1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	36
2004	Seeded - 10	SAC IND	3			1		4	8.0	31	1			1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	36
2004	Seeded - 10	SCO DUL	1	1	2	1	8	13	26.0	18	1	1	1	1	2	4	1	0	0	0	0	0	0.3	1.4	2.8	0.3	1.4	2.8	21
2004	Seeded - 10	SET PAR		2		1		3	6.0	38		1		1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	36
2004	Seeded - 10	SOL FIS	3			3	1	7	14.0	26	2			2	1	1	2	0	0	0	0	0	0.4	2.1	4.2	0.7	3.5	7.0	17
2004	Seeded - 10	SOR SEC		3	3		3	9	18.0	21		2	2		1	1	2	0	0	0	0	0	0.4	2.1	4.2	0.7	3.5	7.0	17
2004	Seeded - 10	XYR AMB	1	1			3	5	10.0	28	1	1			1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	31
2004	Seeded - 10	XYR BRE				2		2	4.0	45				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	41
2004	Seeded - 11	BAR GRO	10	10	10	10	10	50	100.0		2	2	2	1	1	2	3	0	0	0	0	0	0.6	3.2	6.4	0.6	3.2	6.4	
2004	Seeded - 11	AND BRA	7	2	5	6	2	22	44.0	9	2	2	2	2	1	1	4	0	0	0	0	0	0.8	4.1	8.2	0.8	4.1	8.2	10

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	Seeded - 11	AND GCP	10	10	8	4	10	42	84.0	5	2	4	3	2	3	0	2	2	1	0	0	0	10.4	18.0	26.0	10.4	18.0	26.0	4
2004	Seeded - 11	AND VIR	10	3	9	10	7	39	78.0	6	3	2	3	4	3	0	1	3	1	0	0	0	12.2	21.0	30.0	12.2	21.0	30.0	3
2004	Seeded - 11	AXO FIS	4	8	2			14	28.0	12	2	2	1			1	2	0	0	0	0	0	0.4	2.1	4.2	0.7	3.5	7.0	12
2004	Seeded - 11	BIG NUD			2			2	4.0	25			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	24
2004	Seeded - 11	CAL AME					2	2	4.0	25					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	24
2004	Seeded - 11	CEN ASI	5	1	6			12	24.0	13	1	1	1			3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	20
2004	Seeded - 11	CYP POL	10	10	10	10	10	50	100.0	1	3	2	3	2	2	0	3	2	0	0	0	0	4.6	11.0	18.0	4.6	11.0	18.0	7
2004	Seeded - 11	CYP RET				1		1	2.0	30				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	24
2004	Seeded - 11	DIC POR				3	2	5	10.0	18				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	21
2004	Seeded - 11	ELE BAL	2	8	3		5	18	36.0	11	1	2	1		1	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	16
2004	Seeded - 11	EUP CAP	4	9	7	10	8	38	76.0	7	2	3	3	3	3	0	1	4	0	0	0	0	8.2	17.0	26.0	8.2	17.0	26.0	5
2004	Seeded - 11	EUP LEP	7		3			10	20.0	15	2		2			0	2	0	0	0	0	0	0.4	2.0	4.0	1.0	5.0	10.0	13
2004	Seeded - 11	EUT CAR	8	9	5	5	3	30	60.0	8	2	3	3	3	2	0	2	3	0	0	0	0	6.4	14.0	22.0	6.4	14.0	22.0	6
2004	Seeded - 11	HYP CIS		2		3		5	10.0	18		1		2		1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	18
2004	Seeded - 11	HYP HYP		1	3	1		5	10.0	18		1	2	1		2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	17
2004	Seeded - 11	HYP TET				3		3	6.0	23				2		0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	19
2004	Seeded - 11	LIA SPI	2		1			3	6.0	23	1		1			2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	21
2004	Seeded - 11	LUD ARC	4					4	8.0	21	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	24
2004	Seeded - 11	LUD MAR					2	2	4.0	25					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	24
2004	Seeded - 11	LYO FRU					1	1	2.0	30					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	24
2004	Seeded - 11	MAR TEN	2					2	4.0	25	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	24
2004	Seeded - 11	OLD UNI	10	10	10	10	10	50	100.0	1	6	5	3	6	5	0	0	1	0	2	2	0	50.0	60.0	70.0	50.0	60.0	70.0	1
2004	Seeded - 11	PAN ANC				2		2	4.0	25				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	24
2004	Seeded - 11	PAN CHA	1		2	10	9	22	44.0	9	1		1	5	5	2	0	0	0	2	0	0	20.0	24.2	28.4	25.1	30.3	35.5	2
2004	Seeded - 11	PAS SET	1	2	1	2	6	12	24.0	13	1	1	1	1	2	4	1	0	0	0	0	0	0.3	1.4	2.8	0.3	1.4	2.8	15
2004	Seeded - 11	PIT GRA	1		1	2	4	8	16.0	16	1		1	2	2	2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	11
2004	Seeded - 11	POL RUG				2	2	4	8.0	21				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	21
2004	Seeded - 11	RHY FER	10	10	5	10	9	44	88.0	4	2	2	2	2	2	0	5	0	0	0	0	0	1.0	5.0	10.0	1.0	5.0	10.0	9
2004	Seeded - 11	RUD HIR	1					1	2.0	30	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	24
2004	Seeded - 11	SOL FIS		4		4		8	16.0	16		2		2		0	2	0	0	0	0	0	0.4	2.0	4.0	1.0	5.0	10.0	13
2004	Seeded - 11	SOR SEC	10	10	10	10	9	49	98.0	3	2	2	2	2	3	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	8
2004	Seeded - 12	BAR GRO	10	10	10	10	10	50	100.0		2	3	1	2	2	1	3	1	0	0	0	0	2.6	7.1	12.2	2.6	7.1	12.2	
2004	Seeded - 12	AND BRA		2			1	3	6.0	28		1			1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	27
2004	Seeded - 12	AND GCP	3	4	3	7	2	19	38.0	9	2	1	2	2	1	2	3	0	0	0	0	0	0.6	3.2	6.4	0.6	3.2	6.4	8
2004	Seeded - 12	AND VIR	10	10	8	10	9	47	94.0	3	3	2	2	2	2	0	4	1	0	0	0	0	2.8	8.0	14.0	2.8	8.0	14.0	4
2004	Seeded - 12	AXO FIS	3	5		2	3	13	26.0	14	2	2		1	1	2	2	0	0	0	0	0	0.4	2.2	4.4	0.6	2.8	5.5	12
2004	Seeded - 12	AXO FUR	2					2	4.0	31	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	BAC HAL				1		1	2.0	39				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	CAR PAN	1		1			2	4.0	31	1		1			2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	27
2004	Seeded - 12	CEN ASI	10	7	2	3	6	28	56.0	6	2	1	1	1	2	3	2	0	0	0	0	0	0.5	2.3	4.6	0.5	2.3	4.6	11
2004	Seeded - 12	COR LEA	2	1		1		4	8.0	26	1	1		2		2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	17
2004	Seeded - 12	CRO ROT			2			2	4.0	31			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	CYP POL	10	10	10	10	10	50	100.0	1	2	4	6	3	6	0	1	1	1	0	2	0	36.2	45.0	54.0	36.2	45.0	54.0	1
2004	Seeded - 12	CYP RET		5	3	4	4	16	32.0	10		1	1	1	1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	23
2004	Seeded - 12	DES TRI	3			4	7	14	28.0	11	1			2	2	1	2	0	0	0	0	0	0.4	2.1	4.2	0.7	3.5	7.0	13
2004	Seeded - 12	DIC POR	4				2	6	12.0	22	1				1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	27
2004	Seeded - 12	DIG SER	1			1		2	4.0	31	1			1		2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	27
2004	Seeded - 12	ELE BAL			1			1	2.0	39			1			1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	ELE ELA	2	2	4	2	3	13	26.0	14	2	1	2	2	2	1	4	0	0	0	0	0	0.8	4.1	8.2	0.8	4.1	8.2	7
2004	Seeded - 12	ERA ELL	5	4	1		3	13	26.0	14	2	1	1		1	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	15

Appendix A. Original Data and Quadrat Summary Statistics by Year and Treatment.

Year	Quadrat	Species Code	Frequency per Interval n=10					Total Fre-quency	Relative Fre-quency	Fre-quency Rank	Cover Category per Interval					Cover Category Number/Range							Total Quadrat Area Probable Percent Cover Range			Total Occurrence Area Probable Percent Cover Range			Cover Rank
			1	2	3	4	5				1	2	3	4	5	1 <1	2 1-10	3 10-30	4 30-50	5 50-70	6 70-90	7 >90	Minimum	Average	Maximum	Minimum	Average	Maximum	
2004	Seeded - 12	ERA VIR				1	3	4	8.0	26				1	1	2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	27
2004	Seeded - 12	EUP CAP	7	10	9	9	9	44	88.0	4	2	3	3	3	3	0	1	4	0	0	0	0	8.2	17.0	26.0	8.2	17.0	26.0	3
2004	Seeded - 12	EUP LEP		2	1		2	5	10.0	24		1	1		1	3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	25
2004	Seeded - 12	EUT CAR				3		3	6.0	28				2		0	1	0	0	0	0	0	0.2	1.0	2.0	1.0	5.0	10.0	22
2004	Seeded - 12	HYD UMB	2					2	4.0	31	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	HYP CIS	2	5			1	8	16.0	18	2	2			1	1	2	0	0	0	0	0	0.4	2.1	4.2	0.7	3.5	7.0	13
2004	Seeded - 12	HYP TET	2	6	4	6	8	26	52.0	7	1	2	2	1	2	2	3	0	0	0	0	0	0.6	3.2	6.4	0.6	3.2	6.4	8
2004	Seeded - 12	LUD ARC					1	1	2.0	39					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	LUD MAR			2		7	9	18.0	17			1		2	1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	20
2004	Seeded - 12	LUD OCT	3	1		4		8	16.0	18	1	1		1		3	0	0	0	0	0	0	0.1	0.3	0.6	0.1	0.5	1.0	25
2004	Seeded - 12	MIK SCA		1				1	2.0	39		1				1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	OLD UNI	10	10	10	10	10	50	100.0	1	5	3	4	3	4	0	0	2	2	1	0	0	26.0	36.0	46.0	26.0	36.0	46.0	2
2004	Seeded - 12	PAN CHA	7	5	3	3	6	24	48.0	8	2	1	1	2	2	2	3	0	0	0	0	0	0.6	3.2	6.4	0.6	3.2	6.4	8
2004	Seeded - 12	PAS NOT					1	1	2.0	39					1	1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	PAS SET		1	1	4	1	7	14.0	21		1	1	1	1	4	0	0	0	0	0	0	0.1	0.4	0.8	0.1	0.5	1.0	23
2004	Seeded - 12	PHY NOD	1	1				2	4.0	31	1	1				2	0	0	0	0	0	0	0.0	0.2	0.4	0.1	0.5	1.0	27
2004	Seeded - 12	PIT GRA	2		4	2		8	16.0	18	1		2	1		2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	17
2004	Seeded - 12	POL PRO	2					2	4.0	31	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	RHY FER	1	2		9	2	14	28.0	11	1	1		3	1	3	0	1	0	0	0	0	2.1	4.3	6.6	2.6	5.4	8.3	6
2004	Seeded - 12	RHY MCC				2		2	4.0	31				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	RUD HIR	8	2		1	3	14	28.0	11	2	1		1	1	3	1	0	0	0	0	0	0.3	1.3	2.6	0.3	1.6	3.3	15
2004	Seeded - 12	SCO DUL	1					1	2.0	39	1					1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	SET PAR		3			3	6	12.0	22		2			1	1	1	0	0	0	0	0	0.2	1.1	2.2	0.6	2.8	5.5	20
2004	Seeded - 12	SOL FIS	1	3	1			5	10.0	24	1	2	1			2	1	0	0	0	0	0	0.2	1.2	2.4	0.4	2.0	4.0	17
2004	Seeded - 12	SOL STR				3		3	6.0	28				1		1	0	0	0	0	0	0	0.0	0.1	0.2	0.1	0.5	1.0	33
2004	Seeded - 12	SOR SEC	7	5	8	6	7	33	66.0	5	3	1	2	1	2	2	2	1	0	0	0	0	2.4	6.2	10.4	2.4	6.2	10.4	5

APPENDIX B.

Pooled Treatment Statistics

Parameter	Description
Year	Year sampling was conducted
Treatment	Name of quadrat including code for type treatment then quadrat name or number.
Scientific Name	Genus and species from Wunderlin and Hansen 2003
Species Code	6 letter code, usually the first 3 letters of the Genus and first 3 letters of the species (If there are duplicate 6 letter codes for 2 different species, a unique code is was created.
Relative Frequency	Total frequency for a species divided by the total number of possible sub-intervals in the entire treatment
Frequency Rank	Ranking for a given species based on its total frequency within the treatment
# Quads Occurrence	The number of quadrats that contained this species. All Treatments had 3 quadrats except Seeded, which had 5 quadrats
Total Quadrat Area Average Cover	Average percent cover for all quadrats in the Treatment. Same metric as Summary Statistics "Total Quadrat Area Probable Percent Cover Range - Average", estimating the whole population.
Cover Rank	Ranking for a given species based on its Total Quadrat Area average percent cover

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2003	Control	BARE GROUND	BAR GRO	100.0	---	3	16.7	---
2003	Control	Andropogon glomeratus	AND GCP	4.4	15	1	2.3	8
2003	Control	Andropogon virginicus	AND VIR	10.0	7	1	3.3	7
2003	Control	Axonopus fissifolius	AXO FIS	21.1	4	3	4.1	6
2003	Control	Buchnera americana	BUC AME	2.2	19	1	0.1	19
2003	Control	Centella asiatica	CEN ASI	43.3	3	3	6.7	3
2003	Control	Chamaecrista fasciculata	CHA FAS	1.1	25	1	0.1	19
2003	Control	Cirsium nuttallii	CIR NUT	1.1	25	1	0.1	19
2003	Control	Cynodon dactylon	CYN DAC	2.2	19	2	0.1	19
2003	Control	Cyperus sp.	CYP SP.	63.3	2	3	7.9	2
2003	Control	Desmodium incanum	DES INC	7.8	10	2	1.1	11
2003	Control	Desmodium triflorum	DES TRI	6.7	11	2	0.2	18
2003	Control	Diodia virginiana	DIO VIR	5.6	14	2	0.6	12
2003	Control	Erechtites hieraciifolius	ERE HIE	2.2	19	2	0.1	19
2003	Control	Eupatorium capillifolium	EUP CAP	2.2	19	1	0.1	19
2003	Control	Fimbristylis autumnalis	FIM AUT	4.4	15	1	0.6	12
2003	Control	Fuirena scirpoidea	FUI SCI	3.3	17	1	0.6	12
2003	Control	Oldenlandia uniflora	HED UNI	2.2	19	2	0.1	19
2003	Control	Ipomoea sagittata	IPO SAG	6.7	1	1	0.6	12
2003	Control	Ludwigia maritima	LUD MAR	1.1	25	1	0.1	19
2003	Control	Ludwigia octovalvis	LUD OCT	1.1	25	1	0.1	19
2003	Control	Myrica cerifera	MYR CER	10.0	7	1	6.7	3
2003	Control	Ophioglossum nudicaule	OPH NUD	2.2	19	1	0.1	19
2003	Control	Paspalum notatum	PAS NOT	95.6	1	3	64.4	1
2003	Control	Paspalum setaceum	PAS SET	3.3	17	1	0.6	12
2003	Control	Phyla nodiflora	PHY NOD	16.7	6	1	1.7	9
2003	Control	Rhynchospora fascicularis	RHY FAS	6.7	1	1	0.6	12
2003	Control	Setaria parviflora	SET GEN	10.0	7	2	1.2	10
2003	Control	Sporobolus indicus	SPO IND	18.9	5	2	5.1	5
2003	Control	Vicia acutifolia	VIC ACU	1.1	25	1	0.1	19
2003	Disked	BARE GROUND	BAR GRO	100.0	---	3	21.7	---
2003	Disked	Amphicarpum muhlenbergianum	AMP MUH	5.6	10	1	0.1	16
2003	Disked	Andropogon virginicus	AND VIR	11.1	6	2	3.3	5
2003	Disked	Axonopus fissifolius	AXO FIS	35.6	4	3	6.3	3
2003	Disked	Centella asiatica	CEN ASI	43.3	3	3	4.6	4
2003	Disked	Cuphea carthagenensis	CUP CAR	2.2	18	1	0.1	16
2003	Disked	Cyperus sp.	CYP SP.	65.6	2	3	10.6	2
2003	Disked	Desmodium incanum	DES INC	7.8	8	1	0.6	10
2003	Disked	Desmodium triflorum	DES TRI	4.4	11	1	0.1	16

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2003	Disked	Diodia virginiana	DIO VIR	4.4	11	1	0.6	10
2003	Disked	Erechtites hieraciifolius	ERE HIE	1.1	21	1	0.1	16
2003	Disked	Eupatorium capillifolium	EUP CAP	4.4	11	2	0.2	15
2003	Disked	Euthamia caroliniana	EUT CAR	3.3	16	1	0.6	10
2003	Disked	Fimbristylis autumnalis	FIM AUT	7.8	8	2	0.7	9
2003	Disked	Fimbristylis dichotoma	FIM DIC	4.4	11	1	1.1	8
2003	Disked	Oldenlandia uniflora	HED UNI	1.1	21	1	0.1	16
2003	Disked	Ludwigia maritima	LUD MAR	3.3	16	2	0.1	16
2003	Disked	Paspalum notatum	PAS NOT	100.0	1	3	66.7	1
2003	Disked	Paspalum setaceum	PAS SET	2.2	18	1	0.6	10
2003	Disked	Phyla nodiflora	PHY NOD	11.1	6	2	2.8	6
2003	Disked	Pluchea rosea	PLU ROS	2.2	18	2	0.1	16
2003	Disked	Rhynchospora fascicularis	RHY FAS	4.4	11	1	0.6	10
2003	Disked	Setaria parviflora	SET GEN	15.6	5	1	1.2	7
2003	Herb & Disked	BARE GROUND	BAR GRO	100.0	---	3	19.4	---
2003	Herb & Disked	Amphicarpum muhlenbergianum	AMP MUH	1.1	19	1	0.1	13
2003	Herb & Disked	Andropogon glomeratus	AND GCP	6.7	9	1	2.2	5
2003	Herb & Disked	Axonopus fissifolius	AXO FIS	8.9	6	2	2.3	4
2003	Herb & Disked	Centella asiatica	CEN ASI	56.7	3	3	11.7	2
2003	Herb & Disked	Cyperus sp.	CYP SP.	60.0	2	3	8.5	3
2003	Herb & Disked	Desmodium incanum	DES INC	3.3	13	1	0.6	9
2003	Herb & Disked	Desmodium triflorum	DES TRI	8.9	6	2	0.2	12
2003	Herb & Disked	Emilia fosbergii	EMI FOS	3.3	13	1	0.1	13
2003	Herb & Disked	Erechtites hieraciifolius	ERE HIE	1.1	19	1	0.1	13
2003	Herb & Disked	Eupatorium capillifolium	EUP CAP	6.7	9	1	0.1	13
2003	Herb & Disked	Euthamia caroliniana	EUT CAR	10.0	5	1	2.2	5
2003	Herb & Disked	Oldenlandia uniflora	HED UNI	6.7	9	1	0.1	13
2003	Herb & Disked	Ludwigia octovalvis	LUD OCT	2.2	16	1	0.1	13
2003	Herb & Disked	Myrica cerifera	MYR CER	11.1	4	1	2.2	5
2003	Herb & Disked	Paspalum notatum	PAS NOT	100.0	1	3	66.1	1
2003	Herb & Disked	Paspalum setaceum	PAS SET	2.2	16	2	0.1	13
2003	Herb & Disked	Phyla nodiflora	PHY NOD	4.4	12	1	0.6	9
2003	Herb & Disked	Pluchea rosea	PLU ROS	2.2	16	1	0.6	9
2003	Herb & Disked	Rhynchospora fascicularis	RHY FAS	7.8	8	3	0.7	8
2003	Herb & Disked	Sacciolepis indica	SAC IND	1.1	19	1	0.1	13
2003	Herb & Disked	Setaria parviflora	SET GEN	3.3	13	1	0.1	13
2003	Herbicided	BARE GROUND	BAR GRO	100.0	---	3	28.9	---
2003	Herbicided	Amphicarpum muhlenbergianum	AMP MUH	2.2	11	2	0.1	12

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Frequency	Frequency Rank	# Quads Occurrence	Total Quadrat Average Cover	Cover Rank
2003	Herbicided	Andropogon glomeratus	AND GCP	4.4	9	2	0.6	9
2003	Herbicided	Andropogon virginicus	AND VIR	11.1	7	2	2.8	3
2003	Herbicided	Axonopus fissifolius	AXO FIS	10.0	8	2	1.2	6
2003	Herbicided	Centella asiatica	CEN ASI	63.3	2	3	11.7	2
2003	Herbicided	Cyperus sp.	CYP SP.	24.4	3	3	1.2	6
2003	Herbicided	Eleocharis baldwinii	ELE BAL	1.1	15	1	0.1	12
2003	Herbicided	Eleocharis sp.	ELE SP.	2.2	11	1	0.6	9
2003	Herbicided	Euthamia caroliniana	EUT CAR	16.7	5	1	2.8	3
2003	Herbicided	Fimbristylis dichotoma	FIM DIC	1.1	15	1	0.1	12
2003	Herbicided	Fuirena scirpoidea	FUI SCI	18.9	4	2	2.8	3
2003	Herbicided	Juncus scirpoides	JUN SCI	2.2	11	1	0.1	12
2003	Herbicided	Ludwigia maritima	LUD MAR	2.2	11	1	0.1	12
2003	Herbicided	Paspalum notatum	PAS NOT	100.0	1	3	60.0	1
2003	Herbicided	Pluchea rosea	PLU ROS	1.1	15	1	0.1	12
2003	Herbicided	Rhynchospora fascicularis	RHY FAS	16.7	5	3	1.2	6
2003	Herbicided	Sporobolus indicus	SPO IND	4.4	9	1	0.6	9
2003	Seeded	BARE GROUND	BAR GRO	100.0	---	4	21.8	---
2003	Seeded	Andropogon glomeratus	AND GCP	5.5	6	3	1.3	6
2003	Seeded	Andropogon virginicus	AND VIR	11.5	4	4	1.2	7
2003	Seeded	Axonopus fissifolius	AXO FIS	11.0	5	4	1.9	5
2003	Seeded	Axonopus furcatus	AXO FUR	1.0	15	1	0.03	18
2003	Seeded	Centella asiatica	CEN ASI	38.5	3	4	8.6	2
2003	Seeded	Cynodon dactylon	CYN DAC	5.0	7	1	2.0	4
2003	Seeded	Cyperus sp.	CYP SP.	55.5	2	4	4.8	3
2003	Seeded	Desmodium incanum	DES INC	1.0	15	1	0.3	10
2003	Seeded	Desmodium triflorum	DES TRI	1.0	15	2	0.3	10
2003	Seeded	Eleocharis baldwinii	ELE BAL	0.5	20	1	0.03	18
2003	Seeded	Emilia fosbergii	EMI FOS	0.5	20	1	0.03	18
2003	Seeded	Erechtites hieraciifolius	ERE HIE	3.5	9	1	0.3	10
2003	Seeded	Euthamia caroliniana	EUT CAR	0.5	20	1	0.03	18
2003	Seeded	Ipomoea sagittata	IPO SAG	0.5	20	1	0.03	18
2003	Seeded	Ludwigia palustris	LUD PAL	0.5	20	1	0.03	18
2003	Seeded	Ludwigia sp.	LUD SP.	1.0	15	1	0.1	17
2003	Seeded	Panicum hians	PAN HIA	1.5	13	1	0.3	10
2003	Seeded	Paspalum notatum	PAS NOT	99.5	1	4	68.8	1
2003	Seeded	Paspalum setaceum	PAS SET	2.0	12	1	0.3	10
2003	Seeded	Phyla nodiflora	PHY NOD	4.5	8	2	0.3	10
2003	Seeded	Rhynchospora fascicularis	RHY FAS	1.0	15	1	0.03	18
2003	Seeded	Rhynchospora microcarpa	RHY MCC	1.5	13	1	0.3	10

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2003	Seeded	Schizachyrium scoparium	SCH SCO	2.5	11	1	1.0	8
2003	Seeded	Scleria ciliata	SCL CIL	3.0	10	1	1.0	8
2003	Seeded	Spiranthes vernalis	SPI VER	0.5	20	1	0.03	18
2003	Seeded	Sporobolus indicus	SPO IND	0.5	20	1	0.03	18
2004	Control	BARE GROUND	BAR GRO	100.0	---	3	16.7	---
2004	Control	Amphicarpum muhlenbergianum	AMP MUH	3.3	22	1	0.1	26
2004	Control	Andropogon glomeratus	AND GCP	4.4	21	1	0.6	16
2004	Control	Andropogon virginicus	AND VIR	28.9	6	3	7.8	3
2004	Control	Axonopus fissifolius	AXO FIS	37.8	4	3	4.1	6
2004	Control	Centella asiatica	CEN ASI	61.1	2	3	2.9	7
2004	Control	Cyperus polystachyos	CYP POL	44.4	3	3	2.5	10
2004	Control	Cyperus retrorsus	CYP RET	1.1	29	1	0.1	26
2004	Control	Desmodium incanum	DES INC	1.1	29	1	0.1	26
2004	Control	Desmodium triflorum	DES TRI	28.9	7	3	8.4	2
2004	Control	Diodia virginiana	DIO VIR	2.2	25	1	0.6	16
2004	Control	Eleocharis baldwinii	ELE BAL	6.7	19	2	0.2	25
2004	Control	Erechtites hieraciifolius	ERE HIE	2.2	25	1	0.6	16
2004	Control	Euthamia caroliniana	EUT CAR	6.7	19	1	0.6	16
2004	Control	Fimbristylis dichotoma	FIM DIC	1.1	29	1	0.1	26
2004	Control	Fuirena scirpoidea	FUI SCI	7.8	17	1	0.6	16
2004	Control	Hydrocotyle umbellata	HYD UMB	16.7	12	2	0.7	14
2004	Control	Ipomoea sagittata	IPO SAG	7.8	17	3	0.7	14
2004	Control	Kyllinga brevifolia	KYL BRE	10.0	15	1	0.6	16
2004	Control	Leersia hexandra	LEE HEX	15.6	13	1	1.1	11
2004	Control	Ludwigia octovalvis	LUD OCT	3.3	22	1	0.1	26
2004	Control	Ludwigia sp.	LUD SP.	1.1	29	1	0.1	26
2004	Control	Macroptilium lathyroides	MAC LAT	1.1	29	1	0.1	26
2004	Control	Mikania scandens	MIK SCA	3.3	22	1	0.6	16
2004	Control	Murdannia nudiflora	MUR NUD	1.1	29	1	0.1	26
2004	Control	Myrica pusilla	MYR PUS	10.0	15	1	4.4	5
2004	Control	Oldenlandia uniflora	OLD UNI	24.4	8	3	0.8	12
2004	Control	Paspalum notatum	PAS NOT	97.8	1	3	70.6	1
2004	Control	Phyla nodiflora	PHY NOD	34.4	5	2	5.1	4
2004	Control	Rhynchospora fascicularis	RHY FAS	20.0	10	1	2.8	8
2004	Control	Sacciolepis indica	SAC IND	22.2	9	2	0.3	24
2004	Control	Scoparia dulcis	SCO DUL	2.2	25	1	0.6	16
2004	Control	Setaria parviflora	SET PAR	18.9	11	2	0.8	12
2004	Control	Sporobolus indicus	SPO IND	14.4	14	2	2.8	8

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2004	Control	Xyris ambigua	XYR AMB	2.2	25	1	0.1	26
2004	Disked	BARE GROUND	BAR GRO	100.0	---	3	16.7	---
2004	Disked	Andropogon glomeratus	AND GCP	16.7	18	1	1.1	18
2004	Disked	Andropogon virginicus	AND VIR	18.9	14	2	1.8	13
2004	Disked	Symphyotrichum dumosum	AST DUM	22.2	12	1	8.9	2
2004	Disked	Axonopus fissifolius	AXO FIS	17.8	16	3	1.3	15
2004	Disked	Axonopus furcatus	AXO FUR	13.3	23	2	0.7	20
2004	Disked	Bacopa monnieri	BAC MON	3.3	40	1	0.1	41
2004	Disked	Centella asiatica	CEN ASI	53.3	4	3	3.4	10
2004	Disked	Cuphea carthagenensis	CUP CAR	2.2	43	1	0.1	41
2004	Disked	Cynodon dactylon	CYN DAC	7.8	31	1	0.6	27
2004	Disked	Cyperus compressus	CYP COM	2.2	43	1	0.1	41
2004	Disked	Cyperus polystachyos	CYP POL	63.3	3	3	3.5	8
2004	Disked	Cyperus retrorsus	CYP RET	4.4	38	2	0.2	36
2004	Disked	Cyperus surinamensis	CYP SUR	2.2	43	1	0.1	41
2004	Disked	Desmodium triflorum	DES TRI	24.4	10	3	2.3	11
2004	Disked	Dichanthelium portoricense	DIC POR	2.2	43	2	0.1	41
2004	Disked	Diodia virginiana	DIO VIR	12.2	25	2	0.7	20
2004	Disked	Eleocharis baldwinii	ELE BAL	31.1	7	2	1.2	16
2004	Disked	Eleocharis microcarpa	ELE MIC	50.0	5	2	4.4	6
2004	Disked	Eleocharis sp. (viviparis type)	ELE Sp.	2.2	43	1	0.1	41
2004	Disked	Eragrostis atrovirens	ERA ATR	1.1	53	1	0.1	41
2004	Disked	Eupatorium capillifolium	EUP CAP	15.6	20	3	1.4	14
2004	Disked	Eupatorium leptophyllum	EUP LEP	3.3	40	1	0.1	41
2004	Disked	Euthamia caroliniana	EUT CAR	23.3	11	3	5.2	3
2004	Disked	Fimbristylis caroliniana	FIM CAR	2.2	43	1	0.1	41
2004	Disked	Fimbristylis dichotoma	FIM DIC	22.2	12	2	1.2	16
2004	Disked	Fimbristylis schoenoides	FIM SCH	8.9	29	2	0.2	36
2004	Disked	Fuirena breviseta	FUI BRE	5.6	35	1	0.6	27
2004	Disked	Hydrocotyle umbellata	HYD UMB	11.1	27	1	0.6	27
2004	Disked	Hypericum tetrapetalum	HYP TET	12.2	25	3	0.3	34
2004	Disked	Kyllinga brevifolia	KYL BRE	8.9	29	1	0.2	36
2004	Disked	Lindernia crustacea	LIN CRU	13.3	23	2	0.7	20
2004	Disked	Ludwigia curtissii	LUD CUR	11.1	27	2	0.7	20
2004	Disked	Ludwigia maritima	LUD MAR	4.4	38	2	0.6	27
2004	Disked	Ludwigia octovalvis	LUD OCT	30.0	8	3	3.5	8

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Frequency	Frequency Rank	# Quads Occurrence	Total Quadrat Average Cover	Cover Rank
2004	Disked	Mikania scandens	MIK SCA	2.2	43	1	0.6	27
2004	Disked	Murdannia nudiflora	MUR NUD	15.6	20	3	0.3	34
2004	Disked	Oldenlandia uniflora	OLD UNI	75.6	2	3	3.9	7
2004	Disked	Panicum chamaelonche	PAN CHA	5.6	35	2	0.2	36
2004	Disked	Paspalum distichum	PAS DCH	3.3	40	1	0.1	41
2004	Disked	Paspalum notatum	PAS NOT	100.0	1	3	68.9	1
2004	Disked	Paspalum setaceum	PAS SET	1.1	53	1	0.1	41
2004	Disked	Phyla nodiflora	PHY NOD	17.8	16	2	0.7	20
2004	Disked	Polypremum procumbens	POL PRO	6.7	32	3	0.2	36
2004	Disked	Polygala rugelii	POL RUG	1.1	53	1	0.1	41
2004	Disked	Polygala setacea	POL SET	1.1	53	1	0.1	41
2004	Disked	Rhexia mariana	RHE MAR	1.1	53	1	0.1	41
2004	Disked	Rhus copallinum	RHU COP	1.1	53	1	0.1	41
2004	Disked	Rhynchospora colorata	RHY COL	2.2	43	1	0.1	41
2004	Disked	Rhynchospora fascicularis	RHY FAS	35.6	6	2	5.1	4
2004	Disked	Rhynchospora microcarpa	RHY MCC	6.7	32	1	1.1	18
2004	Disked	Rhynchospora nitens	RHY NIT	6.7	32	1	0.6	27
2004	Disked	Rhynchospora sp.	RHY Sp.	2.2	43	1	0.6	27
2004	Disked	Sacciolepis indica	SAC IND	18.9	14	1	2.3	11
2004	Disked	Scoparia dulcis	SCO DUL	14.4	22	3	0.7	20
2004	Disked	Setaria parviflora	SET PAR	26.7	9	2	4.5	5
2004	Disked	Sporobolus indicus	SPO IND	2.2	43	1	0.1	41
2004	Disked	Urochloa sp.	URO Sp.	1.1	53	1	0.1	41
2004	Disked	Utricularia subulata	UTR SUB	5.6	35	1	0.1	41
2004	Disked	Xyris ambigua	XYR AMB	1.1	53	1	0.1	41
2004	Disked	Xyris brevifolia	XYR BRE	16.7	18	1	0.7	20
2004	Herb & Disked	BARE GROUND	BAR GRO	98.9	---	3	9.5	---
2004	Herb & Disked	Amphicarpum muhlenbergianum	AMP MUH	3.3	41	1	0.1	37
2004	Herb & Disked	Axonopus furcatus	AXO FUR	4.4	34	2	0.1	37
2004	Herb & Disked	Baccharis halimifolia	BAC HAL	4.4	34	2	0.2	32
2004	Herb & Disked	Bacopa monnieri	BAC MON	14.4	20	3	0.3	31
2004	Herb & Disked	Centella asiatica	CEN ASI	75.6	4	3	7.8	7
2004	Herb & Disked	Chamaecrista fasciculata	CHA FAS	4.4	34	1	0.1	37
2004	Herb & Disked	Crotalaria rotundifolia	CRO ROT	7.8	29	2	0.2	32
2004	Herb & Disked	Cynodon dactylon	CYN DAC	2.2	46	1	0.1	37
2004	Herb & Disked	Cyperus polystachyos	CYP POL	100.0	2	3	30.0	1
2004	Herb & Disked	Cyperus retrorsus	CYP RET	4.4	34	3	0.2	32

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2004	Herb & Disked	Desmodium incanum	DES INC	1.1	51	1	0.1	37
2004	Herb & Disked	Desmodium triflorum	DES TRI	67.8	5	3	10.6	5
2004	Herb & Disked	Dichanthelium portoricense	DIC POR	18.9	18	2	1.8	19
2004	Herb & Disked	Digitaria serotina	DIG SER	12.2	23	3	0.7	23
2004	Herb & Disked	Diodia virginiana	DIO VIR	8.9	28	3	0.7	23
2004	Herb & Disked	Eleocharis baldwinii	ELE BAL	14.4	20	1	1.1	22
2004	Herb & Disked	Eleocharis microcarpa	ELE MIC	11.1	24	1	2.2	18
2004	Herb & Disked	Eleocharis sp. (viviparis type)	ELE Sp.	4.4	34	1	0.1	37
2004	Herb & Disked	Eragrostis virginica	ERA VIR	5.6	31	2	0.7	23
2004	Herb & Disked	Eryngium baldwinii	ERY BAL	1.1	51	1	0.1	37
2004	Herb & Disked	Eupatorium capillifolium	EUP CAP	78.9	3	3	13.3	4
2004	Herb & Disked	Eupatorium leptophyllum	EUP LEP	31.1	15	3	3.4	14
2004	Herb & Disked	Euthamia caroliniana	EUT CAR	51.1	8	3	4.5	11
2004	Herb & Disked	Fimbristylis caroliniana	FIM CAR	4.4	34	1	0.6	27
2004	Herb & Disked	Fimbristylis dichotoma	FIM DIC	47.8	9	3	13.9	3
2004	Herb & Disked	Fimbristylis schoenoides	FIM SCH	4.4	34	1	0.1	37
2004	Herb & Disked	Hydrocotyle umbellata	HYD UMB	1.1	51	1	0.1	37
2004	Herb & Disked	Hypericum cistifolium	HYP CIS	1.1	51	1	0.1	37
2004	Herb & Disked	Hypericum tetrapetalum	HYP TET	34.4	14	3	4.5	11
2004	Herb & Disked	Juncus marginatus	JUN MAR	3.3	41	2	0.1	37
2004	Herb & Disked	Juncus scirpoides	JUN SCI	10.0	25	2	0.6	27
2004	Herb & Disked	Kyllinga brevifolia	KYL BRE	7.8	29	3	0.2	32
2004	Herb & Disked	Lachnanthes caroliniana	LAC CAR	3.3	41	1	0.1	37
2004	Herb & Disked	Lindernia crustacea	LIN CRU	27.8	17	3	1.3	20
2004	Herb & Disked	Ludwigia arcuata	LUD ARC	2.2	46	1	0.1	37
2004	Herb & Disked	Ludwigia curtissii	LUD CUR	3.3	41	2	0.6	27
2004	Herb & Disked	Ludwigia maritima	LUD MAR	5.6	31	3	0.2	32
2004	Herb & Disked	Ludwigia octovalvis	LUD OCT	46.7	11	3	4.6	10
2004	Herb & Disked	Ludwigia repens	LUD REP	10.0	25	2	1.2	21
2004	Herb & Disked	Macroptilium lathyroides	MAC LAT	1.1	51	1	0.1	37
2004	Herb & Disked	Mikania scandens	MIK SCA	2.2	46	1	0.1	37
2004	Herb & Disked	Murdannia nudiflora	MUR NUD	5.6	31	2	0.1	37
2004	Herb & Disked	Oldenlandia uniflora	OLD UNI	100.0	1	3	25.0	2
2004	Herb & Disked	Panicum chamaelonche	PAN CHA	35.6	13	2	7.2	8
2004	Herb & Disked	Paspalum notatum	PAS NOT	15.6	19	2	2.3	17

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2004	Herb & Disked	Paspalum setaceum	PAS SET	10.0	25	2	0.6	27
2004	Herb & Disked	Phyla nodiflora	PHY NOD	14.4	20	2	0.7	23
2004	Herb & Disked	Polypremum procumbens	POL PRO	47.8	9	3	2.9	15
2004	Herb & Disked	Rhexia mariana	RHE MAR	3.3	41	1	0.1	37
2004	Herb & Disked	Rhynchospora fascicularis	RHY FAS	38.9	12	3	3.5	13
2004	Herb & Disked	Rhynchospora microcarpa	RHY MCC	2.2	46	1	0.1	37
2004	Herb & Disked	Sacciolepis indica	SAC IND	30.0	16	2	2.9	15
2004	Herb & Disked	Scleria sp.	SCL SP.	1.1	51	1	0.1	37
2004	Herb & Disked	Scoparia dulcis	SCO DUL	61.1	6	3	9.6	6
2004	Herb & Disked	Setaria parviflora	SET PAR	58.9	7	3	5.8	9
2004	Herb & Disked	Utricularia subulata	UTR SUB	1.1	51	1	0.1	37
2004	Herb & Disked	Xyris ambigua	XYR AMB	1.1	51	1	0.1	37
2004	Herb & Disked	Xyris brevifolia	XYR BRE	2.2	46	1	0.1	37
2004	Herbicided	BARE GROUND	BAR GRO	100.0	---	3	27.2	---
2004	Herbicided	Andropogon glomeratus	AND GCP	74.4	4	3	16.1	3
2004	Herbicided	Andropogon virginicus	AND VIR	88.9	2	3	25.0	1
2004	Herbicided	Axonopus fissifolius	AXO FIS	41.1	11	3	3.4	10
2004	Herbicided	Baccharis halimifolia	BAC HAL	11.1	21	3	1.2	18
2004	Herbicided	Bacopa monnieri	BAC MON	1.1	48	1	0.1	43
2004	Herbicided	Centella asiatica	CEN ASI	67.8	6	3	7.9	5
2004	Herbicided	Conyza canadensis	CON CAN	3.3	41	1	0.6	28
2004	Herbicided	Crotalaria rotundifolia	CRO ROT	6.7	34	1	2.2	16
2004	Herbicided	Cyperus polystachyos	CYP POL	73.3	5	3	7.8	8
2004	Herbicided	Cyperus retrorsus	CYP RET	8.9	26	3	0.2	39
2004	Herbicided	Desmodium incanum	DES INC	1.1	48	1	0.1	43
2004	Herbicided	Desmodium triflorum	DES TRI	11.1	21	3	0.7	22
2004	Herbicided	Dichanthelium portoricense	DIC POR	17.8	15	3	3.4	10
2004	Herbicided	Digitaria serotina	DIG SER	6.7	34	2	0.7	22
2004	Herbicided	Diodia virginiana	DIO VIR	7.8	31	1	0.6	28
2004	Herbicided	Eleocharis microcarpa	ELE MIC	64.4	7	3	7.9	5
2004	Herbicided	Eragrostis virginica	ERA VIR	6.7	34	2	0.1	43
2004	Herbicided	Erechtites hieraciifolius	ERE HIE	1.1	48	1	0.1	43
2004	Herbicided	Eupatorium capillifolium	EUP CAP	43.3	9	3	7.9	5
2004	Herbicided	Eupatorium leptophyllum	EUP LEP	4.4	40	2	0.6	28
2004	Herbicided	Euthamia caroliniana	EUT CAR	83.3	3	3	21.2	2
2004	Herbicided	Fimbristylis autumnalis	FIM AUT	6.7	34	3	0.2	39
2004	Herbicided	Fimbristylis dichotoma	FIM DIC	12.2	18	3	2.5	12

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2004	Herbicided	Fimbristylis schoenoides	FIM SCH	8.9	26	3	0.2	39
2004	Herbicided	Hydrocotyle umbellata	HYD UMB	1.1	48	1	0.1	43
2004	Herbicided	Hypericum tetrapetalum	HYP TET	7.8	31	2	0.6	28
2004	Herbicided	Juncus marginatus	JUN MAR	8.9	26	2	0.7	22
2004	Herbicided	Juncus scirpoides	JUN SCI	11.1	21	2	1.1	20
2004	Herbicided	Kyllinga brevifolia	KYL BRE	3.3	41	2	0.1	43
2004	Herbicided	Lindernia crustacea	LIN CRU	42.2	10	3	2.3	14
2004	Herbicided	Lindernia grandiflora	LIN GRA	8.9	26	2	0.6	28
2004	Herbicided	Ludwigia curtissii	LUD CUR	7.8	31	2	2.3	14
2004	Herbicided	Ludwigia maritima	LUD MAR	12.2	18	3	0.3	37
2004	Herbicided	Ludwigia octovalvis	LUD OCT	14.4	16	3	0.8	21
2004	Herbicided	Lygodium microphyllum	LYG MIC	1.1	48	1	0.1	43
2004	Herbicided	Macroptilium lathyroides	MAC LAT	2.2	45	1	0.1	43
2004	Herbicided	Mikania scandens	MIK SCA	1.1	48	1	0.1	43
2004	Herbicided	Murdannia nudiflora	MUR NUD	1.1	48	1	0.1	43
2004	Herbicided	Myrica cerifera	MYR CER	3.3	41	2	0.6	28
2004	Herbicided	Oldenlandia uniflora	OLD UNI	91.1	1	3	15.6	4
2004	Herbicided	Panicum chamaelonche	PAN CHA	5.6	39	2	0.1	43
2004	Herbicided	Paspalum setaceum	PAS SET	18.9	14	3	1.3	17
2004	Herbicided	Phyla nodiflora	PHY NOD	6.7	34	2	0.7	22
2004	Herbicided	Pluchea rosea	PLU ROS	2.2	45	2	0.1	43
2004	Herbicided	Polypremum procumbens	POL PRO	10.0	24	3	0.7	22
2004	Herbicided	Rhexia mariana	RHE MAR	8.9	26	2	0.6	28
2004	Herbicided	Rhynchospora fascicularis	RHY FAS	21.1	12	2	2.4	13
2004	Herbicided	Rhynchospora microcarpa	RHY MCC	2.2	45	1	0.1	43
2004	Herbicided	Sacciolepis indica	SAC IND	13.3	17	3	0.7	22
2004	Herbicided	Scleria reticularis	SCL RET	3.3	41	1	0.6	28
2004	Herbicided	Scoparia dulcis	SCO DUL	51.1	8	3	4.1	9
2004	Herbicided	Setaria parviflora	SET PAR	20.0	13	2	1.2	18
2004	Herbicided	Solanum viarum	SOL VIA	1.1	48	1	0.6	28
2004	Herbicided	Utricularia subulata	UTR SUB	10.0	24	3	0.2	39
2004	Herbicided	Xyris brevifolia	XYR BRE	12.2	18	3	0.3	37
2004	Seeded	BARE GROUND	BAR GRO	100.0	---	10	5.4	---
2004	Seeded	Agalinis purpurea	AGA PUR	0.4	89	1	0.01	92
2004	Seeded	Amphicarpum muhlenbergianum	AMP MUH	1.2	72	1	0.03	80

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2004	Seeded	Andropogon brachystachyus	AND BRA	5.8	40	5	0.5	34
2004	Seeded	Andropogon glomeratus	AND GCP	33.0	13	9	3.5	14
2004	Seeded	Andropogon virginicus	AND GLA	0.8	83	3	0.03	80
2004	Seeded	Andropogon glomeratus	AND HIR	3.4	50	6	0.3	45
2004	Seeded	Andropogon gyrans	AND PER	0.4	89	1	0.01	92
2004	Seeded	Andropogon virginicus	AND VIR	85.4	3	10	12.2	4
2004	Seeded	Aristida stricta var. beyrichiana	ARI STR	1.6	65	2	0.04	75
2004	Seeded	Symphyotrichum dumosum	AST DUM	3.2	53	6	0.2	49
2004	Seeded	Axonopus fissifolius	AXO FIS	76.0	5	10	9.7	5
2004	Seeded	Axonopus furcatus	AXO FUR	1.2	72	3	0.2	49
2004	Seeded	Baccharis halimifolia	BAC HAL	2.2	61	7	0.2	49
2004	Seeded	Bacopa monnieri	BAC MON	9.0	34	7	0.4	39
2004	Seeded	Bigelowia nudata	BIG NUD	1.2	72	4	0.04	75
2004	Seeded	Callicarpa americana	CAL AME	0.4	89	1	0.01	92
2004	Seeded	Carphephorus paniculatus	CAR PAN	1.0	77	3	0.04	75
2004	Seeded	Centella asiatica	CEN ASI	68.6	6	10	7.0	6
2004	Seeded	Chamaecrista fasciculata	CHA FAS	1.4	70	1	0.2	49
2004	Seeded	Chamaecrista nictitans	CHA NIC	0.2	104	1	0.01	92
2004	Seeded	Coreopsis floridana	COR FLO	3.4	50	5	0.1	60
2004	Seeded	Coreopsis leavenworthii	COR LEA	9.0	34	7	0.6	30
2004	Seeded	Crotalaria rotundifolia	CRO ROT	1.0	77	3	0.03	80
2004	Seeded	Cuphea carthagenensis	CUP CAR	0.2	104	1	0.01	92
2004	Seeded	Cynodon dactylon	CYN DAC	2.4	60	4	0.1	60
2004	Seeded	Cyperus polystachyos	CYP POL	90.4	2	10	19.9	2
2004	Seeded	Cyperus retrorsus	CYP RET	10.0	30	8	0.4	39
2004	Seeded	Cyperus surinamensis	CYP SUR	0.4	89	1	0.02	87
2004	Seeded	Desmodium triflorum	DES TRI	18.2	21	6	1.8	19
2004	Seeded	Dichanthelium portoricense	DIC POR	3.2	53	5	0.1	60
2004	Seeded	Digitaria serotina	DIG SER	5.4	43	7	0.3	45
2004	Seeded	Diodia virginiana	DIO VIR	1.8	64	4	0.04	75
2004	Seeded	Eleocharis baldwinii	ELE BAL	5.0	45	5	0.2	49
2004	Seeded	Elephantopus elatus	ELE ELA	5.8	40	5	1.0	26
2004	Seeded	Eleocharis microcarpa	ELE MIC	1.6	65	2	0.4	39
2004	Seeded	Emilia fosbergii	EMI FOS	0.2	104	1	0.01	92
2004	Seeded	Eragrostis atrovirens	ERA ATR	0.4	89	1	0.01	92
2004	Seeded	Eragrostis elliottii	ERA ELL	40.6	8	9	5.1	8
2004	Seeded	Eragrostis spectabilis	ERA SPE	3.2	53	1	0.5	34

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2004	Seeded	Eragrostis virginica	ERA VIR	19.0	20	8	2.8	17
2004	Seeded	Eryngium baldwinii	ERY BAL	3.4	50	3	0.2	49
2004	Seeded	Eupatorium capillifolium	EUP CAP	76.8	4	10	12.8	3
2004	Seeded	Eupatorium leptophyllum	EUP LEP	4.8	46	8	0.5	34
2004	Seeded	Eupatorium mohrii	EUP MOH	0.6	86	2	0.03	80
2004	Seeded	Eupatorium rotundifolium	EUP ROT	0.6	86	2	0.02	87
2004	Seeded	Euthamia caroliniana	EUT CAR	17.4	22	9	2.8	17
2004	Seeded	Fimbristylis autumnalis	FIM AUT	0.8	83	2	0.03	80
2004	Seeded	Fimbristylis caroliniana	FIM CAR	0.2	104	1	0.01	92
2004	Seeded	Fimbristylis dichotoma	FIM DIC	38.8	9	8	4.6	9
2004	Seeded	Fimbristylis schoenoides	FIM SCH	1.2	72	3	0.1	60
2004	Seeded	Fuirena breviseta	FUI BRE	1.2	72	2	0.02	87
2004	Seeded	Gymnopogon chapmanianus	GYM CHA	0.4	89	1	0.01	92
2004	Seeded	Hydrocotyle umbellata	HYD UMB	6.0	39	7	0.1	60
2004	Seeded	Hypericum cistifolium	HYP CIS	13.2	27	9	1.1	25
2004	Seeded	Hypericum fasciculatum	HYP FAS	0.4	89	1	0.01	92
2004	Seeded	Hypericum hypericoides	HYP HYP	1.0	77	1	0.1	60
2004	Seeded	Hypericum tetrapetalum	HYP TET	33.6	12	10	2.9	15
2004	Seeded	Iva microcephala	IVA MIC	0.6	86	1	0.1	60
2004	Seeded	Juncus marginatus	JUN MAR	2.8	57	5	0.2	49
2004	Seeded	Juncus megacephalus	JUN MEG	0.2	104	1	0.01	92
2004	Seeded	Juncus scirpoides	JUN SCI	2.2	61	2	0.1	60
2004	Seeded	Kyllinga brevifolia	KYL BRE	10.6	29	5	0.3	45
2004	Seeded	Lachnanthes caroliniana	LAC CAR	4.2	48	3	0.4	39
2004	Seeded	Liatris gracilis	LIA GRA	0.4	89	2	0.02	87
2004	Seeded	Liatris spicata	LIA SPI	3.0	56	7	0.1	60
2004	Seeded	Lindernia crustacea	LIN CRU	12.8	28	7	0.6	30
2004	Seeded	Lindernia grandiflora	LIN GRA	1.6	65	2	0.04	75
2004	Seeded	Lobelia glandulosa	LOB GLA	0.4	89	1	0.01	92
2004	Seeded	Ludwigia arcuata	LUD ARC	8.8	37	8	0.2	49
2004	Seeded	Ludwigia curtissii	LUD CUR	16.8	23	6	1.4	23
2004	Seeded	Ludwigia maritima	LUD MAR	15.4	25	10	0.5	34
2004	Seeded	Ludwigia octovalvis	LUD OCT	47.2	7	9	2.9	15
2004	Seeded	Ludwigia repens	LUD REP	9.2	32	6	0.6	30

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2004	Seeded	Lyonia fruticosa	LYO FRU	0.2	104	1	0.01	92
2004	Seeded	Macroptilium lathyroides	MAC LAT	3.8	49	4	0.2	49
2004	Seeded	Marshallia tenuifolia	MAR TEN	0.4	89	1	0.01	92
2004	Seeded	Melochia corchorifolia	MEL COR	1.0	77	1	0.1	60
2004	Seeded	Mikania scandens	MIK SCA	0.2	104	1	0.01	92
2004	Seeded	Murdannia nudiflora	MUR NUD	2.0	63	3	0.03	80
2004	Seeded	Myrica cerifera	MYR CER	1.0	77	4	0.1	60
2004	Seeded	Oldenlandia uniflora	OLD UNI	92.8	1	10	31.8	1
2004	Seeded	Panicum anceps	PAN ANC	0.4	89	1	0.01	92
2004	Seeded	Panicum chamaelonche	PAN CHA	19.6	19	7	3.9	12
2004	Seeded	Panicum dichotomiflorum	PAN DIC	2.8	57	1	0.4	39
2004	Seeded	Paspalum acuminatum	PAS ACU	0.4	89	1	0.01	92
2004	Seeded	Paspalum notatum	PAS NOT	0.2	104	1	0.01	92
2004	Seeded	Paspalum setaceum	PAS SET	5.8	40	6	0.2	49
2004	Seeded	Paspalum urvillei	PAS URV	2.8	57	2	0.2	49
2004	Seeded	Phyla nodiflora	PHY NOD	23.6	15	9	1.0	26
2004	Seeded	Pityopsis graminifolia	PIT GRA	5.2	44	6	0.5	34
2004	Seeded	Pluchea rosea	PLU ROS	1.6	65	5	0.1	60
2004	Seeded	Polypremum procumbens	POL PRO	21.8	17	9	1.6	21
2004	Seeded	Polygala rugelii	POL RUG	1.6	65	4	0.1	60
2004	Seeded	Rhexia mariana	RHE MAR	7.4	38	6	0.3	45
2004	Seeded	Rhus copallinum	RHU COP	0.4	89	1	0.01	92
2004	Seeded	Rhynchospora fascicularis	RHY FAS	9.4	31	4	0.9	28
2004	Seeded	Rhynchospora fernaldii	RHY FER	37.0	10	9	6.2	7
2004	Seeded	Rhynchospora microcarpa	RHY MCC	9.2	32	5	1.8	19
2004	Seeded	Rhynchospora nitens	RHY NIT	9.0	34	3	1.3	24
2004	Seeded	Rudbeckia hirta	RUD HIR	33.0	13	10	3.8	13
2004	Seeded	Sabal palmetto	SAB PAL	0.4	89	1	0.1	60
2004	Seeded	Sacciolepis indica	SAC IND	16.8	23	8	0.4	39
2004	Seeded	Salix caroliniana	SAL CAR	0.2	104	1	0.01	92
2004	Seeded	Scleria reticularis	SCL RET	0.4	89	1	0.01	92
2004	Seeded	Scoparia dulcis	SCO DUL	20.4	18	9	0.7	29
2004	Seeded	Setaria parviflora	SET PAR	22.4	16	7	1.6	21
2004	Seeded	Solidago fistulosa	SOL FIS	4.6	47	4	0.6	30
2004	Seeded	Solidago stricta	SOL STR	0.8	83	2	0.02	87
2004	Seeded	Solanum viarum	SOL VIA	0.2	104	1	0.01	92
2004	Seeded	Sorghastrum secundum	SOR SEC	36.4	11	8	4.5	10

Appendix B. Pooled Treatment Statistics

Year	Treatment	Scientific Name	Species Code	Relative Fre-quency	Fre-quency Rank	# Quads Occur-rence	Total Quadrat Average Cover	Cover Rank
2004	Seeded	Sporobolus indicus	SPO IND	14.0	26	4	4.0	11
2004	Seeded	Vicia acutifolia	VIC ACU	0.2	104	1	0.01	92
2004	Seeded	Viola lanceolata	VIO LAN	0.2	104	1	0.01	92
2004	Seeded	Xyris ambigua	XYR AMB	1.4	70	3	0.1	60
2004	Seeded	Xyris brevifolia	XYR BRE	1.0	77	2	0.03	80

APPENDIX C.

Species found in Quantitative Vegetation Sampling

Parameter	Description
Scientific Name	Genus and species from Wunderlin and Hansen 2003
Common Name	Common name from Wunderlin and Hansen 2003
Family	Plant Family name from Wunderlin and Hansen 2003
6 Letter Code	6 letter code, usually the first 3 letters of the Genus and first 3 letters of the species (If there are duplicate 6 letter codes for 2 different species, a unique code is was created.
Native/ Exotic	
Native	Species native to this region
Exotic	Species native to another continent or another region, but not to this region
Floristic Status:	
Aggressive	Species that out-compete weedy species and sometimes will even out-compete characteristic species of stable ecosystems; these species are not native.
Weedy	Species that depend on unnatural[1] or severe disturbances to become established,
Pioneer	Species that readily reseed in. unnatural or severely disturbed areas but persist and are characteristic of mature ecosystems also.
Characteristic	Species that are found in mature ecosystems.
	[1] Unnatural or severe disturbances are caused by such means as bulldozing, disking, herbiciding, animal digging, severe long-term flooding followed by recession of water, etc., which open up areas of soil to new colonization. Natural changes due to fire or fire exclusion or changes in hydrology are not considered here. Therefore, species such as wax myrtle (Myrica cerifera) colonizing flatwoods, or oaks colonizing sandhills indicate a shift in ecosystems because of changes in natural events which can be reversed by natural events.
CC Value	Coefficients of Conservation (CC) were assigned to each species using a scale of 0 to 10, with 0 indicating an introduced species and rare plants ranging up to 10. The species CCs were used to calculate a Floristic Quality Index for sites which reflect the species composition from common to unique. See "Species Classification" in the Methods section for additional information.

Appendix C. Species found in Quantitative Vegetation Sampling						
Scientific Name	**Common Name**	**Family**	**6 Letter Code**	**Native/ Exotic**	**Floristic Status**	**CC Value**
Agalinis purpurea	Purple false foxglove	Orobanchaceae	AGA PUR	N	NC	5
Amphicarpum muhlenbergianum	Blue maidencane	Poaceae	AMP MUH	N	NC	4
Andropogon brachystachyus	Shortspike bluestem	Poaceae	AND BRA	N	NC	6
Andropogon glomeratus var. glaucopsis	Bushy bluestem	Poaceae	AND GCP	N	NP	4
Andropogon glomeratus var. hirsutior	Bushy bluestem	Poaceae	AND HIR	N	NP	5
Andropogon gyrans var. stenophyllus	Elliott's bluestem	Poaceae	AND PER	N	NC	7
Andropogon virginicus var. glaucus	Broomsedge bluestem	Poaceae	AND GLA	N	NC	5
Andropogon virginicus var. virginicus	Broomsedge bluestem	Poaceae	AND VIR	N	NP	3
Aristida stricta var. beyrichiana	Wiregrass	Poaceae	ARI STR	N	NC	6
Axonopus fissifolius	Common carpetgrass	Poaceae	AXO FIS	N	NP	2
Axonopus furcatus	Big carpetgrass	Poaceae	AXO FUR	N	NP	2
Baccharis halimifolia	Groundsel tree	Asteraceae	BAC HAL	N	NP	2
Bacopa monnieri	Herb-of-grace	Veronicaceae	BAC MON	N	NC	5
Bigelowia nudata	Pineland rayless goldenrod	Asteraceae	BIG NUD	N	NC	8
Buchnera americana	American bluehearts	Orobanchaceae	BUC AME	N	NC	3
Callicarpa americana	American beautyberry	Lamiaceae	CAL AME	N	NC	5
Carphephorus paniculatus	Hairy chaffhead	Asteraceae	CAR PAN	N	NC	7
Centella asiatica	Spadeleaf	Araliaceae	CEN ASI	N	NP	2
Chamaecrista fasciculata	Partridge pea	Fabaceae	CHA FAS	N	NP	2
Chamaecrista nictitans	Sensitive pea	Fabaceae	CHA NIC	N	NP	2
Cirsium nuttallii	Nuttall's thistle	Asteraceae	CIR NUT	N	NP	2
Conyza canadensis	Canadian horseweed	Asteraceae	CON CAN	N	NW	1
Coreopsis floridana	Florida tickseed	Asteraceae	COR FLO	N	NC	8
Coreopsis leavenworthii	Leavenworth's tickseed	Asteraceae	COR LEA	N	NC	3
Crotalaria rotundifolia	Rabbitbells	Fabaceae	CRO ROT	N	NC	3
Cuphea carthagenensis	Colombian waxweed	Lythraceae	CUP CAR	E	EW	0
Cynodon dactylon	Bermudagrass	Poaceae	CYN DAC	E	EA	0
Cyperus compressus	Poorland flatsedge	Cyperaceae	CYP COM	N	NP	2
Cyperus polystachyos	Manyspike flatssedge	Cyperaceae	CYP POL	N	NP	1
Cyperus retrorsus	Pinebarren flatsedge	Cyperaceae	CYP RET	N	NP	1
Cyperus surinamensis	Tropical flatsedge	Cyperaceae	CYP SUR	N	NP	1
Desmodium incanum	beggarweed; Zarzabacoa comun	Fabaceae	DES INC	E	EW	0
Desmodium triflorum	Threeflower ticktrefoil	Fabaceae	DES TRI	E	EW	0
Dichanthelium portoricense	Hemlock witchgrass	Poaceae	DIC POR	N	NP	3
Digitaria serotina	Blanket crabgrass; dwarf crabgrass	Poaceae	DIG SER	N	NW	2
Diodia virginiana	Virginia buttonweed	Rubiaceae	DIO VIR	N	NC	3
Eleocharis baldwinii	Baldwin's spikerush; roadgrass	Cyperaceae	ELE BAL	N	NC	3
Eleocharis microcarpa	Smallfruit spikerush	Cyperaceae	ELE MIC	N	NC	3
Elephantopus elatus	Tall elephantsfoot	Asteraceae	ELE ELA	N	NC	3
Emilia fosbergii	Florida tasselflower	Asteraceae	EMI FOS	E	EW	0
Eragrostis atrovirens	Thalia lovegrass	Poaceae	ERA ATR	E	EW	0
Eragrostis elliottii	Elliott's lovegrass	Poaceae	ERA ELL	N	NP	4
Eragrostis spectabilis	Purple lovegrass	Poaceae	ERA SPE	N	NP	3
Eragrostis virginica	Coastal lovegrass	Poaceae	ERA VIR	N	NP	4
Erechtites hieraciifolius	American burnweed; fireweed	Asteraceae	ERE HIE	N	NW	1
Eryngium baldwinii	Baldwin's eryngo	Apiaceae	ERY BAL	N	NC	3
Eupatorium capillifolium	Dogfennel	Asteraceae	EUP CAP	N	NW	2
Eupatorium leptophyllum	Falsefennel	Asteraceae	EUP LEP	N	NC	5
Eupatorium mohrii	Mohr's thoroughwort	Asteraceae	EUP MOH	N	NC	4
Eupatorium rotundifolium	Roundleaf thoroughwort	Asteraceae	EUP ROT	N	NC	4
Euthamia caroliniana	Slender flattop goldenrod	Asteraceae	EUT CAR	N	NP	2
Fimbristylis autumnalis	Slender fimbry	Cyperaceae	FIM AUT	N	NP	2
Fimbristylis caroliniana	Carolina fimbry	Cyperaceae	FIM CAR	N	NC	4
Fimbristylis dichotoma	Forked fimbry	Cyperaceae	FIM DIC	E	EW	2
Fimbristylis schoenoides	Ditch fimbry	Cyperaceae	FIM SCH	E	EW	0
Fuirena breviseta	Saltmarsh umbrellasedge	Cyperaceae	FUI BRE	N	NC	4
Fuirena scirpoidea	Southern umbrellasedge	Cyperaceae	FUI SCI	N	NC	4

Appendix C. Species found in Quantitative Vegetation Sampling						
Scientific Name	**Common Name**	**Family**	**6 Letter Code**	**Native/ Exotic**	**Floristic Status**	**CC Value**
Gymnopogon chapmanianus	Chapman's skeletongrass	Poaceae	GYM CHA	N	NC	8
Hydrocotyle umbellata	Manyflower marshpennywort	Araliaceae	HYD UMB	N	NP	2
Hypericum cistifolium	Roundpod St.John's-wort	Clusiaceae	HYP CIS	N	NC	4
Hypericum fasciculatum	Sandweed; peelbark st.john's-wort	Clusiaceae	HYP FAS	N	NC	6
Hypericum hypericoides	St.andrew's-cross	Clusiaceae	HYP HYP	N	NC	3
Hypericum tetrapetalum	Fourpetal St.John's-wort	Clusiaceae	HYP TET	N	NC	3
Ipomoea sagittata	Saltmarsh morning-glory	Convolvulaceae	IPO SAG	N	NC	5
Iva microcephala	Piedmont marshelder	Asteraceae	IVA MIC	N	NC	5
Juncus marginatus	Shore rush; grassleaf rush	Juncaceae	JUN MAR	N	NP	2
Juncus megacephalus	Bighead rush	Juncaceae	JUN MEG	N	NC	4
Juncus scirpoides	Needlepod rush	Juncaceae	JUN SCI	N	NP	2
Kyllinga brevifolia	Shortleaf spikesedge	Cyperaceae	KYL BRE	E	EW	0
Lachnanthes caroliniana	Carolina redroot	Haemodoraceae	LAC CAR	N	NC	2
Leersia hexandra	Southern cutgrass	Poaceae	LEE HEX	N	NC	4
Liatris gracilis	Slender gayfeather	Asteraceae	LIA GRA	N	NC	5
Liatris spicata	Dense gayfeather	Asteraceae	LIA SPI	N	NC	8
Lindernia crustacea	Malaysian false pimpernel	Veronicaceae	LIN CRU	E	EW	0
Lindernia grandiflora	Savannah false pimpernel	Veronicaceae	LIN GRA	N	NC	4
Lobelia glandulosa	Glade lobelia	Campanulaceae	LOB GLA	N	NC	7
Ludwigia arcuata	Piedmont primrosewillow	Onagraceae	LUD ARC	N	NC	0
Ludwigia curtissii	Curtiss' primrosewillow	Onagraceae	LUD CUR	N	NC	5
Ludwigia maritima	Seaside primrosewillow	Onagraceae	LUD MAR	N	NP	3
Ludwigia octovalvis	Mexican primrosewillow	Onagraceae	LUD OCT	N	NP	2
Ludwigia palustris	Marsh seedbox	Onagraceae	LUD PAL	N	NC	4
Ludwigia repens	Creeping primrosewillow	Onagraceae	LUD REP	N	NC	4
Lygodium microphyllum	Small-leaf (Old World) climbing fern	Schizaeaceae	LYG MIC	E	EA	0
Lyonia fruticosa	Coastalplain staggerbush	Ericaceae	LYO FRU	N	NC	6
Macroptilium lathyroides	Wild bushbean	Fabaceae	MAC LAT	E	EW	0
Marshallia tenuifolia	Grassleaf barbara's buttons	Asteraceae	MAR TEN	N	NC	9
Melochia corchorifolia	Chocolateweed	Malvaceae	MEL COR	E	EW	0
Mikania scandens	Climbing hempvine	Asteraceae	MIK SCA	N	NP	2
Murdannia nudiflora	Nakedstem dewflower	Commelinaceae	MUR NUD	E	EW	0
Myrica cerifera	Southern bayberry; wax myrtle	Myricaceae	MYR CER	N	NP	2
Myrica pusilla	Southern bayberry; wax myrtle	Myricaceae	MYR PUS	N	NC	6
Oldenlandia uniflora	Clustered mille graines	Rubiaceae	OLD UNI	N	NP	2
Ophioglossum nudicaule	Slender adder's-tongue	Ophioglossaceae	OPH NUD	N	NC	5
Panicum anceps	Beaked panicum	Poaceae	PAN ANC	N	NC	5
Panicum chamaelonche	Poaceae	Poaceae	PAN CHA	N	NC	5
Panicum dichotomiflorum	Fall panicgrass	Poaceae	PAN DIC	N	NP	2
Panicum hians	Gaping panicum	Poaceae	PAN HIA	N	NC	5
Paspalum acuminatum	Brook crowngrass	Poaceae	PAS ACU	E	EW	0
Paspalum distichum	Knotgrass	Poaceae	PAS DCH	N	NP	3
Paspalum notatum	Bahiagrass	Poaceae	PAS NOT	E	EA	0
Paspalum setaceum	Thin paspalum	Poaceae	PAS SET	N	NP	3
Paspalum urvillei	Vaseygrass	Poaceae	PAS URV	E	EW	0
Phyla nodiflora	Turkey tangle fogfruit; capeweed	Verbenaceae	PHY NOD	N	NP	3
Pityopsis graminifolia	Narrowleaf silkgrass	Asteraceae	PIT GRA	N	NC	4
Pluchea rosea	Rosy camphorweed	Asteraceae	PLU ROS	N	NC	3
Polygala rugelii	Yellow milkwort	Polygalaceae	POL RUG	N	NC	7
Polygala setacea	Coastalplain milkwort	Polygalaceae	POL SET	N	NC	8
Polypremum procumbens	Rustweed; juniperleaf	Tetrachondraceae	POL PRO	N	NP	2
Rhexia mariana	Pale meadowbeauty	Melastomataceae	RHE MAR	N	NC	4
Rhus copallinum	Winged sumac	Anacardiaceae	RHU COP	N	NC	4
Rhynchospora colorata	Starrush whitetop	Cyperaceae	RHY COL	N	NC	4
Rhynchospora fascicularis	Fascicled beaksedge	Cyperaceae	RHY FAS	N	NC	4
Rhynchospora fernaldii	Fernald's beaksedge	Cyperaceae	RHY FER	N	NC	5
Rhynchospora microcarpa	Southern beaksedge	Cyperaceae	RHY MCC	N	NC	4

Appendix C. Species found in Quantitative Vegetation Sampling						
Scientific Name	**Common Name**	**Family**	**6 Letter Code**	**Native/ Exotic**	**Floristic Status**	**CC Value**
Rhynchospora nitens	Shortbeak beaksedge; baldrush	Cyperaceae	RHY NIT	N	NC	4
Rudbeckia hirta	Blackeyed susan	Asteraceae	RUD HIR	N	NC	4
Sabal palmetto	Cabbage palm	Arecaceae	SAB PAL	N	NC	4
Sacciolepis indica	Indian cupscale	Poaceae	SAC IND	E	EW	0
Salix caroliniana	Carolina willow; coastalplain willow	Salicaceae	SAL CAR	N	NP	3
Schizachyrium scoparium	Little bluestem	Poaceae	SCH SCO	N	NC	6
Scleria ciliata	Fringed nutrush	Cyperaceae	SCL CIL	N	NC	5
Scleria reticularis	Netted nutrush	Cyperaceae	SCL RET	N	NC	4
Scoparia dulcis	Sweetbroom; licoriceweed	Veronicaceae	SCO DUL	N	NW	1
Setaria parviflora	Yellow bristlegrass; knotroot foxtail	Poaceae	SET PAR	N	NP	3
Solanum viarum	Tropical soda apple	Solanaceae	SOL VIA	E	EA	0
Solidago fistulosa	Pinebarren goldenrod	Asteraceae	SOL FIS	N	NP	3
Solidago stricta	Wand goldenrod	Asteraceae	SOL STR	N	NC	6
Sorghastrum secundum	Lopsided indiangrass	Poaceae	SOR SEC	N	NC	6
Spiranthes vernalis	Spring ladiestresses	Orchidaceae	SPI VER	N	NC	6
Sporobolus indicus	Smutgrass	Poaceae	SPO IND	E	EW	0
Symphyotrichum dumosum	Rice button aster	Asteraceae	SYM DUM	N	NC	4
Urochloa sp.	Signalgrass	Poaceae	URO SP.	E	E	0
Utricularia subulata	Zigzag bladderwort	Lentibulariaceae	UTR SUB	N	NC	5
Vicia acutifolia	Fourleaf vetch	Fabaceae	VIC ACU	N	NC	3
Viola lanceolata	Bog white violet	Violaceae	VIO LAN	N	NC	5
Xyris ambigua	Coastalplain yelloweyed grass	Xyridaceae	XYR AMB	N	NC	5
Xyris brevifolia	Shortleaf yelloweyed grass	Xyridaceae	XYR BRE	N	NC	5