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Intense ranchland management tips the balance of regional and local factors affecting wetland community structure

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ABSTRACT

Greater understanding of land management effects on species richness and composition is needed to manage biodiversity-related ecosystem services in agricultural ecosystems. Here we studied responses of vascular plants, macroinvertebrates, and ectothermic vertebrates to local and regional factors in two ranchland management intensities (semi-natural and highly-managed). Samples were collected in 40 separate wetlands embedded in the two management intensities. Based on community assembly theory, we expected a shift from regional to local-based factors as predictors of communities where local conditions become more limiting. We also expected highly managed ranchlands to most strongly "filter" community membership to become more homogeneous. Both predictions were supported though results sometimes differed among taxa. Wetland communities embedded in highly managed pastures were more homogeneous and significantly different from those in semi-natural pastures. Overall, regional factors related to propagule dispersal were most important in semi-natural pastures, and local factors (especially nutrients) were most important in highly managed pastures. However, some community metrics were consistently affected most by local or regional factors regardless of land use intensity. For instance, vegetation richness and vertebrate composition were consistently influenced by local factors, whereas macroinvertebrate composition was consistently influenced by regional factors. Based on our results, biodiversity conservation will be most effective if management efforts focus on improving local habitat conditions in highly managed areas, and on preserving regional heterogeneity in more natural areas. Taxon-specific conservation strategies should account for taxon-specific sensitivities to local and regional processes.

1. Introduction

Growing demands on agricultural lands for food, fibre, and fuel are predicted to rapidly increase in coming decades with continued population growth (Bommarco et al., 2013). Agricultural land occupies 5 billion hectare of the land surface on earth and increases annually by 13 million hectare (FAO, 2002). Given that growth, a "multifunctional agriculture" approach should be applied to manage agricultural lands in order to acknowledge agriculture's influence on ecosystem services and environmental integrity, including habitat for native species (Robertson and Swinton, 2005; Bommarco et al., 2013; NRC, 2003; Kleijn et al., 2011). Biodiversity is often considered to indicate ecosystem services; in agricultural ecosystems, biodiversity may indicate biological control, decomposition, pollination, arthropod habitat, disease regulation, and conservation value (Bommarco et al., 2013). Biodiversity is often considered essential to the delivery and stability of ecosystem services (Naeem et al., 2012). To effectively manage for biodiversity-related ecosystem services in agricultural ecosystems, an increased understanding is required for land management effects on richness and composition of multiple taxonomic groups (Bommarco et al., 2013; Robertson and Swinton, 2005; Turtureanu et al., 2014).

Categorical agricultural land use can be a major driver of biodiversity loss (e.g., McKinney, 2006). However, agricultural land-use intensity can vary substantially *within* a category, and understanding the effects of this intensity on biodiversity is key to clarifying

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the drivers of biodiversity loss and homogenization (Foley et al., 2005). Ecology has long focused on local, deterministic drivers of community structure, and has recently expanded to include the effects of regional, dispersal-based processes on community assembly (Leibold et al., 2004; Ricklefs, 1987). Modern theory now expects community assembly mechanisms to shift from dispersal- to niche-based processes where local habitat conditions are restrictive (Chase, 2007). Thus, species that exist in restrictive local conditions are a subset of the regional pool, adapted to withstand environmental extremes, whereas benign environmental conditions permit priority effects in community assembly, resulting in greater heterogeneity among communities (Chase, 2007).

The above expectations derive from theory and experimental tests in artificial systems (e.g., Chase, 2007; Weiher et al., 2011); land use in agricultural landscapes presents an opportunity to test these hypotheses at regional scales and in a context relevant to biodiversity conservation and land management (Foley et al., 2005). For example, agricultural practices alter soil structure, nutrient levels and vegetation, which affect local conditions in embedded aquatic ecosystems and also change factors acting at regional scales such as dispersal (Boughton et al., 2010; Dickson, 1986; Rabalais et al., 2002). These changes can reduce local species richness, but also permit invasion of non-native species (Limpens et al., 2003; Hobbs and Huenneke, 1992). Moreover, taxonomic groups may respond differently to management or disturbance, so knowledge of local and regional effects on multiple taxa is important (Lawton et al., 1998; Oertli et al., 2005). For example, converting forested lands to pasture reduces dispersal by amphibians (Rothermel and Semlitsch, 2002) but may affect other taxa differently (Turtureanu et al., 2014).

Here we report on a study of 40 wetland communities embedded in an agricultural landscape used for beef production with two long-term management intensities (semi-natural and highly-managed). The study examined how land-use intensity alters local and regional predictors of community composition. The two pasture categories are known to be distinct due to decades of management and research (Boughton et al., 2010; Swain et al., 2013), and we expected highly managed pastures to impose restrictive local conditions on regional biota. The wetlands and pastures are in the northern Everglades region of Florida, where wetlands comprise nearly 15% of land area, and like many other parts of the world, ranching is the dominant land use (Foley et al., 2005). Detailed records of long-term land use for the two pasture types offered a clear context relative to uncoordinated and diverse land uses among multiple land owners. We focused on three taxonomic groups (vascular plants, macroinvertebrates, and ectothermic vertebrates) in the wetlands, and evaluated them separately and in combination. These groups were chosen since they relate to both important ecosystem services in agricultural lands as well as inherent conservation value. For example, plant diversity may indicate delivery of arthropod habitat (Letourneau et al., 2011); macroinvertebrates may indicate delivery of biological control (Letourneau et al., 2009) and decomposition (Lavelle et al., 2006), and ectothermic vertebrates may indicate pest control and food chain support (Hocking and Babbitt, 2014).

The overall hypothesis was that community assembly shifts from regional to local-based processes between semi-natural and highly managed landscapes, causing more homogeneous composition in the highly managed landscape (*sensu* Chase, 2007). Two specific predictions must be supported for the overall hypothesis to be supported: (1) wetland communities embedded in intensively-managed pastures are less diverse and more homogeneous than those in less intensely managed pastures, and (2) local factors are important to community composition with greater land-use intensity. We measured communities using three metrics: species richness, composition, and compositional similarity, where we defined a wetland community as the total of its vegetation, macroinvertebrate, and vertebrate assemblages (Fauth et al., 1996). We expected regional, dispersal-related factors to be associated with heterogeneity between wetland communities and local, niche-related factors to be associated with homogeneity between wetland communities. Accordingly, we expected wetland communities in semi-natural pastures to best correlate with a combination of regional (dispersal-based) and local (niche-based) factors. In contrast, we expected wetland communities in highly managed pastures to best correlate with local habitat factors. We also predicted that taxonomic groups would respond differently to pasture intensification. Finally, we expected composition and heterogeneity to be more sensitive than species richness to the effects of land use given that very different assemblages may sum to the same species richness.

2. Materials and methods

2.1. Study area and sampling design

We sampled seasonal, isolated wetlands at the MacArthur Agro-Ecology Research Center (MAERC), located in south-central Florida (27°09′N, 81°11′W). The MAERC is at Buck Island Ranch, a 4170 ha commercial cattle ranch with > 600 isolated, seasonal wetlands embedded in two pasture management regimes (Fig. 1). Highly managed pastures were fertilized with NPK (nitrogen, phosphorus, potassium) from the 1960s through 1986, with nitrogen only ($\sim$52 kg ha^{-1}) since 1987, and were limed regularly (every 3–5 y) since the 1960s. Highly managed pastures were composed primarily of introduced forage grass (*Paspalum notatum* Flueggé) and extensively ditched, and had cattle-stocking densities nearly twice that of semi-natural pastures (0.52 vs. 0.28 cow-calf pairs ha^{-1}; Boughton et al., 2010). In contrast, semi-natural pastures were never fertilized and had a mixture of *P. notatum* and native grasses (e.g., *Andropogon* spp. L., *Axonopus* spp. P. Beauv., and *Panicum* spp. Torr.), and were less extensively ditched. We selected forty wetlands (twenty per pasture type) of similar size (0.25–0.75 ha) and shape (circular) to minimize confounding effects of wetland size, hydroperiod, and edge effects. We maximized inter-wetland distances to reduce spatial autocorrelation between replicates (Fig. 1). Wetlands were assigned to blocks, where each block consisted of eight wetlands (four highly managed and four semi-natural) and accounted for potential variation due to sampling time, location and hydroperiod (in this landscape, spatial location influences hydroperiod with minimal changes in elevation).

2.2. Biotic sampling

We sampled wetland vegetation at the end of the growing season during October–November 2006, when biomass peaked. We collected species presence/absence data in 1 m^2 circular quadrats at 15 random points (selected using ArcView 9.0, ESRI, Redlands, CA, USA) stratified by five zones in each wetland: center, northeast, northwest, southeast, and southwest. One sample point was randomly selected in each stratum and marked with a steel post for additional sampling (below). Plant species were identified using Godfrey and Wooten (1979a,b). Voucher specimens were deposited in University of Central Florida and MAERC herbariums.

We sampled aquatic macroinvertebrates in September 2006 at five stratified random points (steel posts, above). This sampling time was selected because all wetlands had contained water for at least two weeks and was in the middle of the growing season, ensuring that populations of invertebrates and vertebrates had sufficient time to emerge and mature for identification (where relevant). At each point, we conducted two, 1 m-long sweeps at

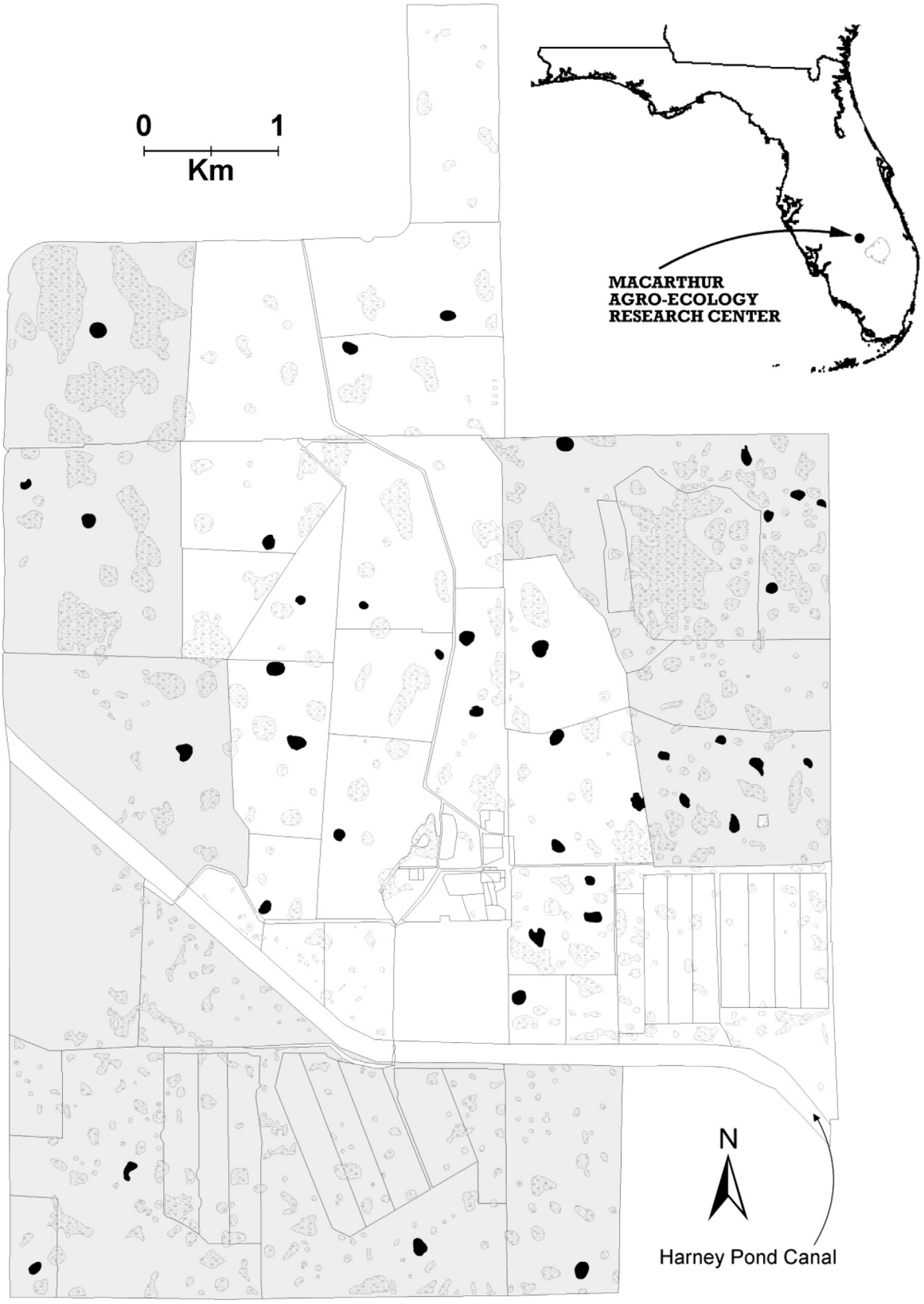

Fig. 1. Buck Island Ranch, the location of MacArthur Agro-Ecology Research Center (MAERC) near Lake Placid, FL, USA. Study wetlands in black; other wetlands are hatched. Highly managed pastures are white and semi-natural pastures are shaded gray. Harney Pond Canal is a permanent structure that contains water year-round and flows from the northwest to the southeast of the ranch.

random compass directions and distances (1–5 m) with D-frame nets (~0.05 m^2, 0.5 mm mesh). We condensed samples and preserved them in 70% isopropanol in the field (total = 400 subsamples) and transported them to the lab for identification. Species were identified using Merritt and Cummins (1996) and regional guides (e.g., Epler, 1995, 1996; Richardson, 2003).

We collected ectothermic aquatic vertebrates (i.e., amphibians, reptiles and fish; hereafter "vertebrates") in September 2006 using minnow traps placed in 16 random locations along the edge of each wetland (see Schurbon and Fauth, 2003). Traps were staked to the pond bottom in water 10–12 cm deep, which permitted air-breathing animals to breach the surface. The following day, we collected the traps and identified, measured, and released all captured animals. We also recorded species observed or heard calling during all sampling sessions.

2.3. Local habitat variables

We quantified local habitat conditions within wetlands using nutrients in water and soils to assess nutrient loading. For water nutrient levels, we measured total phosphorus (water TP), total nitrogen (water TN), and ammonium (water NH_4^+) from preserved (sulphuric acid, pH < 2) grab samples taken from the first 15 cm of the water column. Ammonium content was determined using a microscale salicylate-indophenol-blue method (Sims et al., 1995). We determined TP and TN by digesting sub-samples using a persulfate digestion procedure (Koroleff, 1983) and analyzed them for nitrate and orthophosphate (D'Angelo et al., 2001; Doane and Horwath, 2003). Water samples were collected in September and October of 2006. All analyses were performed on a μQuant microplate reader (Bio-tek Instruments, Inc., Winooski, VT).

For soil nutrient levels, we measured total phosphorus (soil P), total carbon (soil C), total nitrogen (soil N), carbon–nitrogen ratio (soil C:N), nitrogen–phosphorus ratio (soil N:P), and carbon–phosphorus ratio (soil C:P) in wetland soils. Soil was collected in February and March of 2007. Using a hammer core, we collected soil to 15 cm depth at two randomly selected compass directions at each of the five sampling posts and aggregated cores into one sample. We oven dried samples at 105 °C for 24 h, sieved them (2 mm), and measured organic matter by loss on ignition using 0.5 g of the soil sample ashed at 450 °C for 16 h. Ash was analysed for total phosphorus (Allen et al., 1974) using the method of Murphy and Riley (1962) modified for microscale determination on a μQuant microplate reader (Bio-tek Instruments, Inc., Winooski, VT). Total nitrogen and total carbon were analyzed at the Analytical Chemistry Lab at the University of Georgia. Samples were analysed on a Carlo Erba NA 1500 CHN Analyzer using the Micro-Dumas combustion technique. Carbon–nitrogen ratio (C:N) and nitrogen-phosphorus ratio (N:P) were calculated from measured total nitrogen, total phosphorus, and total carbon.

We estimated hydroperiod in the seasonal wetlands as the number of monthly visits during a seven-month period that a wetland held water (May–November). We also included recent hydroperiod, measured as the number of consecutive monthly visits immediately prior to the sampling event that a wetland held water. Recent hydroperiod reflects the "flashiness" of wetland hydroperiod prior to the sampling event. The two measures are correlated (Pearson's: 0.83, $p < 0.001$), but recent hydroperiod better reflects intermittent dry conditions that affect results. Finally, we measured depth at the deepest point in each wetland using a meter stick.

2.4. Regional variables

Regional variables were defined as landscape characteristics that may affect an aquatic organisms dispersal to wetlands and thus species composition. Latitude and longitude were assigned to each wetland centroid and then used to evaluate landscape variables at multiple spatial distances from wetlands. Centroids were used because margins of the seasonal wetlands shift with hydrological conditions (Euliss et al., 2004). To incorporate dispersal-related effects of surrounding aquatic habitats, we measured minimum distance to the nearest ditch and to the nearest wetland, and we measured ditch density as the total length of ditches within 400 and 1000 m buffers around each wetland, where buffer sizes were selected based on evidence for vegetation and fish, respectively (Alemadi and Jenkins, 2007; Boughton et al., 2010). Distances were log-transformed for analyses. Finally, wetland density (i.e., total area of wetlands within the 400 and 1000 m buffers), was included. Nearby woodlots are important to tree frogs (Windes, 2010), so we estimated total woodlot area within a 100 m buffer. All spatial measurements were performed using ArcGIS 9.3 (ESRI, Redlands, CA). We also estimated grazing intensity using stocking density, defined as the number of cattle introduced to a pasture during summer 2006, based on MAERC records. Stocking density was treated as a regional variable because it affects areas beyond wetland boundaries and is managed differently between the two pasture types.

2.5. Community metrics

We calculated species richness per wetland for full wetland communities and for each assemblage (e.g., vegetation). We evaluated community composition for full wetland communities and for each assemblage using non-metric multi-dimensional scaling (NMS) ordination in PC-ORD (McCune and Grace, 2002). This ordination is suitable for heterogeneous data sets with many shared zeros and does not assume linear relationships among variables (McCune and Grace, 2002). Ordinations were based on Sørensen distances among wetlands; Sørensen distances fit heterogeneous patterns (common for ecological data) better than other distance measures (e.g., Euclidean distance, McCune and Grace, 2002). We determined NMS axis significance by performing 250 runs with real data and 250 runs with randomized data. We used a scree plot to evaluate whether adding dimensions to the solution reduced ordination stress. Vertebrate and macroinvertebrate matrices were transformed using Beals smoothing (McCune and Grace, 2002), which is useful for datasets containing a large number of zeros (species absences).

2.6. Evaluating land use intensity effects

To test prediction 1, we compared wetlands among pasture types using species richness, composition, and heterogeneity for total communities and assemblages. We compared species richness between pasture types using a generalized linear model (glm in R v2.11.0; The R Project for Statistical Computing) after first testing assumptions. We evaluated land use effects on composition of vegetation and vertebrates using permutation-based MANOVA (perMANOVA) of NMS axis scores (Anderson, 2001). Because perMANOVA requires balanced sample sizes across all groups and we lacked data for macroinvertebrates in one wetland, we evaluated pasture differences for overall community composition and for macroinvertebrates using Multi-Response Permutation Procedures (MRPP), which is a non-parametric analysis for evaluating multivariate differences between a priori groups (McCune and Grace, 2002). The MRPP test statistic A ranges from 0 to 1, with 1 indicating complete within-group similarity; A-values for ecological data rarely exceed 0.1 (McCune and Grace, 2002). We determined significant differences by comparing the distribution from real data to that obtained by randomizing the pasture type assignment for each wetland. Finally, we evaluated compositional heterogeneity among wetlands by graphical evaluation of Sorensen distances in

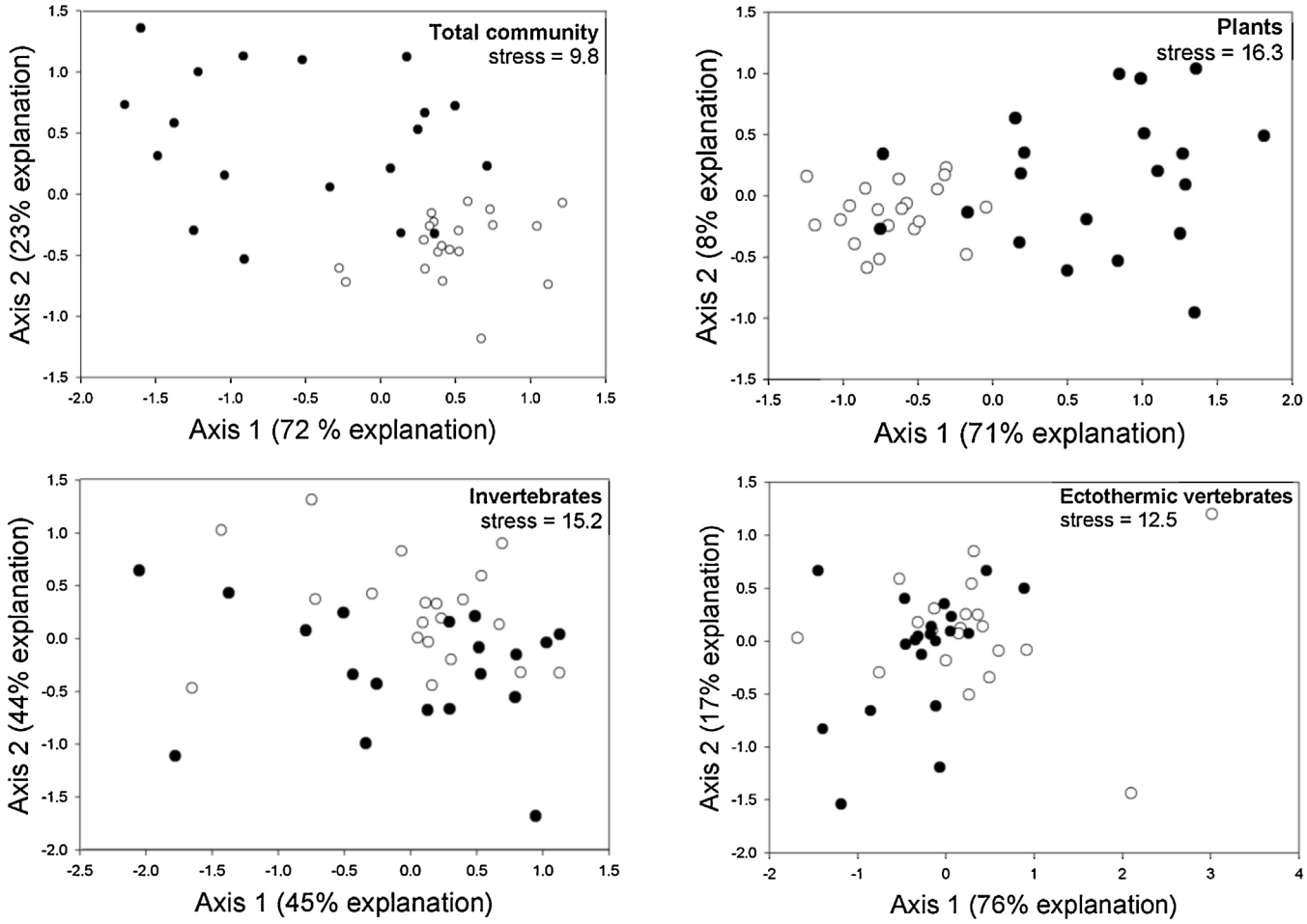

Fig. 2. Non-metric multidimensional scaling plots of wetland assemblages (presence/absence) by wetland. Filled symbols represent wetlands in semi-natural pasture and open circles represent wetlands in highly managed pasture. Corresponding perMANOVA and MRPP analyses revealed significant differences between pastures for all groups (total community MRPP: $A = 0.12$, $p < 0.001$; invertebrate MRPP: $A = 0.22$, $p = 0.03$; plant perMANOVA: $F = 13.5$, $p = 0.002$; vertebrate perMANOVA: $F = 2.6$, $p = 0.02$).

ordinations (i.e., greater heterogeneity creates greater scatter in the plot) and using classical Levene's tests on the NMS Axis with highest weight to test for differences in variance.

2.7. Evaluating local and regional influences on communities

To test prediction 2, we evaluated the effect of local and regional factors (defined a priori above) on species richness and community composition using single and multiple regression in R. All analyses were again conducted for full wetland communities and for each assemblage separately. Regression predictors were local and regional variables described above and used as additive or interactive variables. For community composition regressions, we used NMS Axis 1 scores as the response variable because Axis 1 represented more variation than subsequent axes. We also included null models, which simply estimated mean species richness or NMS Axis 1 score, as appropriate. We reduced collinearity among predictor variables by omitting a collinear variable if it had a correlation coefficient >0.75 with another variable. This threshold approximated the inflection point on the histogram of correlation coefficients and was more conservative than the 0.70 threshold found to work well by Dormann et al. (2013). As recommended by Dormann et al. (2013), we renamed retained variables to reflect the omitted collinear variable. We selected the most informative model for each of species richness and composition regressions (among 37 models of additive and interactive variables for each analysis) as the one with the lowest Akaike's Information Criterion value and highest model weight (AICc; Burnham and Anderson, 2002). To summarize the relative roles of local and regional variables by pasture type, we calculated the relative importance value of each variable, defined as the sum of a variable's importance values (from AIC analyses) for each model in which a variable was included (Burnham and Anderson, 2002).

3. Results

Sampled wetlands contained a total of 338 species: 127 plants, 180 macroinvertebrates, and 31 vertebrates) (Appendix 1). Species richness provided mixed signals for the effects of land use, depending on the taxon. Wetlands in highly managed pastures had significantly fewer plant species than those in semi-natural pastures ($p < 0.001$), though macroinvertebrates and ectothermic vertebrates (square root transformed) did not ($p = 0.37$ and 0.91, respectively). As a result of the varied effects among taxa, overall species richness did not differ significantly between pasture types ($p = 0.231$).

Land use significantly affected wetland composition for the total community and for separate taxonomic assemblages (Fig. 2). Composition patterns were resolved in two-dimensions with low stress (total community = 9.8, vegetation = 16.3, macroinvertebrates = 15.2, vertebrates = 12.5). Pasture differences were significant for all groups (total community MRPP: $A = 0.12$, $p < < 0.001$, vegetation perMANOVA: $F_{1,38} = 13.5$, $p = 0.002$, macroinvertebrate

Table 1
Most informative models (see Appendix 2) for wetland species composition and richness within each land use intensity. Significance ($\alpha = 0.05$) is indicated by bold p-values.

Model	Source	df	SS	MS	F	p	β_0
Semi-natural pastures							
Composition (all taxa)	(Log) wet dist[1]	1	2.8	2.8	30.8	**<0.001**	2.4
	Error	17	3.4	0.2			
Composition (plant)	Soil N	1	3.2	3.2	7.6	**0.01**	−1.4
	Error	17	7.2	0.4			
Composition (invertebrate)	Stocking index	1	1.5	1.5	7.9	**0.01**	−0.6
	Error	17	3.2	0.2			
Composition (vertebrate)	Soil P	1	0.1	0.10	0.3	0.6	−4.8
	Soil C	1	2.9	2.9	12.7	**0.003**	
	Soil C:N	1	2.6	2.6	11.1	**0.005**	
	Soil N:P	1	0.01	0.01	0.04	0.84	
	Error						
Total richness	Ditch density[2]	1	2014.1	2014.1	18.8	**<0.001**	88.3
	Error	17	1816.7	106.7			
Plant richness	Soil C	1	541.4	541.4	13.3	**0.002**	49.1
	Error	17	692.6	40.7			
Invertebrate species richness	Ditch density[2]	1	812.9	812.9	10.7	**0.004**	44.0
	Error	17	1287.6	75.7			
Vertebrate richness	Ditch density[2]	1	16.7	16.7	5.5	**0.03**	4.5
	Error	17	51.9	3.1			
Highly managed pastures							
Composition (all taxa)	Water TP	1	2.0	2.0	4.8	**0.04**	0.6
	Error	18	7.5	0.4			
Composition (plant)	Soil C:N	1	4.5	4.5	21.1	**<0.001**	4.3
	Error	18	3.8	0.2			
Composition (invertebrate)	Latitude	1	3.1	3.1	14.2	**0.001**	61.7
	Longitude	1	0.63	0.63	2.86	0.11	
	Error	17	3.75	0.22			
Composition (vertebrate)[3]	Soil C:N	1	4.5	4.5	29.6	**<0.001**	−2.8
	Woodlot area	1	1.5	1.5	10.1	**0.006**	
	Error	17	2.6	0.2			
Total richness	Water TP	1	1428.7	1428.7	18.9	**<0.001**	84.2
	Error	18	1362.1	75. 7			
Plant richness	Water TP	1	140.7	140.7	5.9	**0.03**	29.8
	Error	18	431.8	24.0			
Invertebrate richness	Soil C:N	1	788.4	788.4	17.21	**<0.001**	−19.9
	Error	18	824.4	45.8			
Vertebrate richness	Soil N:P	1	27.6	27.6	7.6	**0.01**	1.5
	Error	18	65.3	3.6			

[1] Log of distance to the nearest wetland.
[2] Total length of ditches within 400 m of wetland centroid.
[3] Model includes the most informative model and additive effects of additional variables with high relative variable importance values from model comparisons (see Table 2).

MRPP: $A = 0.02$, $p = 0.03$, and vertebrate perMANOVA: $F_{1,38} = 2.6$, $p = 0.02$).

Total community composition and vegetation composition (NMS Axis 1) were significantly more homogenous among wetlands in highly managed pastures than in semi-natural pastures (total test statistic: 11.45, $p = 0.002$; vegetation test statistic: 11.43, $p = 0.002$). Macroinvertebrate and vertebrate compositions were not significantly more homogenous in either pasture type (macroinvertebrate test statistic: 2.62, $p = 0.11$; vertebrate test statistic: 0.83, $p = 0.37$).

In every case but vegetation, the most informative model for semi-natural wetlands used a regional factor to predict species richness, while local factors were used to predict richness in highly-managed wetlands (Table 1). Total species richness in semi-natural wetlands was positively related to ditch density (400 m buffer) but negatively related to water TP in highly managed wetlands. Vegetation species richness was significantly negatively related to soil C in semi-natural wetlands and to water TP in highly managed wetlands. Macroinvertebrate species richness was significantly positively related to ditch density (400 m buffer) in semi-natural wetlands and to soil C:N in highly managed wetlands. Vertebrate species richness was significantly negatively related to ditch density (400 m buffer) in semi-natural wetlands and significantly positively related to soil N:P in highly managed wetlands.

Local-regional influences on community composition varied more strongly among taxonomic assemblages than they did among land use intensities, based on most informative models (Table 1). Only total community composition (i.e., NMS axis 1) varied among land use intensities as predicted: it was most related to nearest wetland distance (data logarithmic transformed) in semi-natural wetlands and to water TP in highly managed wetlands. However, local soil nutrients were most related to vegetation composition in both land use intensities, and different regional factors (stocking index, geographic location) were most related to macroinvertebrate composition in highly managed and semi-natural wetlands, respectively (Table 1). Finally, the most informative model for vertebrate composition used local factors (soil fertility variables) in semi-natural wetlands and both a local (soil C:N) and a regional factor (woodlot area) in highly managed wetlands (Table 1).

The summary view provided by relative variable importance values from AIC model comparisons (Table 2) supported prediction 2 (i.e., local factors become more important to community composition in highly managed pastures), except for macroinvertebrate composition. Regional variables had the greatest relative variable importance for 4 of 8 community metrics in semi-natural wetlands, specifically for total communities and invertebrates. In contrast, local variables had the greatest relative variable importance for 7 of 8 community metrics in highly managed pastures. Some community metrics were consistently affected most by local or regional factors regardless of land use intensity. For instance, vegetation richness and vertebrate

Table 2
Relative variable importance from AIC model comparison for all response variables (in columns) and all a priori regional and local predictors (in rows). Values are calculated by adding all AIC model weights for each model in which the factor was included. The greatest relative importance for each response variable weight is in bold. Relative weights for local and regional variables are summed for each land use intensity. Regional variables had the highest individual relative variable importance in semi-natural pastures, whereas local variables had the highest individual relative importance in highly managed pastures ($G^2 = 7.7$, $p = 0.005$). This difference diminished with summed variable importance values but remained significant ($G^2 = 5.7$, $p = 0.02$). Comp = species composition represented by NMS Axis 1; Invert = invertebrate; Vert = vertebrates; SR = species richness.

Predictor variables	Comp (all taxa)	Comp (plant)	Comp (invert)	Comp (vert)	SR (total)	SR (plant)	SR (invert)	SR (vert)
Semi-natural pastures								
Null	0.00	0.02	0.06	0.01	0.00	0.01	0.01	0.05
Local variables								
Area	0.00	0.05	0.02	0.00	0.01	0.00	0.04	0.10
Depth	0.00	0.09	0.03	0.02	0.05	0.01	0.11	**0.23**
Water TP	0.00	0.04	0.01	0.01	0.01	0.01	0.02	0.02
Water TN	0.00	0.02	0.01	0.01	0.00	0.00	0.02	0.06
Soil P	0.00	0.11	0.01	0.41	0.00	0.02	0.00	0.02
Soil C	0.00	0.06	0.01	**0.47**	0.00	**0.45**	0.00	0.02
Soil N	0.00	0.23	0.03	0.46	0.01	0.35	0.00	0.03
Soil C:N	0.00	0.01	0.04	0.41	0.00	0.02	0.00	0.02
Soil N:P	0.00	0.01	0.03	0.42	0.00	0.01	0.00	0.02
Soil C:P	0.00	0.01	0.03	0.41	0.00	0.01	0.00	0.02
NH_4	0.00	0.01	0.01	0.01	0.01	0.00	0.04	0.02
NO_3	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.03
Hydroperiod	0.00	0.02	0.01	0.00	0.00	0.00	0.01	0.02
Hydroperiod*	0.01	0.07	0.02	0.01	0.04	0.01	0.13	0.03
Block	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00
Woodlot area	na	na	na	0.02	na	na	na	0.02
Regional variables								
Stocking index	0.00	0.01	**0.42**	0.00	0.00	0.02	0.00	0.02
Woodlot area	0.00	0.01	0.01	na	0.00	0.00	0.00	na
Wetland dist	**0.92**	0.05	0.08	0.15	0.06	0.00	0.08	0.03
Wetland den 400	0.02	0.03	0.03	0.06	0.06	0.00	0.08	0.03
Wetland den 1000	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.02
Ditch dist	0.07	0.03	0.03	0.18	0.06	0.00	0.10	0.05
Ditch den 400	0.02	**0.24**	0.06	0.07	**0.92**	0.10	**0.48**	**0.23**
Latitude	0.00	0.07	0.07	0.07	0.08	0.01	0.19	0.03
Longitude	0.00	0.08	0.05	0.04	0.09	0.01	0.43	0.06
Local	0.01	**0.74**	0.27	**2.67**	0.15	**0.90**	0.39	**0.66**
Regional	**1.03**	0.53	**0.76**	0.57	**1.27**	0.14	**1.37**	0.47
Highly managed pastures								
Null	0.05	0.00	0.00	0.00	0.00	0.07	0.00	0.04
Local variables								
Area	0.07	0.00	0.00	0.00	0.00	0.07	0.00	0.02
Depth	0.03	0.00	0.03	0.01	0.02	0.03	0.01	0.02
Water TP	**0.14**	0.00	0.00	0.00	**0.90**	**0.33**	0.36	0.01
Water TN	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.05
Soil P	0.07	0.05	0.00	0.01	0.00	0.03	0.06	0.10
Soil C	0.06	0.05	0.00	0.01	0.01	0.03	0.10	0.03
Soil N	0.03	0.05	0.04	0.01	0.00	0.02	0.05	0.02
Soil C:N	0.04	**0.92**	0.01	**0.60**	0.04	0.04	**0.47**	0.03
Soil N:P	0.08	0.05	0.00	0.01	0.00	0.04	0.06	**0.35**
Soil C:P	0.03	0.05	0.00	0.01	0.00	0.03	0.05	0.11
NH_4	0.01	0.00	0.01	0.00	0.20	0.02	0.17	0.07
NO_3	0.02	0.00	0.00	0.00	0.20	0.02	0.17	0.01
Hydroperiod	0.01	0.00	0.04	0.00	0.00	0.02	0.00	0.02
Hydroperiod*	0.02	0.00	0.06	0.00	0.01	0.03	0.08	0.02
Block	0.00	0.00	0.00	0.00	0.20	0.00	0.17	0.00
Woodlot area	na	na	na	0.35	na	na	na	0.01
Regional variables								
Stocking index	0.02	0.00	0.00	0.00	0.00	0.03	0.00	0.01
Woodlot area	0.01	0.04	0.00	na	0.00	0.03	0.00	0.01
Wetland dist	0.02	0.00	0.19	0.00	0.00	0.02	0.00	0.02
Wetland den 400	0.11	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Wetland den 1000	0.11	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Ditch dist	0.02	0.00	0.02	0.00	0.00	0.02	0.00	0.01
Ditch den 400	0.02	0.00	0.07	0.00	0.00	0.02	0.00	0.01
Latitude	0.02	0.00	**0.61**	0.01	0.00	0.04	0.00	0.02
Longitude	0.02	0.00	0.40	0.01	0.00	0.04	0.02	0.02
Local	**0.64**	**1.17**	0.19	**1.01**	**1.58**	**0.73**	**1.75**	**0.87**
Regional	0.35	0.04	**1.29**	0.02	0.00	0.24	0.02	0.14

* Indicates recent hydroperiod as number of visits immediately prior to sampling event that wetland was holding water.

composition were consistently influenced by local factors, whereas macroinvertebrate composition was consistently influenced by regional factors. Macroinvertebrates comprised 52% of total species richness, and thus influenced total community measures.

4. Discussion

Here, we examined how wetland vegetation, macroinvertebrates, and ectothermic vertebrates respond to land management intensity and the importance of local and regional factors to

their distribution. We tested two predictions based on ecological community assembly theory (Chase, 2007): (1) less diverse and more homogeneous communities would occur in greater land use intensity, and (2) local factors are more important to community composition in greater land use intensity. Overall, both predictions were partially supported; results varied among taxonomic assemblages. Prediction 1 was supported for vegetation and the whole community but not for macroinvertebrates or ectothermic vertebrates. Prediction 2 was supported for both vegetation and ectothermic vertebrates, but not for invertebrates. Our results represent a test of community assembly theory that used whole wetland ecosystems as experimental units and sampled macroscopic species inhabiting those wetlands (except mammals and birds). In addition to a large-scale test of community assembly theory, our results apply to better conservation and restoration of wetland communities embedded in ranchlands.

Community assembly studies formerly treated the niche- and dispersal-assembly paradigms as a dichotomy that omitted factors representing complex nature (Chase, 2007). More recently, community assembly research recognized that other factors influence the relative role of local and regional processes, including disturbance (Belote et al., 2009; Chase, 2007), habitat heterogeneity (Chisholm et al., 2010), productivity (Foster et al., 2004) and succession (Mouquet et al., 2003; Starzomski et al., 2008). Our study based on multifaceted land use incorporated and supported each of these factors; long-term land use has disturbed wetlands via upland conversion (replacement of native prairie with introduced forage grasses), drainage (i.e., ditching), cattle grazing (i.e., herbivory and trampling) and eutrophication (which affects productivity) to make wetlands more homogeneous and thus alter succession.

However, land use effects varied among taxa and community metrics, underlining the importance of studying multi-taxon responses and several measures of composition (Lüscher et al., 2014; Zulka et al., 2014). For instance, vegetation was more often affected by local conditions while macroinvertebrates were more often affected by regional factors. We infer that this difference was due in part to greater extent and variance in dispersal distances among macroinvertebrates (e.g., ranging from chironomids to large beetles) and the role of other habitats (e.g., ditches) and distances in that movement. The mix of local and regional processes at lesser land use intensity is consistent with theory (Chase, 2007) and the differences among taxa are intuitive; vegetation reflects local environmental conditions over time (Johnston et al., 2008), and is more likely to reflect local, niche-based assembly than mobile animals that annually recolonize seasonal wetlands. Also, different assemblages should best subscribe to different metacommunity paradigms in the same set of habitats. For example, our results suggest vegetation subscribes better to species sorting whereas macroinvertebrates subscribe better to patch dynamics (Leibold et al., 2004).

Eutrophication dominated local correlates of community metrics, as evidenced by negative correlations between nutrient levels (especially water TP) and multiple biotic responses. Soil nutrients also affected wetland communities, likely as a result of direct effects on vegetation (Bloom, 1985) and indirect effects on vertebrates. Eutrophication is well known to reduce diversity, although the effect varies among taxa (Keddy, 2010; Kneitel and Lessin, 2010; Rosset et al., 2014). Moreover, eutrophication can facilitate introduced species where background nutrient levels were previously low (Káplová et al., 2010), as in the sandy soils of MAERC. Indirect effects of soil fertility on ectothermic vertebrates were related to soil C content, consistent with greater organic matter availability (from greater plant biomass), which should drive detritivore and microbial-loop food-webs (e.g., Hall and Meyer, 1998), alter oxygen availability, and buffer water loss in soils; all of which shift habitat conditions for vertebrates, including estivating and incubating life stages.

4.1. Implications for agro-ecosystem management

The differences among taxa and land use intensities support the widespread use of multi-metric and multi-taxonomic assessment of land use effects (e.g. non-point source pollution) on aquatic communities. Different taxa (e.g., plants and insects) should exhibit very different responses to anthropogenic disturbance and it is likely inadequate to expect results from one taxon to translate well to another (Rosset et al., 2014; Söderström et al., 2001; Zulka et al., 2014). For instance, ectothermic vertebrate composition was more sensitive to eutrophication among semi-natural wetlands than other taxa. We advocate full community assessments of anthropogenic disturbance as opposed to single taxon approaches (e.g., macroinvertebrates or vegetation).

Intensive land use in highly managed pastures studied here has not already made all wetlands identically low-quality habitats. Instead, some heterogeneity and β diversity (Boughton et al., 2011) remains despite the negative effect of long-term fertilization on diversity and suggests that diversity loss and homogenization is on-going. Effects of long-term P fertilization will likely persist for decades as strong local effects and could be difficult to combat given its sedimentary biogeochemical cycle. However, our results suggest that all is not lost if other practices already employed on ranches, including the schedule and intensity of cattle grazing and prescribed fire, can help restore wetland communities in highly managed pastures.

Eutrophication may be mitigated in part for anurans by terrestrial habitat structure. Nearby woodlot area was valuable in models to explain ectothermic vertebrate composition in highly managed pastures. Wetlands surrounded by woodland habitat at MAERC had different anuran assemblages than those surrounded by only pasture (Babbitt et al., 2006), and *Hyla squirella* (squirrel tree frog) had higher survival rates in wetlands with more woodlots nearby (Windes, 2010). Thus, ectothermic vertebrate composition was affected by habitat availability for adult tree frogs and large-bodied ranid frogs (e.g. *Lithobates catesbeiana* and *L. grylio*). Given strong interest in amphibian conservation and the frequent use of woodlots by cattle for shade, we suggest more woodland habitat be preserved or restored in ranches, especially near wetlands embedded within highly managed pastures.

The distance to the nearest wetland and surrounding ditch density repeatedly dominated regional effects in wetland communities and assemblages in semi-natural pastures. Lands have been ditched throughout much of the Florida peninsula to shorten hydroperiods and eliminate many wetlands (Dahl, 1990). At MAERC alone, approximately 804 km of ditches exist. Ditches typically connect to permanent waters and provide direct corridors during the wet season for fishes even when shallow (Alemadi and Jenkins, 2007), or in some cases form permanent habitat themselves. Because wetlands are important to biodiversity in rangeland, and because fishes exert strong top-down effects on wetland communities, habitat restoration efforts in rangelands that are otherwise lightly disturbed should reduce the density and depth of ditches. Experimental manipulation of ditches and wetland community studies could test and calibrate the extent of laborious ditch filling required for conservation goals.

Both local and regional processes shape local communities. Our results reflect the effects of common agricultural land-use practices conducted over decades at a landscape scale for the embedded wetlands. As agricultural land use expands and become more intense in major agricultural regions (Ramankutty and Foley, 1999), other ecosystems are likely to show similar responses. Land use and climate change will interact to shift land use effects on ecological

communities at biogeographic scales (e.g., Jetz et al., 2007); effects at local and regional spatial extents may be less apparent. However, seasonal wetlands are sensitive to annual precipitation and temperature, and systems such as the MAERC wetlands may be sensitive indicators of land use—climate change interactions at modest spatial extents, given longitudinal data sets for comparison.

Finally, different environmental effects were revealed by analysing both composition and species richness; it was valuable to evaluate multiple metrics of community structure using multiple taxonomic assemblages. We expected species richness to be relatively insensitive to local and regional effects, given that very different assemblages may sum to the same species richness. It was, but species richness was consistently influenced by regional factors in semi-natural wetlands and local factors in highly managed wetlands. Both a multivariate measure of composition and among-wetland heterogeneity supplemented species richness to reveal effects that would be otherwise missed.

4.2. Conclusions

Our study supports the hypothesis that local, niche-based processes become more prevalent in community assembly with more intensive land use, and demonstrates that the effect of land use on species richness and community composition varies among taxonomic groups. Land managers should be aware of possible switches in the relative importance of local and regional factors as communities deteriorate or become restored, and expect vegetation and animals to respond differently. Indeed, a goal of restoration may be to enable that switch from a predominance of local factors in disturbed systems toward a more even mixture of local and regional factors that drive community composition of more natural systems.

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Appendix 1.

Plants, macroinvertebrates, and ectothermic vertebrates found in the forty study wetlands. Wetlands are denoted with a "P" followed by a unique pond id. Pasture type = HM: highly managed, SN: semi-natural. sr = species richness, abun = abundance. Data associated with species are: for plants, the number of plots that contained the species out of the 15 possible plots; for invertebrates and ectothermic vertebrates, data is number of individuals detected.

		P17	P21	P24	P44	P49	P66	P79
	pasturetype	HM	SN	HM	SN	SN	SN	SN
	richness_total	67	89	92	NA	82	75	65
	sr_plant	29	42	28	34	45	21	28
	sr_invert	33	42	61	NA	33	51	30
	sr_vert	5	5	3	8	4	3	7
	abun_invert	157	135	310	NA	132	209	63
	abun_vert	7	11	10	63	9	23	20
Family	Species							
Plants								
Amaranthaceae	*Alternanthera philoxeroides*	12	0	3	0	0	10	0
Poaceae	*Amphicarpum muehlenbergianum*	0	1	0	2	9	0	0
Poaceae	*Andropogon* spp	0	0	4	0	0	0	0
Poaceae	*Andropogon virginicus* var. *glaucus*	3	0	0	2	1	0	0
Poaceae	*Andropogon virginicus* var. *virginicus*	0	1	0	0	1	0	0
Poaceae	*Aristida patula*	0	0	0	0	0	0	0
Asclepiadaceae	*Sarcostemma clausa*	0	0	0	0	0	0	0
Asteraceae	*Aster subulatus*	0	4	0	0	6	0	1
Poaceae	*Axonopus fissifolius*	2	4	2	1	8	0	1
Azollaceae	*Azolla caroliniana*	0	0	0	0	0	0	1
Scrophulariaceae	*Bacopa caroliniana*	2	0	5	3	6	0	6
Asteraceae	*Bidens mitis*	0	0	0	0	0	0	0
Cyperaceae	*Carex abolutescens*	3	0	0	0	1	1	0
Cyperaceae	*Carex glaucescens*	0	0	0	0	0	0	0
Apiaceae	*Centella erecta*	7	11	9	0	5	4	3
Rubiaceae	*Cephalanthus occidentalis*	0	0	0	2	1	0	8
Cyperaceae	*Cladium jamaicense*	0	0	0	0	1	0	8
Commelinaceae	*Commelina diffusa*	4	0	0	0	0	1	0
Lythraceae	*Cuphea carthagenensis*	0	0	0	0	0	0	0
Poaceae	*Cynodon dactylon*	0	0	0	0	0	2	0
Cyperaceae	*Kyllingia brevifolius*	0	0	0	0	0	0	0
Cyperaceae	*Cyperus distinctus*	0	0	0	0	0	0	0
Cyperaceae	*Cyperus haspan*	1	0	6	0	0	0	0
Cyperaceae	*Cyperus retrorsus*	0	0	3	0	0	0	0
Cyperaceae	*Cyperus surinamensis*	0	0	0	0	0	0	0
Cyperaceae	*Cyperus* spp	0	0	1	0	0	0	0
Cyperaceae	*Dichromena colorata*	0	0	0	0	1	0	0
Poaceae	*Dichanthelium erectifolium*	0	2	0	7	4	0	1
Rubiaceae	*Diodia virginiana*	4	11	12	4	6	4	7
Asteraceae	*Eclipta prostrata*	0	0	0	0	0	0	0
Pontederiaceae	*Eichhornia crassipes*	0	0	0	0	0	0	0
Cyperaceae	*Eleocharis baldwinii*	4	0	8	0	0	0	0
Cyperaceae	*Eleocharis equisetoides*	0	0	0	0	0	0	0
Cyperaceae	*Eleocharis* spp	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Cyperaceae	*Eleocharis vivipara*	0	7	0	5	0	1	0
Poaceae	*Eragrostis elliotti*	0	1	0	0	2	0	0
Poaceae	*Eriocaulon decangulare*	0	0	0	0	0	0	0
Eriocaulaceae	*Saccharum giganteus*	0	0	0	0	0	0	0
Asteraceae	*Eupatorium capillifolium*	0	1	0	2	0	0	0
Asteraceae	*Eupatorium mikanioides*	0	0	0	0	3	0	0
Asteraceae	*Euthamia minor*	0	0	0	1	3	0	0
Cyperaceae	*Fuirena scirpoidea*	0	0	0	2	3	0	0
Rubiaceae	*Galium tinctorium*	1	0	0	0	0	0	0
Rubiaceae	*Hediotis uniflora*	0	0	1	0	0	0	0
Poaceae	*Hemarthria altissima*	0	0	0	0	0	0	0
Poaceae	*Hydrochloa caroliniana*	8	0	2	0	1	10	0
Apiaceae	*Hydrocotyle umbellata*	0	5	4	0	0	1	0
Poaceae	*Hymenachne amplexicaulis*	0	0	0	0	0	0	0
Liliaceae	*Hymenocallis latifolia*	0	4	0	0	4	0	0
Lamiaceae	*Hyptis alata*	0	0	0	0	1	0	2
Clusiaceae	*Hypericum edisonianum*	0	1	0	0	1	0	0
Clusiaceae	*Hypericum fasciculatum*	0	0	0	6	0	0	0
Clusiaceae	*Hypericum mutilum*	0	0	0	1	0	0	0
Convolvulaceae	*Ipomoea sagittata*	0	0	0	0	1	0	4
Juncaceae	*Juncus effusus*	8	0	10	0	0	6	0
Acanthaceae	*Justicia angusta*	0	1	1	0	2	0	1
Haemodoraceae	*Lachnanthes caroliana*	0	1	0	0	0	0	4
Poaceae	*Leersia hexandra*	5	2	0	2	4	0	2
Lemnaceae	*Lemna minor*	2	0	0	0	0	0	0
Hydrocharitaceae	*Limnobium spongia*	1	0	0	0	0	0	0
Scrophulariaceae	*Lindernia grandiflora*	3	0	0	0	0	0	0
Onagraceae	*Ludwigia arcuata*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia octovalvis*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia* spp	0	0	0	0	0	0	0
Onagraceae	*Ludwigia peruviana*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia pilosa*	0	1	0	0	0	0	1
Onagraceae	*Ludwigia repens*	5	2	6	0	5	4	0
Onagraceae	*Ludwigia suffruticosa*	0	1	0	0	2	0	0
Onagraceae	*Ludwigia virgata*	0	4	0	5	0	0	0
Cucurbitaceae	*Melothria pendula*	0	0	0	0	0	0	0
Asteraceae	*Mikania scandens*	0	0	0	0	0	0	0
Cucurbitaceae	*Momardica charantia*	0	0	0	0	0	0	0
Myricaceae	*Myrica cerifera*	0	0	0	0	0	0	0
Nymphaeaceae	*Nymphaea aquatica*	0	0	0	1	0	0	0
Apiaceae	*Oxypolis filiformis*	0	1	0	1	0	0	0
Poaceae	*Panicum dichotimiflorum*	0	0	0	0	0	0	0
Poaceae	*Panicum hemitomon*	9	11	8	8	5	11	9
Poaceae	*Panicum* sp.	0	0	0	0	0	0	0
Poaceae	*Panicum longifolium*	0	3	1	0	1	0	0
Poaceae	*Panicum repens*	4	2	9	0	0	1	0
Poaceae	*Panicum rigidulum*	0	0	0	1	2	0	0
Poaceae	*Paspalum acuminatum*	7	0	5	0	0	10	0
Poaceae	*Paspalum conjugatum*	2	0	1	0	0	5	0
Poaceae	*Paspalidium geminatum*	0	0	0	0	2	0	0
Poaceae	*Paspalum notatum*	3	0	4	0	0	1	0
Poaceae	*Paspalum urvillei*	0	0	0	0	0	0	0
Verbenaceae	*Phyla nodiflora*	0	0	0	0	4	5	0
Asteraceae	*Pluchea odorata*	0	4	0	0	2	0	1
Asteraceae	*Pluchea rosea*	0	0	0	0	0	0	0
Polygonaceae	*Polygonum hydropiperoides*	0	0	0	0	1	0	0
Polygonaceae	*Polygonum punctatum*	5	1	10	0	0	8	1
Pontederiaceae	*Pontedaria cordata*	4	6	9	5	1	0	6
Haloragaceae	*Proserpinaca palustris*	0	0	0	0	2	0	3
Haloragaceae	*Proserpinaca pectinata*	0	12	0	4	3	0	0
Melastomataceae	*Rhexia* spp	0	2	0	0	1	0	0
Cyperaceae	*Rhynchospora* spp	0	2	0	4	0	0	0
Cyperaceae	*Rhynchospora cephalantha*	0	2	0	0	0	0	0
Cyperaceae	*Rhynchospora fascicularis*	0	1	0	0	2	0	1
Cyperaceae	*Rhynchospora filifolia*	0	3	0	1	0	0	0
Cyperaceae	*Rhynchospora inundata*	0	11	0	4	11	0	11
Cyperaceae	*Rhynchospora megalocarpa*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora microcephala*	0	3	1	0	0	0	0
Cyperaceae	*Rhynchospora nitens*	0	2	0	5	1	0	3
Cyperaceae	*Rhynchospora tracyi*	0	0	0	4	0	0	0
Rosaceae	*Rubus cuneifolius*	0	0	0	0	0	0	0
Gentianaceae	*Sabatia grandiflora*	0	0	0	0	0	0	0
Arecaceae	*Sabal palmetto*	0	0	0	0	0	0	0
Poaceae	*Sacciolepis striata*	4	8	2	2	0	4	3
Alismataceae	*Sagittaria graminea*	0	4	0	10	1	0	0
Alismataceae	*Sagittaria lancifolia*	0	3	0	2	3	1	10
Salviniaceae	*Salvinia minima*	0	0	0	0	0	0	0
Poaceae	*Schizachyrium scoparium*	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Cyperaceae	*Scleria reticulata*	0	1	0	0	1	0	5
Fabaceae	*Sesbania herbacea*	0	0	0	0	0	1	0
Poaceae	*Setaria geniculata*	0	1	0	0	0	0	0
Asteraceae	*Solidago fistulosa*	3	0	0	0	0	0	0
Solanaceae	*Solanum viarum*	0	0	0	0	0	0	0
Poaceae	*Spartina bakeri*	0	0	0	1	0	0	0
Lentibulareaceae	*Utricularia foliosa*	4	0	0	1	0	0	4
Lentibulareaceae	*Utricularia purpurea*	0	0	0	3	0	0	0
Blechnaceae	*Woodwardia virginica*	0	0	0	0	0	0	0
Xyridaceae	*Xyris elliotii*	0	2	0	4	0	0	0
Unknown	*Unknown*	1	0	1	0	5	0	3
Unknown	*Unknown*	0	0	1	1	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	1	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Invertebrates								
Chrysomeliidae	*Unknown*	2	0	0	0	0	0	0
Circulionidae	*Lissorhoptrus* sp.	1	6	7	6	0	5	7
Circulionidae	*Listronotus* sp.	0	0	0	0	0	2	0
Dytiscidae	*Andocheilus exiguus*	0	2	0	1	0	0	0
Dytiscidae	*Bidessonotus* sp. 1	0	0	2	0	0	0	0
Dytiscidae	*Bidessonotus* sp. 2	1	0	0	2	0	0	0
Dytiscidae	*Brachyvatus apicatus*	0	0	0	0	0	0	0
Dytiscidae	*Celina* sp.	1	0	0	1	1	0	0
Dytiscidae	*Copelatus caelatipennis princeps*	6	1	6	0	1	0	1
Dytiscidae	*Coptotomus interrogatus*	0	0	0	0	0	0	0
Dytiscidae	*Coptotomus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Cybister* sp.	1	0	0	0	0	0	1
Dytiscidae	*Desmopachria* sp.	0	3	9	3	0	0	0
Dytiscidae	*Hydaticus bimarginatus*	0	0	0	0	0	0	0
Dytiscidae	*Hydaticus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Hydrovatus pustulatus compressus*	0	0	2	0	0	0	0
Dytiscidae	*Hydrovatus* sp.	3	1	0	0	2	0	0
Dytiscidae	*Laccophilus gentilis*	0	0	0	0	0	1	0
Dytiscidae	*Laccophilus proximus*	4	1	6	2	7	0	0
Dytiscidae	*Laccophilus* sp.	2	0	0	0	0	0	0
Dytiscidae	*Liodessus affinis*	0	0	0	0	0	0	0
Dytiscidae	*Liodessus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Neobidessus pullus*	0	0	0	0	0	0	0
Dytiscidae	*Pachydrus princeps*	6	0	0	0	3	0	0
Dytiscidae	*Thermonectus basillaris*	3	1	5	2	5	0	2
Dytiscidae	*Uvarus* sp.	1	1	0	0	0	0	0
Dytiscidae	*Unknown*	0	0	0	1	1	0	0
Haliplidae	*Haliplus annulatus*	1	1	1	0	1	0	0
Haliplidae	*Haliplus* sp.	1	8	0	0	2	0	0
Haliplidae	*Peltodytes dietrichi*	0	0	0	0	0	0	0
Haliplidae	*Peltodytes oppositus*	0	0	0	0	1	0	0
Haliplidae	*Peltodytes* sp.	0	1	0	0	0	2	0
Hydraeinidae	*Hydraena marginicollis*	0	0	8	1	3	0	0
Hydrophilidae	*Berosus corrini*	0	0	1	0	0	0	0
Hydrophilidae	*Berosus exiguus*	0	0	2	1	0	0	2
Hydrophilidae	*Berosus infuscatus*	0	0	4	0	0	0	5
Hydrophilidae	*Berosus pugnax*	0	0	0	0	0	0	0
Hydrophilidae	*Berosus* sp.	1	4	6	2	3	2	11
Hydrophilidae	*Derallus altus*	0	3	2	1	2	3	0
Hydrophilidae	*Dibolocelus ovatus*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus blatchleyi*	0	0	2	0	0	0	1
Hydrophilidae	*Enochrus cinctus*	0	0	0	0	1	0	0
Hydrophilidae	*Enochrus consors*	0	0	0	0	0	0	1
Hydrophilidae	*Enochrus ochraceus*	0	0	0	0	1	0	0
Hydrophilidae	*Enochrus pygmaeus*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus sublongus*	0	0	1	0	0	0	0
Hydrophilidae	*Enochrus* sp.	0	0	2	0	0	0	1
Hydrophilidae	*Helobata larvalis*	0	0	0	3	0	0	0
Hydrophilidae	*Hydrobiomorpha casta*	0	0	1	0	0	0	0
Hydrophilidae	*Hydrochus rugosus*	0	0	0	0	0	0	1
Hydrophilidae	*Hydrochus* sp.	0	0	0	0	1	0	0
Hydrophilidae	*Hydrophilus triangularis*	0	0	0	0	0	0	0
Hydrophilidae	*Paracymus nanus*	0	0	2	0	0	0	2
Hydrophilidae	*Paracymus reductus*	0	0	2	0	0	0	0
Hydrophilidae	*Paracymus* sp.	0	0	0	0	0	0	0
Hydrophilidae	*Phaenonotum exstriatum*	0	0	0	0	0	0	0
Hydrophilidae	*Tropisternus blatchleyi*	0	0	2	0	2	0	2
Hydrophilidae	*Tropisternus collaris*	0	0	0	0	0	0	0
Hydrophilidae	*Tropisternus lateralis nimbatus*	3	0	0	0	6	0	1
Hydrophilidae	*Tropisternus natator*	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Hydrophilidae	*Tropisternus* sp.	0	1	7	0	4	0	22
Noteridae	*Hydrocanthus oblongus*	11	8	8	0	34	5	7
Noteridae	*Hydrocanthus* sp.	25	9	15	19	17	5	4
Noteridae	*Mesonoterus addendus*	0	0	0	0	2	0	0
Noteridae	*Mesonoterus/Pronoterus* sp.	0	0	0	0	0	0	0
Noteridae	*Suphis inflatus*	0	7	0	0	1	0	1
Noteridae	*Supisellus gibbulus*	0	9	21	0	3	1	0
Noteridae	*Suphisellus puncticollis*	0	0	0	0	0	0	0
Scirtidae	*Cyphon* sp.	0	0	1	0	0	0	0
Scirtidae	*Scirtes* sp.	0	1	2	0	0	0	0
Scirtidae	*Unknown*	0	0	0	0	0	0	0
Belastomatidae	*Juvenile*	2	2	3	2	2	1	2
Belastomatidae	*Abedus immaculatus*	0	0	0	0	0	0	0
Belastomatidae	*Belastoma testaceum*	0	0	0	0	0	0	0
Belastomatidae	*Belastoma lutarium*	0	0	0	0	0	0	0
Belastomatidae	*Lethocerus uhleri*	0	0	0	0	0	0	0
Belastomatidae	*Lethocerus griseus*	0	0	0	0	0	0	0
Belastomatidae	*Lethocerus* sp. (immature)	0	0	0	0	0	0	0
Corixidae	*Trichocorixa louisianae*	3	1	16	0	2	0	0
Corixidae	*Micronecta ludibunda*	0	0	0	0	1	0	0
Corixidae	*Immature*	0	0	0	0	0	1	2
Hebridae	*Hebrus* sp.	0	0	0	0	0	0	0
Hebridae	*Lipogomphus* cf. *brevis*	0	0	0	0	0	0	1
Hebridae	*Hebrus consolidus*	0	0	0	0	0	0	0
Hydrometridae	*Hydrometra wileyae*	0	0	0	0	0	0	1
Hydrometridae	*Hydrometra hungerfordi*	0	0	0	0	0	0	0
Hydrometridae	*Hydrometra australis*	0	0	0	0	0	0	0
Mesoveliidae	*Mesovelia amoena*	0	0	1	0	0	0	0
Mesoveliidae	*Mesovelia mulsanti*	0	1	0	0	0	0	0
Mesoveliidae	*Mesovelia* sp. (immature)	0	0	0	0	0	0	0
Naucoridae	*Pelocoris carolinensis*	0	0	1	0	0	1	0
Naucoridae	*Pelocoris* sp. (immature)	0	0	0	0	0	1	0
Naucoridae	*Pelocoris* cf. *balius*	0	0	0	0	0	0	0
Naucoridae	*Pelocoris femoratus*	0	0	0	0	0	0	0
Nepidae	*Ranatra australis*	1	1	0	0	0	0	0
Nepidae	*Ranatra kirkaldyi*	0	0	0	0	0	0	0
Notonectidae	*Buenoa confusa*	0	0	5	0	0	0	0
Notonectidae	*Buenoa margaritacae*	0	0	0	0	0	0	0
Notonectidae	*Buenoa* sp. (immature)	1	2	4	0	0	4	0
Notonectidae	*Notonecta indica*	0	0	3	0	0	4	0
Notonectidae	*Notonecta* sp. (immature)	0	2	5	6	2	0	4
Notonectidae	*Notonecta undulata*	0	0	0	0	0	0	0
Pleidae	*Unknown*	0	0	0	0	0	0	0
Pleidae	*Paraplea* cf. *puella*	0	0	0	0	0	0	0
Pleidae	*Paraplea* sp.	0	2	1	0	3	5	0
Pleidae	*Neoplea* sp.	0	0	0	0	0	0	0
Saldidae	*Unknown*	0	0	0	0	0	0	0
Veliidae	*Microvelia* sp.	0	0	0	0	2	0	0
Veliidae	*Microvelia cubana*	0	2	5	7	3	2	1
Veliidae	*Microvelia americana*	0	0	0	0	1	0	0
Veliidae	*Platyvelia* cf. *brachialis*	0	0	0	0	0	1	0
Veliidae	*Stenovelia stagnalis*	0	0	0	0	0	0	0
Cicadellidae	*Unknown*	0	2	1	3	1	0	0
Cicadellidae	*Unknown*	0	0	0	1	0	0	0
Coenagrionidae	*Ishnura* sp.	13	23	26	16	13	4	7
Lestidae	*Lestes vidua*	0	0	1	0	0	0	0
Aeshnidae	*Anax junius*	0	3	1	1	1	0	0
Aeshnidae	*Coryphaeshnae ingens*	0	0	0	0	0	0	0
Aeshnidae	*Gomphaeshna antilope*	0	0	0	4	0	0	0
Aeshnidae	*Gomphaeshna* sp.	0	0	0	0	0	0	0
Libellulidae	*Erythemis simplicicollis*	0	0	8	0	5	0	0
Libellulidae	*Pachydiplax longipennis*	6	2	5	0	5	1	2
Libellulidae	*Tramea calverti*	0	0	0	0	0	0	0
Libellulidae	*Unknown*	0	0	0	0	13	1	0
Chaoboridae	*Chaoborius americanus*	26	5	0	0	2	0	0
Chaoboridae	*Unknown*	3	0	0	0	0	0	0
Ceratopogonidae	*Forcipomyia* sp.	0	0	0	0	0	0	0
Ceratopogonidae	*Unknown*	0	0	0	0	0	0	0
Ceratopogonidae	*Unknown*	0	0	17	1	0	0	54
Ceratopogonidae	*Unknown*	0	0	0	1	0	0	1
Canacidae	*Unknown*	0	0	0	1	0	0	0
Culicidae	*Anopheles* sp.	0	0	0	0	0	0	0
Culicidae	*Anopheles crucians*	0	0	1	0	1	1	4
Culicidae	*Culex* sp.	0	0	0	0	0	0	0
Culicidae	*Culex declarator*	0	0	0	0	0	0	0
Culicidae	*Culex erraticus*	0	2	0	0	3	1	2
Culicidae	*Culex nigripalpus*	0	0	0	0	0	0	0
Culicidae	*Mansonia titillans*	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Culicidae	*Uranotaenia sapphirina*	16	2	11	0	13	0	2
Culicidae	*Unknown*	0	0	0	0	1	0	0
Culicidae	*Unknown*	1	0	1	0	4	0	0
Culicidae	*Unknown*	0	0	0	0	0	0	0
Chironomidae	*Unknown*	0	1	0	0	0	0	0
Chironomidae	*Unknown*	0	0	0	0	0	0	0
Chironomidae	*Unknown*	2	2	4	4	0	0	2
Chironomidae	*Ablabesmyia peleensis*	4	0	5	8	2	1	6
Chironomidae	*Beardius reissi*	2	1	11	15	3	10	0
Chironomidae	*Cantopelopia gesta*	10	0	2	0	6	0	0
Chironomidae	*Corynoneura* sp. *B*	0	1	0	0	0	0	0
Chironomidae	*Djalmabatista pulchra*	0	0	0	0	0	0	0
Chironomidae	*Fittkauimyia serta*	0	0	0	0	0	0	0
Chironomidae	*Goeldichironomus* sp.	0	0	0	0	0	0	0
Chironomidae	*Goeldichironomus* cf. *devineyae*	0	0	0	0	0	0	0
Chironomidae	*Goeldichironomus holoprasinus*	3	0	1	0	5	0	16
Chironomidae	*Goeldichironomus* cf. *natans*	0	0	0	0	0	0	3
Chironomidae	*Krenopelopia* cf. *hudsoni*	0	0	0	0	0	0	0
Chironomidae	*Labrundinia virescens*	0	5	16	0	0	0	0
Chironomidae	*Labrundinia* sp.	0	0	0	0	0	0	0
Chironomidae	*Larsia berneri*	0	0	0	0	0	0	0
Chironomidae	*Monopelopia boliekae*	0	0	1	0	0	1	6
Chironomidae	*Parachironomus tenuidaudatus*	0	0	0	0	0	0	0
Chironomidae	*Polypedilum polypedilum trigonus*	0	0	2	0	6	0	0
Chironomidae	*Tanypus* sp.	0	0	0	0	0	0	0
Chironomidae	*Xestochironomus xenolabis*	0	0	0	0	0	0	0
Ephydridae	*Brachydeutera argentata*	0	1	0	0	0	0	0
Mymaridae	*Unknown*	0	0	0	1	0	0	0
Scelionidae	*Unknown*	0	0	0	0	0	0	0
Sciomyzidae	*Renocera* sp.	0	0	0	1	0	0	0
Stratiomyidae	*Stratiomys* sp.	0	0	3	0	3	0	0
Stratiomyidae	*Unknown*	0	0	0	0	0	0	0
Tipulidae	*Unknown*	0	0	0	0	0	0	0
Tipulidae	*Tipula* sp.	0	0	0	0	0	0	0
Tabanidae	*Chrysops* sp.	0	1	1	2	0	0	0
Tabanidae	*Haematopota* sp.	0	0	0	0	0	0	0
Tabanidae	*Tabanus* sp.	0	0	3	0	0	1	0
Tabanidae	*Unknown*	0	0	0	0	0	0	0
Baetidae	*Callibaetis floridanus*	0	3	14	12	2	3	4
Baetidae	*Callibaetis pretiosus*	0	0	0	0	0	0	0
Baetidae	*Caenis macafferti*	0	0	0	0	0	1	0
Hypogastruridae	*Odontella* sp.	0	0	2	1	0	1	0
Sminthuridae	*Bourletiella* sp.	0	0	2	0	0	0	0
Vertebrates								
Hylidae	*Acris gryllus*	0	3	0	8	0	0	0
Amphiumidae	*Amphium means*	0	0	1	0	0	0	0
Ictaluridae	*Ameirus nebulosus*	0	1	0	0	0	0	0
Elassomatidae	*Elassoma evergladei*	0	0	0	0	0	0	0
Catostomidae	*Erimyzon sucetta*	0	0	0	0	0	0	0
Fundulidae	*Fundulus chrysotus*	0	0	0	3	0	2	1
Fundulidae	*Fundulus cingulatus*	0	0	0	0	0	0	0
Fundulidae	*Fundulus lineolatus*	0	0	0	0	0	0	0
Microhylidae	*Gastrophryne carolinensis*	1	0	0	0	0	0	0
Poeciliidae	*Gambusia holbrooki*	1	1	0	7	4	16	4
Hylidae	*Hyla cinerea*	0	0	0	0	0	0	2
Hylidae	*Hyla femoralis*	0	1	0	2	0	0	0
Hylidae	*Hyla* sp.	0	0	0	0	0	0	0
Hylidae	*Hyla gratiosa*	0	0	0	38	0	0	0
Callichthyidae	*Hoplosternum littorale*	0	0	0	0	2	0	0
Hylidae	*Hyla squirella*	2	0	0	0	2	0	2
Cyprinodontidae	*Jordanella floridae*	0	0	0	1	0	0	0
Centrarchidae	*Lepomis gulosus*	0	0	0	0	0	0	0
Colubridae	*Nerodia cyclopion*	0	0	0	0	0	0	0
Colubridae	*Nerodia fasciata*	0	0	0	0	0	0	0
Colubridae	*Narodia floridana*	0	0	0	0	0	0	0
NA	*Unknown* (PLAT)	0	0	0	0	0	0	0
Sirenidae	*Pseudrobranchus striatus*	0	0	0	1	0	0	0
Ranidae	*Rana* sp.	0	0	0	0	0	0	1
Ranidae	*Rana catesbiana*	0	0	2	0	0	0	0
Ranidae	*Rana grylio*	2	0	7	0	0	0	0
Ranidae	*Lithobates sphenocephalus*	1	5	0	3	1	5	9
Sirenidae	*Siren lacertina*	0	0	0	0	0	0	0
NA	*Small fish*	0	0	0	0	0	0	0
Colubridae	*Seminatrix pygea*	0	0	0	0	0	0	0
Colubridae	*Thamnophis sauritus*	0	0	0	0	0	0	0
NA	*Unknown tadpole*	0	0	0	0	0	0	1

Appendix 1 (*Continued*)

		P84	P91	P93	P105	P123	P127	P130
	pasturetype	SN	SN	HM	SN	HM	HM	HM
	richness_total	77	74	77	89	77	69	73
	sr_plant	34	31	29	34	40	26	24
	sr_invert	37	36	43	50	29	38	39
	sr_vert	6	7	5	5	8	5	10
	abun_invert	192	108	172	211	105	122	136
	abun_vert	30	40	24	12	22	65	101
Family	Species							
Plants								
Amaranthaceae	*Alternanthera philoxeroides*	1	5	0	4	3	13	14
Poaceae	*Amphicarpum muehlenbergianum*	0	0	1	1	0	0	0
Poaceae	*Andropogon* spp	0	0	0	0	0	0	0
Poaceae	*Andropogon virginicus* var. *glaucus*	0	1	2	1	4	0	1
Poaceae	*Andropogon virginicus* var. *virginicus*	0	0	0	1	0	0	0
Poaceae	*Aristida patula*	0	0	0	0	0	0	0
Asclepiadaceae	*Sarcostemma clausa*	0	0	0	1	0	0	0
Asteraceae	*Aster subulatus*	0	0	0	0	2	1	0
Poaceae	*Axonopus fissifolius*	4	1	0	3	2	0	0
Azollaceae	*Azolla caroliniana*	0	0	0	1	0	1	0
Scrophulariaceae	*Bacopa caroliniana*	0	2	0	4	0	0	0
Asteraceae	*Bidens mitis*	0	0	11	0	0	0	0
Cyperaceae	*Carex abolutescens*	0	0	5	10	0	3	3
Cyperaceae	*Carex glaucescens*	0	0	0	0	0	0	0
Apiaceae	*Centella erecta*	6	3	3	5	9	7	3
Rubiaceae	*Cephalanthus occidentalis*	5	6	1	1	6	0	0
Cyperaceae	*Cladium jamaicense*	10	3	5	0	5	0	0
Commelinaceae	*Commelina diffusa*	0	0	0	6	2	7	12
Lythraceae	*Cuphea carthagenensis*	0	0	0	0	2	0	1
Poaceae	*Cynodon dactylon*	0	0	0	0	2	0	3
Cyperaceae	*Kyllingia brevifolius*	0	0	0	0	0	0	0
Cyperaceae	*Cyperus distinctus*	1	0	0	0	0	0	0
Cyperaceae	*Cyperus haspan*	0	0	0	0	0	0	3
Cyperaceae	*Cyperus retrorsus*	1	0	0	1	1	0	0
Cyperaceae	*Cyperus surinamensis*	0	0	0	0	0	0	2
Cyperaceae	*Cyperus* spp	0	0	0	0	0	0	0
Cyperaceae	*Dichromena colorata*	0	0	0	0	0	0	0
Poaceae	*Dichanthelium erectifolium*	0	1	0	0	1	0	0
Rubiaceae	*Diodia virginiana*	11	8	5	6	10	1	0
Asteraceae	*Eclipta prostrata*	0	1	0	0	0	1	0
Pontederiaceae	*Eichhornia crassipes*	0	0	0	0	0	0	0
Cyperaceae	*Eleocharis baldwinii*	0	0	0	0	0	0	1
Cyperaceae	*Eleocharis equisetoides*	0	3	0	0	0	0	0
Cyperaceae	*Eleocharis* spp	0	0	0	0	0	0	0
Cyperaceae	*Eleocharis vivipara*	0	0	10	2	0	0	0
Poaceae	*Eragrostis elliotti*	0	0	0	0	0	0	0
Poaceae	*Eriocaulon decangulare*	0	0	0	0	0	0	0
Eriocaulaceae	*Saccharum giganteus*	0	0	0	0	0	0	0
Asteraceae	*Eupatorium capillifolium*	1	0	0	0	1	0	0
Asteraceae	*Eupatorium mikanioides*	0	0	0	0	1	0	0
Asteraceae	*Euthamia minor*	0	1	0	0	0	0	0
Cyperaceae	*Fuirena scirpoidea*	0	0	0	0	0	0	0
Rubiaceae	*Galium tinctorium*	0	0	0	2	0	3	2
Rubiaceae	*Hediotis uniflora*	0	0	1	0	0	0	0
Poaceae	*Hemarthria altissima*	0	0	0	0	0	0	5
Poaceae	*Hydrochloa caroliniana*	0	3	0	2	6	10	2
Apiaceae	*Hydrocotyle umbellata*	1	0	9	4	1	4	2
Poaceae	*Hymenachne amplexicaulis*	3	0	0	0	4	0	0
Liliaceae	*Hymenocallis latifolia*	0	0	3	0	0	0	0
Lamiaceae	*Hyptis alata*	2	1	0	0	0	0	0
Clusiaceae	*Hypericum edisonianum*	0	0	0	0	0	0	0
Clusiaceae	*Hypericum fasciculatum*	0	0	0	0	0	0	0
Clusiaceae	*Hypericum mutilum*	0	0	0	0	0	0	0
Convolvulaceae	*Ipomoea sagittata*	0	2	0	0	3	0	0
Juncaceae	*Juncus effusus*	1	0	0	14	0	10	14
Acanthaceae	*Justicia angusta*	0	2	0	0	1	0	0
Haemodoraceae	*Lachnanthes caroliana*	1	0	4	0	0	0	0
Poaceae	*Leersia hexandra*	3	6	0	8	4	2	3
Lemnaceae	*Lemna minor*	0	0	0	0	0	0	0
Hydrocharitaceae	*Limnobium spongia*	0	0	0	0	0	0	0
Scrophulariaceae	*Lindernia grandiflora*	0	0	0	1	0	0	0
Onagraceae	*Ludwigia arcuata*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia octovalvis*	0	0	0	0	0	1	0
Onagraceae	*Ludwigia* spp	0	2	4	0	0	0	0
Onagraceae	*Ludwigia peruviana*	0	0	0	5	0	0	0
Onagraceae	*Ludwigia pilosa*	0	0	0	2	0	0	0
Onagraceae	*Ludwigia repens*	1	0	0	7	3	9	5

Appendix 1 (*Continued*)

Onagraceae	*Ludwigia suffruticosa*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia virgata*	0	0	0	0	0	0	0
Cucurbitaceae	*Melothria pendula*	0	0	0	0	0	0	0
Asteraceae	*Mikania scandens*	0	1	0	0	0	0	2
Cucurbitaceae	*Momardica charantia*	0	0	0	0	0	0	0
Myricaceae	*Myrica cerifera*	0	0	0	0	0	0	0
Nymphaeaceae	*Nymphaea aquatica*	0	0	0	0	0	0	0
Apiaceae	*Oxypolis filiformis*	0	0	0	0	0	0	0
Poaceae	*Panicum dichotimiflorum*	0	0	0	0	5	0	0
Poaceae	*Panicum hemitomon*	6	6	8	13	5	5	8
Poaceae	*Panicum* sp.	0	0	0	0	0	0	0
Poaceae	*Panicum longifolium*	0	0	5	1	0	0	0
Poaceae	*Panicum repens*	3	0	0	2	2	1	0
Poaceae	*Panicum rigidulum*	2	3	0	0	7	0	0
Poaceae	*Paspalum acuminatum*	0	5	0	2	9	9	0
Poaceae	*Paspalum conjugatum*	0	0	0	0	1	2	0
Poaceae	*Paspalidium geminatum*	0	0	0	0	0	0	0
Poaceae	*Paspalum notatum*	1	0	0	0	0	3	5
Poaceae	*Paspalum urvillei*	0	0	0	0	0	0	0
Verbenaceae	*Phyla nodiflora*	1	4	0	0	5	1	3
Asteraceae	*Pluchea odorata*	0	0	2	1	0	0	0
Asteraceae	*Pluchea rosea*	0	0	0	0	0	0	0
Polygonaceae	*Polygonum hydropiperoides*	1	0	7	0	0	0	0
Polygonaceae	*Polygonum punctatum*	0	8	0	14	4	9	5
Pontederiaceae	*Pontedaria cordata*	4	10	5	7	5	2	1
Haloragaceae	*Proserpinaca palustris*	0	1	0	0	3	0	0
Haloragaceae	*Proserpinaca pectinata*	0	1	3	0	0	0	0
Melastomataceae	*Rhexia* spp	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora* spp	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora cephalantha*	0	0	1	0	0	0	0
Cyperaceae	*Rhynchospora fascicularis*	0	0	0	0	0	0	1
Cyperaceae	*Rhynchospora filifolia*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora inundata*	4	6	1	0	5	0	0
Cyperaceae	*Rhynchospora megalocarpa*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora microcephala*	0	0	1	0	0	0	0
Cyperaceae	*Rhynchospora nitens*	2	0	0	0	0	0	0
Cyperaceae	*Rhynchospora tracyi*	0	0	0	0	0	0	0
Rosaceae	*Rubus cuneifolius*	0	0	0	0	0	0	0
Gentianaceae	*Sabatia grandiflora*	0	0	0	0	0	0	0
Arecaceae	*Sabal palmetto*	0	0	0	0	0	0	0
Poaceae	*Sacciolepis striata*	8	7	11	5	5	2	0
Alismataceae	*Sagittaria graminea*	1	0	3	0	0	0	0
Alismataceae	*Sagittaria lancifolia*	6	3	0	0	7	0	0
Salviniaceae	*Salvinia minima*	0	0	0	0	3	0	0
Poaceae	*Schizachyrium scoparium*	0	0	0	0	0	0	0
Cyperaceae	*Scleria reticulata*	0	0	0	0	0	0	0
Fabaceae	*Sesbania herbacea*	1	0	0	0	2	0	0
Poaceae	*Setaria geniculata*	0	0	0	0	3	1	0
Asteraceae	*Solidago fistulosa*	0	0	0	2	0	0	0
Solanaceae	*Solanum viarum*	0	0	0	0	0	0	0
Poaceae	*Spartina bakeri*	0	0	1	0	0	0	0
Lentibulareaceae	*Utricularia foliosa*	2	0	0	0	2	0	0
Lentibulareaceae	*Utricularia purpurea*	0	0	0	0	0	0	0
Blechnaceae	*Woodwardia virginica*	0	0	1	2	0	0	0
Xyridaceae	*Xyris elliotii*	0	0	1	0	0	0	0
Unknown	*Unknown*	0	1	0	0	0	0	0
Unknown	*Unknown*	1	0	0	0	0	1	0
Unknown	*Unknown*	1	0	0	0	0	0	0
Unknown	*Unknown*	1	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	1	0	0
Invertebrates								
Chrysomeliidae	*Unknown*	0	0	0	0	0	0	0
Circulionidae	*Lissorhoptrus* sp.	0	14	7	2	1	0	0
Circulionidae	*Listronotus* sp.	0	2	0	1	0	0	0
Dytiscidae	*Andocheilus exiguus*	0	0	0	0	0	0	0
Dytiscidae	*Bidessonotus* sp. 1	0	0	0	0	0	2	0
Dytiscidae	*Bidessonotus* sp. 2	0	0	1	0	0	2	1
Dytiscidae	*Brachyvatus apicatus*	0	0	0	0	0	0	0
Dytiscidae	*Celina* sp.	0	0	0	0	0	0	0
Dytiscidae	*Copelatus caelatipennis princeps*	0	1	1	0	1	0	10
Dytiscidae	*Coptotomus interrogatus*	0	0	0	0	0	0	0
Dytiscidae	*Coptotomus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Cybister* sp.	0	0	0	0	0	0	0
Dytiscidae	*Desmopachria* sp.	0	6	0	0	0	0	0
Dytiscidae	*Hydaticus bimarginatus*	0	1	0	0	0	0	0
Dytiscidae	*Hydaticus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Hydrovatus pustulatus compressus*	0	1	0	0	0	0	0

Appendix 1 (*Continued*)

Dytiscidae	*Hydrovatus* sp.	0	0	0	0	0	1	10
Dytiscidae	*Laccophilus gentilis*	0	0	0	0	0	0	0
Dytiscidae	*Laccophilus proximus*	0	2	1	1	2	1	2
Dytiscidae	*Laccophilus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Liodessus affinis*	0	1	1	0	0	2	0
Dytiscidae	*Liodessus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Neobidessus pullus*	0	0	0	0	0	0	2
Dytiscidae	*Pachydrus princeps*	0	0	1	0	0	2	4
Dytiscidae	*Thermonectus basillaris*	0	3	2	0	2	1	2
Dytiscidae	*Uvarus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Unknown*	0	0	0	0	0	0	0
Haliplidae	*Haliplus annulatus*	1	0	1	0	0	1	0
Haliplidae	*Haliplus* sp.	0	4	2	0	6	0	0
Haliplidae	*Peltodytes dietrichi*	0	0	0	0	0	0	0
Haliplidae	*Peltodytes oppositus*	1	0	0	0	0	0	1
Haliplidae	*Peltodytes* sp.	0	0	0	0	0	0	0
Hydraeinidae	*Hydraena marginicollis*	0	20	14	1	1	16	3
Hydrophilidae	*Berosus corrini*	0	0	0	0	0	0	0
Hydrophilidae	*Berosus exiguus*	0	0	0	1	0	0	0
Hydrophilidae	*Berosus infuscatus*	1	0	0	0	0	0	3
Hydrophilidae	*Berosus pugnax*	0	0	0	0	0	0	0
Hydrophilidae	*Berosus* sp.	9	1	1	10	5	7	12
Hydrophilidae	*Derallus altus*	0	0	6	1	0	3	7
Hydrophilidae	*Dibolocelus ovatus*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus blatchleyi*	0	0	0	1	0	1	0
Hydrophilidae	*Enochrus cinctus*	0	0	0	0	0	0	1
Hydrophilidae	*Enochrus consors*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus ochraceus*	0	6	2	0	0	2	0
Hydrophilidae	*Enochrus pygmaeus*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus sublongus*	0	16	0	0	0	0	0
Hydrophilidae	*Enochrus* sp.	0	1	1	1	2	0	1
Hydrophilidae	*Helobata larvalis*	0	1	4	0	1	3	1
Hydrophilidae	*Hydrobiomorpha casta*	0	0	0	0	0	0	0
Hydrophilidae	*Hydrochus rugosus*	1	0	0	0	0	0	0
Hydrophilidae	*Hydrochus* sp.	0	0	0	0	0	0	0
Hydrophilidae	*Hydrophilus triangularis*	0	0	0	0	1	0	0
Hydrophilidae	*Paracymus nanus*	0	1	1	0	5	1	5
Hydrophilidae	*Paracymus reductus*	0	0	0	0	0	0	0
Hydrophilidae	*Paracymus* sp.	0	0	0	0	1	0	0
Hydrophilidae	*Phaenonotum exstriatum*	0	0	0	0	0	0	0
Hydrophilidae	*Tropisternus blatchleyi*	0	0	1	0	0	1	0
Hydrophilidae	*Tropisternus collaris*	0	0	0	0	1	0	0
Hydrophilidae	*Tropisternus lateralis nimbatus*	0	5	0	0	10	0	4
Hydrophilidae	*Tropisternus natator*	0	0	0	0	0	0	0
Hydrophilidae	*Tropisternus* sp.	3	3	0	5	5	0	9
Noteridae	*Hydrocanthus oblongus*	4	2	5	8	16	19	13
Noteridae	*Hydrocanthus* sp.	3	2	7	14	9	3	20
Noteridae	*Mesonoterus addendus*	0	0	0	0	0	0	0
Noteridae	*Mesonoterus/Pronoterus* sp.	0	0	0	0	0	0	0
Noteridae	*Suphis inflatus*	3	0	1	0	1	1	1
Noteridae	*Supisellus gibbulus*	15	10	6	0	1	1	4
Noteridae	*Suphisellus puncticollis*	0	0	0	0	0	0	0
Scirtidae	*Cyphon* sp.	0	0	0	0	0	0	0
Scirtidae	*Scirtes* sp.	0	0	0	0	0	3	1
Scirtidae	*Unknown*	0	0	0	0	0	0	0
Belastomatidae	*Juvenile*	11	0	3	4	0	1	3
Belastomatidae	*Abedus immaculatus*	0	0	1	0	0	0	0
Belastomatidae	*Belastoma testaceum*	1	0	0	0	0	0	0
Belastomatidae	*Belastoma lutarium*	0	0	0	0	0	0	0
Belastomatidae	*Lethocerus uhleri*	0	0	0	0	0	0	0
Belastomatidae	*Lethocerus griseus*	0	0	0	0	0	0	0
Belastomatidae	*Lethocerus* sp. (immature)	0	0	0	0	0	0	0
Corixidae	*Trichocorixa louisianae*	6	2	0	2	0	2	1
Corixidae	*Micronecta ludibunda*	0	0	0	0	0	0	0
Corixidae	*Immature*	0	0	0	12	0	0	0
Hebridae	*Hebrus* sp.	0	0	0	0	0	0	0
Hebridae	*Lipogomphus* cf. *brevis*	0	0	8	0	0	0	0
Hebridae	*Hebrus consolidus*	0	0	1	0	0	0	0
Hydrometridae	*Hydrometra wileyae*	0	0	0	0	0	0	0
Hydrometridae	*Hydrometra hungerfordi*	0	0	0	0	0	0	0
Hydrometridae	*Hydrometra australis*	0	0	0	0	0	1	0
Mesoveliidae	*Mesovelia amoena*	0	0	1	0	0	0	0
Mesoveliidae	*Mesovelia mulsanti*	0	1	0	0	0	0	0
Mesoveliidae	*Mesovelia* sp. (immature)	0	0	0	0	0	0	0
Naucoridae	*Pelocoris carolinensis*	0	0	0	0	0	0	0
Naucoridae	*Pelocoris* sp. (immature)	0	0	0	0	0	0	0
Naucoridae	*Pelocoris* cf. *balius*	0	0	2	0	0	0	0
Naucoridae	*Pelocoris femoratus*	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Nepidae	*Ranatra australis*	0	0	1	0	0	0	0
Nepidae	*Ranatra kirkaldyi*	0	0	0	0	0	0	0
Notonectidae	*Buenoa confusa*	0	0	3	0	0	0	0
Notonectidae	*Buenoa margaritacae*	0	0	0	0	2	0	0
Notonectidae	*Buenoa* sp. (immature)	1	0	17	0	4	2	1
Notonectidae	*Notonecta indica*	1	0	2	1	0	0	0
Notonectidae	*Notonecta* sp. (immature)	1	0	2	4	0	0	0
Notonectidae	*Notonecta undulata*	0	0	0	0	0	0	0
Pleidae	*Unknown*	1	0	0	0	0	0	0
Pleidae	*Paraplea* cf. *puella*	0	0	0	0	0	0	0
Pleidae	*Paraplea* sp.	3	0	1	2	3	0	3
Pleidae	*Neoplea* sp.	2	0	0	0	0	0	0
Saldidae	*Unknown*	0	0	0	0	0	0	0
Veliidae	*Microvelia* sp.	0	0	3	0	0	0	0
Veliidae	*Microvelia cubana*	2	11	6	1	0	1	0
Veliidae	*Microvelia americana*	0	1	0	0	3	0	0
Veliidae	*Platyvelia* cf. *brachialis*	1	0	0	0	0	0	1
Veliidae	*Stenovelia stagnalis*	0	0	0	0	0	0	0
Cicadellidae	*Unknown*	0	0	0	0	2	0	0
Cicadellidae	*Unknown*	0	0	0	0	0	0	0
Coenagrionidae	*Ishnura* sp.	6	20	16	5	8	4	0
Lestidae	*Lestes vidua*	0	0	0	0	0	0	0
Aeshnidae	*Anax junius*	1	1	0	0	0	2	0
Aeshnidae	*Coryphaeshnae ingens*	0	0	1	0	0	0	0
Aeshnidae	*Gomphaeshna antilope*	0	0	0	0	0	0	0
Aeshnidae	*Gomphaeshna* sp.	0	0	0	0	1	0	0
Libellulidae	*Erythemis simplicicollis*	0	0	0	0	2	0	0
Libellulidae	*Pachydiplax longipennis*	1	8	4	0	5	1	2
Libellulidae	*Tramea calverti*	0	0	0	0	0	0	0
Libellulidae	*Unknown*	0	2	0	0	2	0	0
Chaoboridae	*Chaoborius americanus*	0	0	0	0	0	0	0
Chaoboridae	*Unknown*	0	0	0	0	0	1	0
Ceratopogonidae	*Forcipomyia* sp.	1	0	0	0	0	0	0
Ceratopogonidae	*Unknown*	0	0	0	1	0	0	0
Ceratopogonidae	*Unknown*	0	0	15	0	0	3	0
Ceratopogonidae	*Unknown*	0	0	0	0	0	0	0
Canacidae	*Unknown*	0	0	0	0	0	0	0
Culicidae	*Anopheles* sp.	1	0	0	0	0	0	0
Culicidae	*Anopheles crucians*	1	2	2	4	0	0	1
Culicidae	*Culex* sp.	0	1	0	0	0	0	0
Culicidae	*Culex declarator*	1	0	0	0	0	0	0
Culicidae	*Culex erraticus*	1	0	0	6	2	0	0
Culicidae	*Culex nigripalpus*	0	0	0	0	0	0	0
Culicidae	*Mansonia titillans*	0	0	0	0	0	0	2
Culicidae	*Uranotaenia sapphirina*	0	9	6	1	1	1	0
Culicidae	*Unknown*	0	0	0	0	0	0	0
Culicidae	*Unknown*	0	1	0	0	0	0	5
Culicidae	*Unknown*	0	0	0	1	0	0	0
Chironomidae	*Unknown*	0	0	0	0	0	0	0
Chironomidae	*Unknown*	0	0	0	0	0	0	0
Chironomidae	*Unknown*	1	0	0	0	0	2	2
Chironomidae	*Ablabesmyia peleensis*	1	0	0	0	0	0	0
Chironomidae	*Beardius reissi*	6	1	15	16	4	14	0
Chironomidae	*Cantopelopia gesta*	0	0	6	0	3	0	4
Chironomidae	*Corynoneura* sp. *B*	0	4	0	0	0	0	0
Chironomidae	*Djalmabatista pulchra*	0	0	0	0	0	0	0
Chironomidae	*Fittkauimyia serta*	0	0	1	0	0	0	0
Chironomidae	*Goeldichironomus* sp.	0	0	0	0	0	0	0
Chironomidae	*Goeldichironomus* cf. *devineyae*	0	0	0	0	0	0	0
Chironomidae	*Goeldichironomus holoprasinus*	4	0	7	0	3	9	14
Chironomidae	*Goeldichironomus* cf. *natans*	0	0	0	0	0	11	0
Chironomidae	*Krenopelopia* cf. *hudsoni*	0	0	0	0	0	0	0
Chironomidae	*Labrundinia virescens*	0	2	0	0	0	0	0
Chironomidae	*Labrundinia* sp.	0	0	0	0	0	0	0
Chironomidae	*Larsia berneri*	0	4	0	0	0	0	0
Chironomidae	*Monopelopia boliekae*	0	0	0	0	0	0	0
Chironomidae	*Parachironomus tenuidaudatus*	0	0	0	0	4	0	0
Chironomidae	*Polypedilum polypedilum trigonus*	0	2	0	0	0	0	0
Chironomidae	*Tanypus* sp.	0	0	0	0	0	0	0
Chironomidae	*Xestochironomus xenolabis*	2	0	0	0	0	0	0
Ephydridae	*Brachydeutera argentata*	0	0	0	0	0	0	0
Mymaridae	*Unknown*	0	0	0	0	0	0	0
Scelionidae	*Unknown*	0	0	0	0	0	0	0
Sciomyzidae	*Renocera* sp.	0	0	0	0	0	0	0
Stratiomyidae	*Stratiomys* sp.	6	37	8	2	2	0	0
Stratiomyidae	*Unknown*	0	0	0	0	0	0	0
Tipulidae	*Unknown*	0	0	0	0	0	0	0
Tipulidae	*Tipula* sp.	0	0	1	0	0	1	0

Appendix 1 (*Continued*)

Tabanidae	*Chrysops* sp.	0	0	0	0	0	0	0
Tabanidae	*Haematopota* sp.	0	0	0	0	0	0	0
Tabanidae	*Tabanus* sp.	0	1	0	2	0	0	0
Tabanidae	*Unknown*	0	0	0	0	0	0	0
Baetidae	*Callibaetis floridanus*	4	1	9	4	8	6	0
Baetidae	*Callibaetis pretiosus*	0	0	0	0	0	0	0
Baetidae	*Caenis macafferti*	0	0	0	0	1	1	0
Hypogastruridae	*Odontella* sp.	0	0	1	0	0	0	1
Sminthuridae	*Bourletiella* sp.	0	3	2	0	0	0	0
Vertebrates								
Hylidae	*Acris gryllus*	0	0	1	0	0	0	0
Amphiumidae	*Amphium means*	0	0	0	0	0	0	0
Ictaluridae	*Ameirus nebulosus*	0	0	0	0	0	0	0
Elassomatidae	*Elassoma evergladei*	0	0	0	0	0	0	0
Catostomidae	*Erimyzon sucetta*	0	0	0	0	0	0	1
Fundulidae	*Fundulus chrysotus*	2	1	0	0	0	0	11
Fundulidae	*Fundulus cingulatus*	0	0	0	0	0	0	0
Fundulidae	*Fundulus lineolatus*	0	0	0	0	0	0	0
Microhylidae	*Gastrophryne carolinensis*	0	0	0	0	0	0	0
Poeciliidae	*Gambusia holbrooki*	13	7	17	1	5	1	43
Hylidae	*Hyla cinerea*	0	12	0	1	6	3	2
Hylidae	*Hyla femoralis*	0	0	0	0	0	0	0
Hylidae	*Hyla* sp.	0	0	0	1	4	0	19
Hylidae	*Hyla gratiosa*	0	0	0	0	0	0	0
Callichthyidae	*Hoplosternum littorale*	4	0	0	6	2	0	1
Hylidae	*Hyla squirella*	8	9	0	0	0	1	0
Cyprinodontidae	*Jordanella floridae*	1	4	0	0	2	0	3
Centrarchidae	*Lepomis gulosus*	0	0	0	0	0	0	0
Colubridae	*Nerodia cyclopion*	0	0	0	0	0	0	0
Colubridae	*Nerodia fasciata*	0	0	0	0	0	0	1
Colubridae	*Narodia floridana*	0	0	0	0	0	0	0
NA	*Unknown (PLAT)*	0	0	0	0	1	0	13
Sirenidae	*Pseudrobranchus striatus*	0	0	0	0	0	0	0
Ranidae	*Rana* sp.	0	0	0	0	0	0	0
Ranidae	*Rana catesbiana*	0	0	0	0	1	0	0
Ranidae	*Rana grylio*	0	0	0	0	0	0	0
Ranidae	*Lithobates sphenocephalus*	2	6	1	3	1	59	7
Sirenidae	*Siren lacertina*	0	0	2	0	0	0	0
NA	*Small fish*	0	0	0	0	0	0	0
Colubridae	*Seminatrix pygea*	0	0	3	0	0	0	0
Colubridae	*Thamnophis sauritus*	0	0	0	0	0	1	0
NA	*Unknown tadpole*	0	1	0	0	0	0	0

		P148	P151	P156	P166	P196	P205	P209
	pasturetype	HM	HM	HM	HM	HM	HM	SN
	richness_total	60	55	69	61	79	64	58
	sr_plant	21	17	26	24	29	23	19
	sr_invert	36	28	36	34	44	34	32
	sr_vert	3	10	7	3	6	7	7
	abun_invert	121	86	176	96	156	125	74
	abun_vert	15	77	47	9	12	95	12
Family	Species							
Plants								
Amaranthaceae	*Alternanthera philoxeroides*	12	10	15	7	11	12	7
Poaceae	*Amphicarpum muehlenbergianum*	0	0	0	0	1	0	0
Poaceae	*Andropogon* spp	0	0	0	0	0	0	0
Poaceae	*Andropogon virginicus* var. *glaucus*	1	0	0	1	1	0	0
Poaceae	*Andropogon virginicus* var. *virginicus*	0	0	0	0	0	0	0
Poaceae	*Aristida patula*	0	0	0	0	0	0	0
Asclepiadaceae	*Sarcostemma clausa*	0	0	0	0	0	0	0
Asteraceae	*Aster subulatus*	0	0	2	0	0	0	0
Poaceae	*Axonopus fissifolius*	0	0	0	4	0	0	0
Azollaceae	*Azolla caroliniana*	1	0	0	0	2	0	0
Scrophulariaceae	*Bacopa caroliniana*	0	0	0	0	0	1	0
Asteraceae	*Bidens mitis*	0	0	0	0	0	0	0
Cyperaceae	*Carex abolutescens*	0	2	2	1	2	1	0
Cyperaceae	*Carex glaucescens*	0	0	0	0	0	0	0
Apiaceae	*Centella erecta*	2	0	5	6	2	5	1
Rubiaceae	*Cephalanthus occidentalis*	0	0	0	0	0	0	0
Cyperaceae	*Cladium jamaicense*	0	0	0	0	0	0	0
Commelinaceae	*Commelina diffusa*	9	1	14	1	7	4	0
Lythraceae	*Cuphea carthagenensis*	0	0	1	0	0	0	0
Poaceae	*Cynodon dactylon*	0	0	7	0	4	2	0
Cyperaceae	*Kyllingia brevifolius*	0	0	2	1	0	0	0
Cyperaceae	*Cyperus distinctus*	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Cyperaceae	*Cyperus haspan*	0	0	0	0	0	0	0
Cyperaceae	*Cyperus retrorsus*	0	0	0	0	0	0	0
Cyperaceae	*Cyperus surinamensis*	0	0	1	0	0	0	0
Cyperaceae	*Cyperus* spp	0	0	0	0	0	0	0
Cyperaceae	*Dichromena colorata*	0	0	0	0	0	0	0
Poaceae	*Dichanthelium erectifolium*	0	0	0	0	0	0	0
Rubiaceae	*Diodia virginiana*	2	1	1	3	4	3	0
Asteraceae	*Eclipta prostrata*	0	1	0	0	0	0	0
Pontederiaceae	*Eichhornia crassipes*	12	1	0	0	0	0	0
Cyperaceae	*Eleocharis baldwinii*	0	0	0	6	0	2	1
Cyperaceae	*Eleocharis equisetoides*	0	0	0	0	0	2	0
Cyperaceae	*Eleocharis* spp	0	0	0	0	0	0	0
Cyperaceae	*Eleocharis vivipara*	0	0	1	0	0	0	0
Poaceae	*Eragrostis elliotti*	0	0	0	0	0	0	0
Poaceae	*Eriocaulon decangulare*	0	0	0	0	0	0	0
Eriocaulaceae	*Saccharum giganteus*	0	0	0	0	0	0	0
Asteraceae	*Eupatorium capillifolium*	0	0	0	0	0	0	0
Asteraceae	*Eupatorium mikanioides*	0	0	0	0	0	0	0
Asteraceae	*Euthamia minor*	0	0	0	0	0	0	0
Cyperaceae	*Fuirena scirpoidea*	0	0	0	0	0	0	0
Rubiaceae	*Galium tinctorium*	1	0	1	0	1	0	0
Rubiaceae	*Hediotis uniflora*	0	0	0	0	0	0	0
Poaceae	*Hemarthria altissima*	0	0	0	6	0	0	9
Poaceae	*Hydrochloa caroliniana*	5	4	10	10	6	11	3
Apiaceae	*Hydrocotyle umbellata*	0	2	2	5	1	3	1
Poaceae	*Hymenachne amplexicaulis*	4	0	0	0	6	0	0
Liliaceae	*Hymenocallis latifolia*	0	0	0	0	0	0	0
Lamiaceae	*Hyptis alata*	0	0	0	0	0	0	0
Clusiaceae	*Hypericum edisonianum*	0	0	0	0	0	0	0
Clusiaceae	*Hypericum fasciculatum*	0	0	0	0	0	0	0
Clusiaceae	*Hypericum mutilum*	0	0	0	0	0	0	0
Convolvulaceae	*Ipomoea sagittata*	0	0	0	0	0	0	0
Juncaceae	*Juncus effusus*	8	5	12	2	8	8	6
Acanthaceae	*Justicia angusta*	0	0	0	0	0	0	0
Haemodoraceae	*Lachnanthes caroliana*	0	0	0	0	0	0	0
Poaceae	*Leersia hexandra*	5	0	5	2	2	0	6
Lemnaceae	*Lemna minor*	8	0	0	0	4	2	5
Hydrocharitaceae	*Limnobium spongia*	0	0	0	0	6	0	0
Scrophulariaceae	*Lindernia grandiflora*	0	1	0	4	0	0	0
Onagraceae	*Ludwigia arcuata*	0	0	0	0	0	4	0
Onagraceae	*Ludwigia octovalvis*	0	0	1	0	0	0	0
Onagraceae	*Ludwigia* spp	0	0	0	0	0	0	0
Onagraceae	*Ludwigia peruviana*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia pilosa*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia repens*	0	3	2	6	0	10	2
Onagraceae	*Ludwigia suffruticosa*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia virgata*	0	0	0	0	0	0	0
Cucurbitaceae	*Melothria pendula*	0	0	2	0	0	0	0
Asteraceae	*Mikania scandens*	1	0	0	0	2	0	1
Cucurbitaceae	*Momardica charantia*	0	0	0	0	0	0	0
Myricaceae	*Myrica cerifera*	0	0	0	0	0	0	0
Nymphaeaceae	*Nymphaea aquatica*	0	0	0	0	0	0	0
Apiaceae	*Oxypolis filiformis*	0	0	0	0	0	0	0
Poaceae	*Panicum dichotimiflorum*	0	0	0	0	0	0	0
Poaceae	*Panicum hemitomon*	4	12	5	6	2	4	9
Poaceae	*Panicum* sp.	0	0	0	0	0	0	0
Poaceae	*Panicum longifolium*	0	0	0	1	0	0	0
Poaceae	*Panicum repens*	1	3	0	0	3	4	0
Poaceae	*Panicum rigidulum*	0	0	0	0	0	0	0
Poaceae	*Paspalum acuminatum*	12	2	10	2	11	9	2
Poaceae	*Paspalum conjugatum*	0	0	1	3	0	7	0
Poaceae	*Paspalidium geminatum*	0	0	0	0	0	0	0
Poaceae	*Paspalum notatum*	0	0	2	5	2	0	2
Poaceae	*Paspalum urvillei*	0	0	0	0	0	0	0
Verbenaceae	*Phyla nodiflora*	0	0	5	0	1	0	0
Asteraceae	*Pluchea odorata*	0	0	0	0	0	0	0
Asteraceae	*Pluchea rosea*	0	0	0	0	0	0	0
Polygonaceae	*Polygonum hydropiperoides*	0	0	0	0	0	0	0
Polygonaceae	*Polygonum punctatum*	6	13	4	7	8	10	7
Pontederiaceae	*Pontedaria cordata*	0	13	0	4	1	5	9
Haloragaceae	*Proserpinaca palustris*	0	0	0	0	0	1	0
Haloragaceae	*Proserpinaca pectinata*	0	0	0	0	0	0	0
Melastomataceae	*Rhexia* spp	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora* spp	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora cephalantha*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora fascicularis*	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Cyperaceae	*Rhynchospora filifolia*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora inundata*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora megalocarpa*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora microcephala*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora nitens*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora tracyi*	0	0	0	0	0	0	0
Rosaceae	*Rubus cuneifolius*	0	0	0	0	0	0	0
Gentianaceae	*Sabatia grandiflora*	0	0	0	0	0	0	0
Arecaceae	*Sabal palmetto*	0	0	0	0	0	0	1
Poaceae	*Sacciolepis striata*	0	6	1	3	0	1	5
Alismataceae	*Sagittaria graminea*	0	0	0	0	0	0	0
Alismataceae	*Sagittaria lancifolia*	0	0	0	0	0	0	0
Salviniaceae	*Salvinia minima*	8	0	0	0	1	0	0
Poaceae	*Schizachyrium scoparium*	0	0	0	0	0	0	0
Cyperaceae	*Scleria reticulata*	0	0	0	0	0	0	0
Fabaceae	*Sesbania herbacea*	0	0	0	0	0	0	0
Poaceae	*Setaria geniculata*	0	0	0	0	1	0	0
Asteraceae	*Solidago fistulosa*	0	0	0	0	0	0	1
Solanaceae	*Solanum viarum*	0	0	0	0	0	0	0
Poaceae	*Spartina bakeri*	0	0	0	0	0	0	0
Lentibulareaceae	*Utricularia foliosa*	6	0	0	0	4	0	0
Lentibulareaceae	*Utricularia purpurea*	0	0	0	0	0	0	0
Blechnaceae	*Woodwardia virginica*	0	0	0	0	0	0	0
Xyridaceae	*Xyris elliotii*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	1	0	0
Unknown	*Unknown*	1	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Invertebrates								
Chrysomeliidae	*Unknown*	0	0	0	0	0	0	0
Circulionidae	*Lissorhoptrus* sp.	4	0	2	0	7	5	4
Circulionidae	*Listronotus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Andocheilus exiguus*	0	0	0	0	0	0	0
Dytiscidae	*Bidessonotus* sp. 1	0	0	0	0	0	0	0
Dytiscidae	*Bidessonotus* sp. 2	0	0	0	0	0	0	0
Dytiscidae	*Brachyvatus apicatus*	0	0	0	0	0	1	0
Dytiscidae	*Celina* sp.	1	0	0	0	1	0	0
Dytiscidae	*Copelatus caelatipennis princeps*	0	3	1	4	0	0	1
Dytiscidae	*Coptotomus interrogatus*	0	0	0	0	0	0	0
Dytiscidae	*Coptotomus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Cybister* sp.	0	1	0	0	1	0	0
Dytiscidae	*Desmopachria* sp.	1	0	0	0	0	1	0
Dytiscidae	*Hydaticus bimarginatus*	0	0	0	0	0	0	0
Dytiscidae	*Hydaticus* sp.	0	1	0	0	0	0	0
Dytiscidae	*Hydrovatus pustulatus compressus*	0	0	0	0	0	0	0
Dytiscidae	*Hydrovatus* sp.	2	0	1	0	0	1	1
Dytiscidae	*Laccophilus gentilis*	0	0	0	0	0	0	0
Dytiscidae	*Laccophilus proximus*	0	2	14	0	1	0	1
Dytiscidae	*Laccophilus* sp.	1	0	0	0	0	0	0
Dytiscidae	*Liodessus affinis*	0	0	0	0	0	0	0
Dytiscidae	*Liodessus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Neobidessus pullus*	0	0	0	0	0	0	0
Dytiscidae	*Pachydrus princeps*	3	0	0	12	0	0	0
Dytiscidae	*Thermonectus basillaris*	0	2	0	0	1	0	2
Dytiscidae	*Uvarus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Unknown*	0	0	0	0	0	0	0
Haliplidae	*Haliplus annulatus*	0	0	2	0	0	1	0
Haliplidae	*Haliplus* sp.	0	0	3	0	6	1	0
Haliplidae	*Peltodytes dietrichi*	0	1	0	0	0	0	0
Haliplidae	*Peltodytes oppositus*	0	0	2	0	0	0	0
Haliplidae	*Peltodytes* sp.	0	0	0	0	0	0	0
Hydraeinidae	*Hydraena marginicollis*	0	0	0	0	0	0	1
Hydrophilidae	*Berosus corrini*	0	0	0	0	0	0	0
Hydrophilidae	*Berosus exiguus*	0	0	0	1	0	0	1
Hydrophilidae	*Berosus infuscatus*	0	1	0	1	1	0	0
Hydrophilidae	*Berosus pugnax*	0	1	0	0	0	0	0
Hydrophilidae	*Berosus* sp.	3	0	2	0	26	1	5
Hydrophilidae	*Derallus altus*	1	1	1	5	0	4	0
Hydrophilidae	*Dibolocelus ovatus*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus blatchleyi*	0	2	0	0	1	0	0
Hydrophilidae	*Enochrus cinctus*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus consors*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus ochraceus*	0	1	0	0	1	0	0
Hydrophilidae	*Enochrus pygmaeus*	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Hydrophilidae	*Enochrus sublongus*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus* sp.	0	0	0	0	0	0	0
Hydrophilidae	*Helobata larvalis*	0	0	0	0	0	0	0
Hydrophilidae	*Hydrobiomorpha casta*	0	0	0	3	0	0	0
Hydrophilidae	*Hydrochus rugosus*	0	0	0	0	0	0	0
Hydrophilidae	*Hydrochus* sp.	0	0	1	0	0	0	1
Hydrophilidae	*Hydrophilus triangularis*	0	0	0	0	0	0	0
Hydrophilidae	*Paracymus nanus*	0	3	2	1	0	0	0
Hydrophilidae	*Paracymus reductus*	1	0	0	0	0	0	0
Hydrophilidae	*Paracymus* sp.	0	0	0	0	0	0	0
Hydrophilidae	*Phaenonotum exstriatum*	0	0	0	0	0	0	0
Hydrophilidae	*Tropisternus blatchleyi*	0	1	1	0	0	0	0
Hydrophilidae	*Tropisternus collaris*	0	1	0	0	2	0	0
Hydrophilidae	*Tropisternus lateralis nimbatus*	4	1	7	3	7	0	0
Hydrophilidae	*Tropisternus natator*	0	0	0	0	0	0	0
Hydrophilidae	*Tropisternus* sp.	1	1	6	9	15	0	0
Noteridae	*Hydrocanthus oblongus*	13	12	3	25	4	6	5
Noteridae	*Hydrocanthus* sp.	3	4	0	11	6	1	23
Noteridae	*Mesonoterus addendus*	0	0	0	0	0	0	0
Noteridae	*Mesonoterus/Pronoterus* sp.	0	0	0	1	0	0	0
Noteridae	*Suphis inflatus*	2	1	0	2	0	1	1
Noteridae	*Supisellus gibbulus*	2	0	5	3	3	4	5
Noteridae	*Suphisellus puncticollis*	0	0	0	0	1	0	0
Scirtidae	*Cyphon* sp.	0	0	0	0	0	0	0
Scirtidae	*Scirtes* sp.	5	0	0	0	0	0	0
Scirtidae	*Unknown*	0	0	0	1	0	0	0
Belastomatidae	*Juvenile*	0	0	1	9	2	1	5
Belastomatidae	*Abedus immaculatus*	1	0	0	0	0	0	3
Belastomatidae	*Belastoma testaceum*	0	0	0	2	0	0	0
Belastomatidae	*Belastoma lutarium*	0	0	0	0	1	0	0
Belastomatidae	*Lethocerus uhleri*	0	0	0	0	0	0	1
Belastomatidae	*Lethocerus griseus*	0	0	0	0	0	0	0
Belastomatidae	*Lethocerus* sp. (immature)	0	0	0	0	0	0	0
Corixidae	*Trichocorixa louisianae*	0	3	12	3	207	9	4
Corixidae	*Micronecta ludibunda*	0	0	1	0	1	0	0
Corixidae	*Immature*	0	0	0	6	5	1	3
Hebridae	*Hebrus* sp.	0	0	0	0	0	0	0
Hebridae	*Lipogomphus* cf. *brevis*	0	0	0	0	0	1	0
Hebridae	*Hebrus consolidus*	0	0	0	0	0	0	0
Hydrometridae	*Hydrometra wileyae*	0	0	0	0	0	0	0
Hydrometridae	*Hydrometra hungerfordi*	0	0	0	0	0	0	0
Hydrometridae	*Hydrometra australis*	0	0	0	0	0	0	0
Mesoveliidae	*Mesovelia amoena*	0	0	0	0	0	0	0
Mesoveliidae	*Mesovelia mulsanti*	0	0	0	0	0	0	0
Mesoveliidae	*Mesovelia* sp. (immature)	0	0	0	0	0	1	0
Naucoridae	*Pelocoris carolinensis*	1	0	0	0	0	0	0
Naucoridae	*Pelocoris* sp. (immature)	0	0	0	0	0	0	0
Naucoridae	*Pelocoris* cf. *balius*	0	0	0	0	0	0	0
Naucoridae	*Pelocoris femoratus*	0	0	0	0	0	0	0
Nepidae	*Ranatra australis*	0	0	0	1	0	0	0
Nepidae	*Ranatra kirkaldyi*	0	1	0	0	0	0	0
Notonectidae	*Buenoa confusa*	0	0	0	0	0	2	2
Notonectidae	*Buenoa margaritacae*	0	0	0	0	0	0	0
Notonectidae	*Buenoa* sp. (immature)	0	0	3	0	0	7	0
Notonectidae	*Notonecta indica*	0	2	0	0	0	0	0
Notonectidae	*Notonecta* sp. (immature)	0	0	2	0	0	2	0
Notonectidae	*Notonecta undulata*	0	0	0	0	0	0	0
Pleidae	*Unknown*	0	0	0	0	0	0	0
Pleidae	*Paraplea* cf. *puella*	0	0	0	1	0	0	0
Pleidae	*Paraplea* sp.	0	2	1	0	0	0	2
Pleidae	*Neoplea* sp.	0	0	0	0	0	0	0
Saldidae	*Unknown*	0	0	0	0	0	0	0
Veliidae	*Microvelia* sp.	0	0	0	2	0	1	0
Veliidae	*Microvelia cubana*	0	2	0	3	0	0	0
Veliidae	*Microvelia americana*	0	1	0	0	0	0	0
Veliidae	*Platyvelia* cf. *brachialis*	0	0	0	0	0	0	2
Veliidae	*Stenovelia stagnalis*	1	0	0	0	0	0	0
Cicadellidae	*Unknown*	0	1	3	0	1	1	0
Cicadellidae	*Unknown*	0	0	0	0	0	0	0
Coenagrionidae	*Ishnura* sp.	2	0	2	3	2	10	21
Lestidae	*Lestes vidua*	0	0	0	0	0	0	0
Aeshnidae	*Anax junius*	0	0	0	2	0	1	1
Aeshnidae	*Coryphaeshnae ingens*	0	0	0	0	0	0	0
Aeshnidae	*Gomphaeshna antilope*	0	0	0	0	0	0	0
Aeshnidae	*Gomphaeshna* sp.	0	0	0	0	0	0	0
Libellulidae	*Erythemis simplicicollis*	0	0	0	2	0	0	0
Libellulidae	*Pachydiplax longipennis*	0	1	2	5	1	0	1

Appendix 1 (*Continued*)

Libellulidae	*Tramea calverti*	0	0	0	0	0	0	0
Libellulidae	*Unknown*	1	0	0	0	0	1	3
Chaoboridae	*Chaoborius americanus*	0	0	0	0	0	0	0
Chaoboridae	*Unknown*	0	0	2	0	2	0	0
Ceratopogonidae	*Forcipomyia* sp.	0	0	0	0	0	0	0
Ceratopogonidae	*Unknown*	0	0	0	0	0	0	0
Ceratopogonidae	*Unknown*	1	0	1	0	1	0	1
Ceratopogonidae	*Unknown*	0	0	0	0	0	0	0
Canacidae	*Unknown*	0	0	0	1	0	0	0
Culicidae	*Anopheles* sp.	0	0	0	0	0	0	0
Culicidae	*Anopheles crucians*	0	0	0	1	0	1	2
Culicidae	*Culex* sp.	0	0	0	1	0	0	0
Culicidae	*Culex declarator*	0	0	0	0	0	0	0
Culicidae	*Culex erraticus*	0	0	2	3	5	0	1
Culicidae	*Culex nigripalpus*	0	0	0	0	0	0	0
Culicidae	*Mansonia titillans*	0	0	0	1	0	0	0
Culicidae	*Uranotaenia sapphirina*	3	0	0	4	0	0	1
Culicidae	*Unknown*	0	0	0	1	0	0	0
Culicidae	*Unknown*	0	0	3	0	2	0	0
Culicidae	*Unknown*	0	0	0	0	0	0	0
Chironomidae	*Unknown*	0	9	0	0	0	0	0
Chironomidae	*Unknown*	0	0	0	2	0	0	0
Chironomidae	*Unknown*	0	13	0	5	2	3	0
Chironomidae	*Ablabesmyia peleensis*	0	10	0	5	0	0	0
Chironomidae	*Beardius reissi*	1	60	2	2	4	7	0
Chironomidae	*Cantopelopia gesta*	0	0	2	0	2	0	0
Chironomidae	*Corynoneura* sp. *B*	0	0	0	0	0	0	2
Chironomidae	*Djalmabatista pulchra*	0	0	0	0	0	0	0
Chironomidae	*Fittkauimyia serta*	0	0	0	0	0	0	0
Chironomidae	*Goeldichironomus* sp.	0	0	0	0	0	0	0
Chironomidae	*Goeldichironomus* cf. *devineyae*	0	0	0	3	0	0	0
Chironomidae	*Goeldichironomus holoprasinus*	5	71	2	0	4	3	0
Chironomidae	*Goeldichironomus* cf. *natans*	0	19	0	0	0	0	0
Chironomidae	*Krenopelopia* cf. *hudsoni*	0	0	0	0	0	0	1
Chironomidae	*Labrundinia virescens*	0	0	0	0	0	0	0
Chironomidae	*Labrundinia* sp.	0	0	0	0	0	0	0
Chironomidae	*Larsia berneri*	0	0	0	0	0	0	0
Chironomidae	*Monopelopia boliekae*	2	2	0	1	0	0	0
Chironomidae	*Parachironomus tenuidaudatus*	0	0	0	0	0	0	1
Chironomidae	*Polypedilum polypedilum trigonus*	0	0	0	0	0	0	1
Chironomidae	*Tanypus* sp.	0	1	0	0	0	0	0
Chironomidae	*Xestochironomus xenolabis*	0	0	0	0	0	0	0
Ephydridae	*Brachydeutera argentata*	0	0	0	0	0	0	0
Mymaridae	*Unknown*	0	0	0	0	0	0	0
Scelionidae	*Unknown*	0	0	0	0	0	0	0
Sciomyzidae	*Renocera* sp.	0	0	0	0	0	0	0
Stratiomyidae	*Stratiomys* sp.	2	1	1	2	3	1	0
Stratiomyidae	*Unknown*	0	0	0	1	0	0	0
Tipulidae	*Unknown*	0	0	0	0	0	1	0
Tipulidae	*Tipula* sp.	0	0	0	0	0	0	0
Tabanidae	*Chrysops* sp.	0	0	0	0	0	0	0
Tabanidae	*Haematopota* sp.	0	0	0	1	0	0	0
Tabanidae	*Tabanus* sp.	0	0	0	0	0	0	0
Tabanidae	*Unknown*	0	0	0	0	0	0	0
Baetidae	*Callibaetis floridanus*	19	0	1	1	3	2	3
Baetidae	*Callibaetis pretiosus*	0	0	0	0	0	0	0
Baetidae	*Caenis macafferti*	0	0	0	0	0	0	1
Hypogastruridae	*Odontella* sp.	0	0	0	0	0	0	0
Sminthuridae	*Bourletiella* sp.	0	0	0	0	0	0	1
Vertebrates								
Hylidae	*Acris gryllus*	0	0	0	0	0	0	0
Amphiumidae	*Amphium means*	0	1	0	0	0	0	0
Ictaluridae	*Ameirus nebulosus*	0	0	0	0	0	0	0
Elassomatidae	*Elassoma evergladei*	0	0	0	0	0	0	0
Catostomidae	*Erimyzon sucetta*	0	0	0	0	0	0	0
Fundulidae	*Fundulus chrysotus*	0	2	0	0	0	9	0
Fundulidae	*Fundulus cingulatus*	0	0	0	0	0	0	0
Fundulidae	*Fundulus lineolatus*	0	0	0	0	0	1	0
Microhylidae	*Gastrophryne carolinensis*	0	0	0	0	0	0	1
Poeciliidae	*Gambusia holbrooki*	13	31	36	6	5	6	2
Hylidae	*Hyla cinerea*	0	8	1	1	0	0	1
Hylidae	*Hyla femoralis*	0	0	0	0	0	0	0
Hylidae	*Hyla* sp.	0	3	2	0	2	0	2
Hylidae	*Hyla gratiosa*	0	0	0	0	0	0	0
Callichthyidae	*Hoplosternum littorale*	0	0	4	0	1	3	3
Hylidae	*Hyla squirella*	0	4	2	0	2	6	0
Cyprinodontidae	*Jordanella floridae*	0	19	0	0	0	67	2

Appendix 1 (*Continued*)

Centrarchidae	*Lepomis gulosus*	0	0	0	0	0	0	0
Colubridae	*Nerodia cyclopion*	1	0	0	0	0	0	0
Colubridae	*Nerodia fasciata*	0	0	1	0	0	0	0
Colubridae	*Narodia floridana*	0	0	0	0	0	0	0
NA	*Unknown (PLAT)*	0	0	0	0	0	0	0
Sirenidae	*Pseudrobranchus striatus*	0	0	0	0	0	0	0
Ranidae	*Rana* sp.	0	0	0	0	0	0	0
Ranidae	*Rana catesbiana*	0	0	0	0	0	0	0
Ranidae	*Rana grylio*	0	1	0	0	0	0	0
Ranidae	*Lithobates sphenocephalus*	1	6	1	2	0	3	0
Sirenidae	*Siren lacertina*	0	2	0	0	1	0	0
NA	*Small fish*	0	0	0	0	1	0	0
Colubridae	*Seminatrix pygea*	0	0	0	0	0	0	1
Colubridae	*Thamnophis sauritus*	0	0	0	0	0	0	0
NA	*Unknown tadpole*	0	0	0	0	0	0	0

		P210	P218	P220	P225	P226	P245	P246
	pasturetype	SN	SN	SN	SN	HM	SN	SN
	richness_total	81	91	63	55	37	62	68
	sr_plant	39	37	35	24	23	27	36
	sr_invert	36	46	22	23	10	29	28
	sr_vert	6	8	6	8	4	6	4
	abun_invert	114	272	70	56	21	125	120
	abun_vert	28	29	16	34	10	13	26
Family	Species							
Plants								
Amaranthaceae	*Alternanthera philoxeroides*	0	0	0	2	0	14	0
Poaceae	*Amphicarpum muehlenbergianum*	0	0	0	0	0	0	3
Poaceae	*Andropogon* spp	0	0	0	0	0	0	0
Poaceae	*Andropogon virginicus* var. *glaucus*	1	1	3	0	1	2	0
Poaceae	*Andropogon virginicus* var. *virginicus*	0	5	0	0	0	0	1
Poaceae	*Aristida patula*	0	0	1	0	0	0	1
Asclepiadaceae	*Sarcostemma clausa*	0	0	0	0	0	0	0
Asteraceae	*Aster subulatus*	7	0	0	3	0	0	4
Poaceae	*Axonopus fissifolius*	7	10	10	4	2	2	2
Azollaceae	*Azolla caroliniana*	0	0	0	0	0	0	0
Scrophulariaceae	*Bacopa caroliniana*	11	0	2	7	2	0	10
Asteraceae	*Bidens mitis*	0	6	0	0	0	0	0
Cyperaceae	*Carex abolutescens*	0	2	0	0	0	0	0
Cyperaceae	*Carex glaucescens*	0	0	0	0	0	0	0
Apiaceae	*Centella erecta*	8	10	6	7	7	3	3
Rubiaceae	*Cephalanthus occidentalis*	0	2	0	0	0	0	0
Cyperaceae	*Cladium jamaicense*	0	1	0	0	1	0	0
Commelinaceae	*Commelina diffusa*	0	0	0	0	0	0	0
Lythraceae	*Cuphea carthagenensis*	0	0	0	0	0	0	0
Poaceae	*Cynodon dactylon*	0	0	0	0	0	1	0
Cyperaceae	*Kyllingia brevifolius*	0	1	0	0	0	0	0
Cyperaceae	*Cyperus distinctus*	0	4	0	0	0	0	0
Cyperaceae	*Cyperus haspan*	1	0	0	0	0	1	0
Cyperaceae	*Cyperus retrorsus*	0	0	0	0	0	0	0
Cyperaceae	*Cyperus surinamensis*	0	0	0	0	0	0	0
Cyperaceae	*Cyperus* spp	0	0	0	0	0	0	0
Cyperaceae	*Dichromena colorata*	0	0	0	0	0	0	0
Poaceae	*Dichanthelium erectifolium*	4	4	11	0	0	0	3
Rubiaceae	*Diodia virginiana*	10	9	10	6	9	4	13
Asteraceae	*Eclipta prostrata*	0	0	0	0	0	0	0
Pontederiaceae	*Eichhornia crassipes*	0	0	0	0	0	0	0
Cyperaceae	*Eleocharis baldwinii*	0	0	0	0	0	0	0
Cyperaceae	*Eleocharis equisetoides*	0	0	0	0	0	0	0
Cyperaceae	*Eleocharis* spp	0	0	4	0	0	0	0
Cyperaceae	*Eleocharis vivipara*	0	6	0	0	0	0	4
Poaceae	*Eragrostis elliotti*	3	0	8	0	0	0	5
Poaceae	*Eriocaulon decangulare*	0	0	0	0	0	0	0
Eriocaulaceae	*Saccharum giganteus*	0	0	0	0	0	0	0
Asteraceae	*Eupatorium capillifolium*	0	0	0	0	0	0	1
Asteraceae	*Eupatorium mikanioides*	0	0	0	0	0	0	0
Asteraceae	*Euthamia minor*	0	3	0	0	0	0	0
Cyperaceae	*Fuirena scirpoidea*	0	0	3	0	0	0	0
Rubiaceae	*Galium tinctorium*	0	0	0	0	0	1	0
Rubiaceae	*Hediotis uniflora*	0	2	0	0	0	0	0
Poaceae	*Hemarthria altissima*	0	0	0	0	0	0	0
Poaceae	*Hydrochloa caroliniana*	0	5	0	8	8	13	0
Apiaceae	*Hydrocotyle umbellata*	0	7	1	2	1	2	0
Poaceae	*Hymenachne amplexicaulis*	1	0	2	0	0	5	2
Liliaceae	*Hymenocallis latifolia*	1	0	0	0	0	0	0
Lamiaceae	*Hyptis alata*	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Clusiaceae	*Hypericum edisonianum*	0	0	1	0	0	0	0
Clusiaceae	*Hypericum fasciculatum*	0	0	4	0	0	0	3
Clusiaceae	*Hypericum mutilum*	0	0	0	0	0	0	0
Convolvulaceae	*Ipomoea sagittata*	0	0	0	0	0	0	0
Juncaceae	*Juncus effuses*	0	4	0	0	1	5	1
Acanthaceae	*Justicia angusta*	10	3	8	1	4	1	8
Haemodoraceae	*Lachnanthes caroliana*	0	0	0	0	0	0	0
Poaceae	*Leersia hexandra*	0	1	0	0	0	0	0
Lemnaceae	*Lemna minor*	0	0	0	0	0	5	0
Hydrocharitaceae	*Limnobium spongia*	0	0	0	0	0	0	0
Scrophulariaceae	*Lindernia grandiflora*	2	0	0	1	0	2	0
Onagraceae	*Ludwigia arcuata*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia octovalvis*	1	0	1	0	0	0	0
Onagraceae	*Ludwigia* spp	0	0	0	0	0	0	0
Onagraceae	*Ludwigia peruviana*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia pilosa*	0	2	0	0	0	0	0
Onagraceae	*Ludwigia repens*	0	0	4	0	1	11	5
Onagraceae	*Ludwigia suffruticosa*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia virgata*	2	0	9	0	0	0	3
Cucurbitaceae	*Melothria pendula*	0	0	0	0	0	0	0
Asteraceae	*Mikania scandens*	0	0	0	0	0	0	0
Cucurbitaceae	*Momardica charantia*	0	0	0	0	0	0	0
Myricaceae	*Myrica cerifera*	0	0	0	0	0	0	0
Nymphaeaceae	*Nymphaea aquatica*	0	0	0	0	0	0	0
Apiaceae	*Oxypolis filiformis*	1	0	1	0	0	0	2
Poaceae	*Panicum dichotimiflorum*	0	0	0	0	0	0	0
Poaceae	*Panicum hemitomon*	0	11	2	5	8	3	5
Poaceae	*Panicum* sp.	0	0	0	0	0	0	0
Poaceae	*Panicum longifolium*	0	7	0	0	1	0	0
Poaceae	*Panicum repens*	1	0	0	7	0	1	1
Poaceae	*Panicum rigidulum*	4	0	6	0	0	0	0
Poaceae	*Paspalum acuminatum*	0	0	2	3	7	11	0
Poaceae	*Paspalum conjugatum*	0	0	0	0	0	1	0
Poaceae	*Paspalidium geminatum*	2	0	0	3	1	0	7
Poaceae	*Paspalum notatum*	1	0	1	2	1	2	0
Poaceae	*Paspalum urvillei*	0	0	0	0	0	0	0
Verbenaceae	*Phyla nodiflora*	0	0	0	0	0	0	0
Asteraceae	*Pluchea odorata*	2	0	5	0	0	0	0
Asteraceae	*Pluchea rosea*	0	0	0	0	0	0	3
Polygonaceae	*Polygonum hydropiperoides*	0	3	3	0	0	0	0
Polygonaceae	*Polygonum punctatum*	0	1	0	0	4	7	2
Pontederiaceae	*Pontedaria cordata*	4	4	3	7	9	2	8
Haloragaceae	*Proserpinaca palustris*	0	0	0	1	4	0	2
Haloragaceae	*Proserpinaca pectinata*	9	0	4	0	0	0	3
Melastomataceae	*Rhexia* spp	3	5	0	0	0	0	2
Cyperaceae	*Rhynchospora* spp	2	0	0	0	0	0	0
Cyperaceae	*Rhynchospora cephalantha*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora fascicularis*	4	0	0	0	0	0	0
Cyperaceae	*Rhynchospora filifolia*	9	0	11	0	0	0	0
Cyperaceae	*Rhynchospora inundata*	6	2	0	7	2	0	9
Cyperaceae	*Rhynchospora megalocarpa*	0	3	0	0	0	0	0
Cyperaceae	*Rhynchospora microcephala*	3	0	2	2	0	0	1
Cyperaceae	*Rhynchospora nitens*	7	0	2	2	0	0	4
Cyperaceae	*Rhynchospora tracyi*	2	0	0	0	0	0	2
Rosaceae	*Rubus cuneifolius*	0	1	0	0	0	0	0
Gentianaceae	*Sabatia grandiflora*	1	0	0	0	0	0	0
Arecaceae	*Sabal palmetto*	0	0	0	0	0	0	0
Poaceae	*Sacciolepis striata*	0	4	0	0	0	1	0
Alismataceae	*Sagittaria graminea*	5	1	5	1	1	1	1
Alismataceae	*Sagittaria lancifolia*	1	2	0	2	1	1	0
Salviniaceae	*Salvinia minima*	0	0	0	0	0	0	0
Poaceae	*Schizachyrium scoparium*	0	0	0	1	0	0	1
Cyperaceae	*Scleria reticulata*	1	1	0	0	0	0	0
Fabaceae	*Sesbania herbacea*	0	0	0	0	0	0	0
Poaceae	*Setaria geniculata*	0	0	0	0	0	0	0
Asteraceae	*Solidago fistulosa*	0	2	0	0	0	0	0
Solanaceae	*Solanum viarum*	0	0	0	0	0	0	0
Poaceae	*Spartina bakeri*	0	0	0	0	0	0	0
Lentibulareaceae	*Utricularia foliosa*	0	0	0	5	2	1	4
Lentibulareaceae	*Utricularia purpurea*	0	0	0	0	0	0	0
Blechnaceae	*Woodwardia virginica*	0	0	0	0	0	0	0
Xyridaceae	*Xyris elliotii*	1	0	3	0	0	0	0
Unknown	*Unknown*	1	0	0	0	0	0	5
Unknown	*Unknown*	1	1	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	3	4	0	0	0	0
Unknown	*Unknown*	0	0	1	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Invertebrates								
Chrysomeliidae	*Unknown*	0	0	0	0	0	0	0
Circulionidae	*Lissorhoptrus* sp.	5	1	0	0	5	5	2
Circulionidae	*Listronotus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Andocheilus exiguus*	1	0	0	0	0	0	0
Dytiscidae	*Bidessonotus* sp. 1	1	0	0	0	0	0	0
Dytiscidae	*Bidessonotus* sp. 2	1	0	0	0	0	0	0
Dytiscidae	*Brachyvatus apicatus*	0	0	0	0	0	0	0
Dytiscidae	*Celina* sp.	0	0	0	0	0	0	0
Dytiscidae	*Copelatus caelatipennis princeps*	4	0	0	0	0	0	2
Dytiscidae	*Coptotomus interrogatus*	0	0	0	0	0	0	0
Dytiscidae	*Coptotomus* sp.	0	1	0	0	0	1	1
Dytiscidae	*Cybister* sp.	0	0	0	0	2	0	0
Dytiscidae	*Desmopachria* sp.	9	1	0	0	0	0	0
Dytiscidae	*Hydaticus bimarginatus*	0	0	0	0	0	0	0
Dytiscidae	*Hydaticus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Hydrovatus pustulatus compressus*	0	0	0	0	0	0	0
Dytiscidae	*Hydrovatus* sp.	2	0	0	0	0	0	0
Dytiscidae	*Laccophilus gentilis*	0	0	0	0	0	0	0
Dytiscidae	*Laccophilus proximus*	4	0	0	0	0	0	0
Dytiscidae	*Laccophilus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Liodessus affinis*	1	0	0	0	0	0	0
Dytiscidae	*Liodessus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Neobidessus pullus*	0	0	0	0	0	0	0
Dytiscidae	*Pachydrus princeps*	6	0	0	0	0	0	0
Dytiscidae	*Thermonectus basillaris*	2	0	0	0	1	0	1
Dytiscidae	*Uvarus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Unknown*	0	0	0	0	0	0	0
Haliplidae	*Haliplus annulatus*	1	0	0	0	0	0	0
Haliplidae	*Haliplus* sp.	0	0	0	0	0	0	0
Haliplidae	*Peltodytes dietrichi*	0	0	0	0	0	0	0
Haliplidae	*Peltodytes oppositus*	0	0	0	0	0	0	0
Haliplidae	*Peltodytes* sp.	0	0	0	0	0	0	0
Hydraeinidae	*Hydraena marginicollis*	4	0	0	0	0	0	0
Hydrophilidae	*Berosus corrini*	0	0	0	0	0	0	0
Hydrophilidae	*Berosus exiguus*	0	0	0	0	1	0	0
Hydrophilidae	*Berosus infuscatus*	0	0	1	2	0	0	2
Hydrophilidae	*Berosus pugnax*	0	0	0	0	0	0	0
Hydrophilidae	*Berosus* sp.	4	4	5	0	13	5	5
Hydrophilidae	*Derallus altus*	0	0	0	0	0	2	0
Hydrophilidae	*Dibolocelus ovatus*	0	0	1	0	2	0	1
Hydrophilidae	*Enochrus blatchleyi*	5	0	1	0	1	0	1
Hydrophilidae	*Enochrus cinctus*	12	0	0	0	0	0	0
Hydrophilidae	*Enochrus consors*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus ochraceus*	2	0	0	0	0	0	0
Hydrophilidae	*Enochrus pygmaeus*	0	0	0	0	0	0	1
Hydrophilidae	*Enochrus sublongus*	11	0	0	0	0	0	0
Hydrophilidae	*Enochrus* sp.	3	0	1	0	0	0	0
Hydrophilidae	*Helobata larvalis*	0	0	0	0	0	1	0
Hydrophilidae	*Hydrobiomorpha casta*	0	0	3	0	0	0	0
Hydrophilidae	*Hydrochus rugosus*	0	0	0	0	0	0	0
Hydrophilidae	*Hydrochus* sp.	0	0	0	0	0	0	0
Hydrophilidae	*Hydrophilus triangularis*	0	0	0	0	0	0	0
Hydrophilidae	*Paracymus nanus*	4	0	0	0	0	0	0
Hydrophilidae	*Paracymus reductus*	0	0	0	0	0	0	0
Hydrophilidae	*Paracymus* sp.	0	0	0	0	0	0	0
Hydrophilidae	*Phaenonotum exstriatum*	0	0	0	0	0	0	0
Hydrophilidae	*Tropisternus blatchleyi*	0	0	0	0	1	0	0
Hydrophilidae	*Tropisternus collaris*	0	0	1	0	0	2	0
Hydrophilidae	*Tropisternus lateralis nimbatus*	7	0	2	1	2	0	5
Hydrophilidae	*Tropisternus natator*	0	0	0	0	1	1	0
Hydrophilidae	*Tropisternus* sp.	0	0	2	0	20	1	9
Noteridae	*Hydrocanthus oblongus*	10	4	1	3	4	5	7
Noteridae	*Hydrocanthus* sp.	14	2	4	2	3	34	10
Noteridae	*Mesonoterus addendus*	0	0	0	0	0	0	0
Noteridae	*Mesonoterus/Pronoterus* sp.	0	0	0	0	0	0	0
Noteridae	*Suphis inflatus*	0	0	0	0	0	2	0
Noteridae	*Supisellus gibbulus*	6	0	1	0	0	4	0
Noteridae	*Suphisellus puncticollis*	0	0	0	0	0	0	0
Scirtidae	*Cyphon* sp.	0	0	0	0	0	0	0
Scirtidae	*Scirtes* sp.	0	0	0	0	0	1	0
Scirtidae	*Unknown*	0	0	0	0	0	0	0
Belastomatidae	*Juvenile*	4	4	2	3	8	2	3
Belastomatidae	*Abedus immaculatus*	1	0	0	0	0	0	0
Belastomatidae	*Belastoma testaceum*	0	0	0	0	0	0	0
Belastomatidae	*Belastoma lutarium*	0	0	0	0	0	0	0
Belastomatidae	*Lethocerus uhleri*	0	0	0	0	0	1	0

Appendix 1 (*Continued*)

Belastomatidae	*Lethocerus griseus*	0	0	0	0	0	0	0
Belastomatidae	*Lethocerus* sp. (immature)	0	1	0	0	0	0	0
Corixidae	*Trichocorixa louisianae*	0	4	7	3	37	0	26
Corixidae	*Micronecta ludibunda*	0	0	0	0	0	0	0
Corixidae	*Immature*	0	0	0	0	17	2	2
Hebridae	*Hebrus* sp.	1	0	0	0	0	0	0
Hebridae	*Lipogomphus* cf. *brevis*	0	0	0	0	0	0	0
Hebridae	*Hebrus consolidus*	0	0	0	0	0	0	0
Hydrometridae	*Hydrometra wileyae*	0	0	0	0	0	2	0
Hydrometridae	*Hydrometra hungerfordi*	0	0	1	0	0	0	0
Hydrometridae	*Hydrometra australis*	0	0	0	0	0	0	0
Mesoveliidae	*Mesovelia amoena*	0	0	0	0	0	0	0
Mesoveliidae	*Mesovelia mulsanti*	0	0	0	0	0	0	0
Mesoveliidae	*Mesovelia* sp. (immature)	0	0	0	0	0	0	0
Naucoridae	*Pelocoris carolinensis*	0	0	0	0	0	0	0
Naucoridae	*Pelocoris* sp. (immature)	0	0	0	0	0	0	0
Naucoridae	*Pelocoris* cf. *balius*	0	0	0	0	0	0	0
Naucoridae	*Pelocoris femoratus*	0	0	0	0	0	0	0
Nepidae	*Ranatra australis*	0	0	0	0	0	0	0
Nepidae	*Ranatra kirkaldyi*	1	0	0	0	0	0	0
Notonectidae	*Buenoa confusa*	1	0	0	0	0	2	0
Notonectidae	*Buenoa margaritacae*	3	0	0	0	0	0	0
Notonectidae	*Buenoa* sp. (immature)	0	1	0	0	0	0	0
Notonectidae	*Notonecta indica*	0	0	0	0	0	0	0
Notonectidae	*Notonecta* sp. (immature)	0	0	0	0	0	0	0
Notonectidae	*Notonecta undulata*	0	0	0	0	0	0	0
Pleidae	*Unknown*	0	0	0	0	0	0	0
Pleidae	*Paraplea* cf. *puella*	0	0	1	0	0	0	0
Pleidae	*Paraplea* sp.	8	0	0	4	1	0	3
Pleidae	*Neoplea* sp.	0	0	0	0	0	0	0
Saldidae	*Unknown*	0	0	0	0	0	0	0
Veliidae	*Microvelia* sp.	0	0	1	0	0	0	0
Veliidae	*Microvelia cubana*	0	0	0	0	0	0	0
Veliidae	*Microvelia americana*	0	0	1	0	1	0	1
Veliidae	*Platyvelia* cf. *brachialis*	0	0	0	0	0	0	1
Veliidae	*Stenovelia stagnalis*	0	0	0	0	0	0	0
Cicadellidae	*Unknown*	7	0	0	0	1	2	0
Cicadellidae	*Unknown*	0	0	0	0	0	0	0
Coenagrionidae	*Ishnura* sp.	16	6	6	1	0	11	1
Lestidae	*Lestes vidua*	0	0	0	0	0	0	0
Aeshnidae	*Anax junius*	6	1	0	0	1	0	0
Aeshnidae	*Coryphaeshnae ingens*	0	0	0	0	0	0	0
Aeshnidae	*Gomphaeshna antilope*	0	0	0	0	0	0	0
Aeshnidae	*Gomphaeshna* sp.	0	0	0	0	0	0	0
Libellulidae	*Erythemis simplicicollis*	0	0	0	0	0	0	0
Libellulidae	*Pachydiplax longipennis*	8	5	4	0	0	0	0
Libellulidae	*Tramea calverti*	0	0	0	0	0	0	0
Libellulidae	*Unknown*	3	4	0	0	0	2	0
Chaoboridae	*Chaoborius americanus*	0	0	0	1	0	0	0
Chaoboridae	*Unknown*	0	0	0	0	0	0	0
Ceratopogonidae	*Forcipomyia* sp.	0	0	0	0	0	0	0
Ceratopogonidae	*Unknown*	0	0	0	0	0	0	0
Ceratopogonidae	*Unknown*	6	0	0	0	5	0	0
Ceratopogonidae	*Unknown*	0	0	0	0	0	0	0
Canacidae	*Unknown*	0	0	0	0	0	0	0
Culicidae	*Anopheles* sp.	0	0	1	0	0	0	0
Culicidae	*Anopheles crucians*	3	1	0	0	2	3	1
Culicidae	*Culex* sp.	0	0	0	0	0	0	0
Culicidae	*Culex declarator*	0	0	0	0	0	0	0
Culicidae	*Culex erraticus*	0	0	4	1	1	2	2
Culicidae	*Culex nigripalpus*	0	0	0	0	0	0	0
Culicidae	*Mansonia titillans*	0	0	0	0	0	0	0
Culicidae	*Uranotaenia sapphirina*	65	2	0	0	0	2	0
Culicidae	*Unknown*	0	0	0	0	0	0	0
Culicidae	*Unknown*	12	1	0	0	2	0	0
Culicidae	*Unknown*	0	0	0	0	0	0	0
Chironomidae	*Unknown*	0	0	0	0	0	0	0
Chironomidae	*Unknown*	0	0	0	0	0	0	0
Chironomidae	*Unknown*	1	0	0	0	0	0	0
Chironomidae	*Ablabesmyia peleensis*	0	0	0	0	0	0	0
Chironomidae	*Beardius reissi*	0	15	0	0	2	12	0
Chironomidae	*Cantopelopia gesta*	12	0	0	0	0	3	0
Chironomidae	*Corynoneura* sp. *B*	0	2	0	0	0	0	0
Chironomidae	*Djalmabatista pulchra*	0	0	0	0	0	0	0
Chironomidae	*Fittkauimyia serta*	0	0	0	0	0	0	0
Chironomidae	*Goeldichironomus* sp.	1	0	0	0	0	0	0
Chironomidae	*Goeldichironomus* cf. *devineyae*	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Chironomidae	*Goeldichironomus holoprasinus*	0	1	5	0	4	0	0
Chironomidae	*Goeldichironomus* cf. *natans*	0	0	0	0	0	0	0
Chironomidae	*Krenopelopia* cf. *hudsoni*	0	0	0	0	0	0	0
Chironomidae	*Labrundinia virescens*	0	8	0	0	0	0	0
Chironomidae	*Labrundinia* sp.	0	0	0	0	0	0	0
Chironomidae	*Larsia berneri*	0	0	0	0	0	0	0
Chironomidae	*Monopelopia boliekae*	0	0	0	0	2	0	0
Chironomidae	*Parachironomus tenuidaudatus*	0	0	0	0	0	0	0
Chironomidae	*Polypedilum polypedilum trigonus*	1	0	0	0	0	0	0
Chironomidae	*Tanypus* sp.	0	0	0	0	0	0	0
Chironomidae	*Xestochironomus xenolabis*	0	0	0	0	0	0	0
Ephydridae	*Brachydeutera argentata*	0	0	0	0	0	0	0
Mymaridae	*Unknown*	0	0	0	0	0	0	0
Scelionidae	*Unknown*	0	0	0	0	0	0	0
Sciomyzidae	*Renocera* sp.	0	0	0	0	0	0	0
Stratiomyidae	*Stratiomys* sp.	1	0	0	0	1	0	3
Stratiomyidae	*Unknown*	0	0	0	0	2	0	0
Tipulidae	*Unknown*	0	0	0	0	0	0	0
Tipulidae	*Tipula* sp.	0	0	0	0	0	0	0
Tabanidae	*Chrysops* sp.	0	0	0	0	0	0	0
Tabanidae	*Haematopota* sp.	0	0	0	0	0	0	0
Tabanidae	*Tabanus* sp.	0	1	0	0	0	0	0
Tabanidae	*Unknown*	0	0	0	0	0	0	0
Baetidae	*Callibaetis floridanus*	0	0	0	0	0	6	0
Baetidae	*Callibaetis pretiosus*	0	0	0	0	0	0	0
Baetidae	*Caenis macafferti*	0	0	0	0	0	4	0
Hypogastruridae	*Odontella* sp.	1	0	0	0	0	0	0
Sminthuridae	*Bourletiella* sp.	0	0	0	0	0	0	0
Vertebrates								
Hylidae	*Acris gryllus*	0	0	2	0	0	0	0
Amphiumidae	*Amphium means*	0	1	0	0	0	0	0
Ictaluridae	*Ameirus nebulosus*	0	0	0	0	0	0	0
Elassomatidae	*Elassoma evergladei*	0	1	0	0	0	0	0
Catostomidae	*Erimyzon sucetta*	0	0	0	0	0	0	0
Fundulidae	*Fundulus chrysotus*	7	0	0	12	0	0	1
Fundulidae	*Fundulus cingulatus*	0	0	0	0	0	0	0
Fundulidae	*Fundulus lineolatus*	0	0	0	0	0	0	0
Microhylidae	*Gastrophryne carolinensis*	0	0	0	0	0	0	0
Poeciliidae	*Gambusia holbrooki*	15	18	5	5	3	7	15
Hylidae	*Hyla cinerea*	0	1	0	0	0	1	0
Hylidae	*Hyla femoralis*	0	0	2	0	0	0	0
Hylidae	*Hyla* sp.	1	1	0	0	1	0	0
Hylidae	*Hyla gratiosa*	0	0	0	1	0	0	0
Callichthyidae	*Hoplosternum littorale*	0	4	0	2	4	1	0
Hylidae	*Hyla squirella*	1	0	2	6	2	1	0
Cyprinodontidae	*Jordanella floridae*	0	0	3	10	0	2	1
Centrarchidae	*Lepomis gulosus*	1	0	0	0	0	0	0
Colubridae	*Nerodia cyclopion*	0	0	0	0	0	0	0
Colubridae	*Nerodia fasciata*	0	0	0	0	0	0	0
Colubridae	*Narodia floridana*	0	0	0	0	0	0	0
NA	*Unknown (PLAT)*	0	0	0	0	0	0	0
Sirenidae	*Pseudrobranchus striatus*	0	0	0	0	0	0	0
Ranidae	*Rana* sp.	0	0	0	0	0	0	0
Ranidae	*Rana catesbiana*	0	0	0	0	0	0	0
Ranidae	*Rana grylio*	0	0	0	0	0	0	0
Ranidae	*Lithobates sphenocephalus*	3	2	2	6	0	0	9
Sirenidae	*Siren lacertina*	0	1	0	0	0	1	0
NA	*Small fish*	0	0	0	0	0	0	0
Colubridae	*Seminatrix pygea*	0	0	0	0	0	0	0
Colubridae	*Thamnophis sauritus*	0	0	0	0	0	0	0
NA	*Unknown tadpole*	0	0	0	1	0	0	0

		P258	P265	P271	P295	P310	P317	P336
	pasturetype	HM	HM	HM	HM	HM	HM	HM
	richness_total	50	74	43	61	65	65	89
	sr_plant	18	25	20	23	21	26	39
	sr_invert	23	39	19	31	40	34	45
	sr_vert	9	10	4	7	4	5	5
	abun_invert	81	117	85	91	177	139	173
	abun_vert	169	27	41	32	14	43	23
Family	Species							
Plants								
Amaranthaceae	*Alternanthera philoxeroides*	4	13	11	14	9	11	12
Poaceae	*Amphicarpum muehlenbergianum*	0	0	0	0	0	0	0
Poaceae	*Andropogon* spp	0	0	0	0	0	0	0
Poaceae	*Andropogon virginicus* var. *glaucus*	0	0	0	2	0	2	3

Appendix 1 (*Continued*)

Poaceae	*Andropogon virginicus* var. *virginicus*	0	0	0	0	0	0	0
Poaceae	*Aristida patula*	0	0	0	0	0	0	0
Asclepiadaceae	*Sarcostemma clausa*	0	0	0	0	0	0	0
Asteraceae	*Aster subulatus*	1	0	0	0	0	0	4
Poaceae	*Axonopus fissifolius*	0	2	0	2	1	2	5
Azollaceae	*Azolla caroliniana*	0	0	0	0	0	0	0
Scrophulariaceae	*Bacopa caroliniana*	0	1	1	7	0	0	3
Asteraceae	*Bidens mitis*	0	0	0	0	0	0	0
Cyperaceae	*Carex abolutescens*	0	2	1	0	0	2	3
Cyperaceae	*Carex glaucescens*	0	0	0	0	0	0	0
Apiaceae	*Centella erecta*	6	3	2	7	1	4	10
Rubiaceae	*Cephalanthus occidentalis*	0	0	0	0	0	0	5
Cyperaceae	*Cladium jamaicense*	0	0	0	0	0	2	0
Commelinaceae	*Commelina diffusa*	0	3	1	0	0	8	0
Lythraceae	*Cuphea carthagenensis*	0	0	0	0	0	0	0
Poaceae	*Cynodon dactylon*	0	0	2	1	0	0	1
Cyperaceae	*Kyllingia brevifolius*	0	0	0	0	0	0	0
Cyperaceae	*Cyperus distinctus*	0	0	0	0	0	0	0
Cyperaceae	*Cyperus haspan*	0	0	0	1	0	0	3
Cyperaceae	*Cyperus retrorsus*	0	1	0	0	0	0	1
Cyperaceae	*Cyperus surinamensis*	0	0	0	0	0	0	0
Cyperaceae	*Cyperus* spp	0	0	0	0	0	0	0
Cyperaceae	*Dichromena colorata*	0	0	0	0	0	0	0
Poaceae	*Dichanthelium erectifolium*	0	0	0	0	0	0	0
Rubiaceae	*Diodia virginiana*	3	7	1	7	7	0	7
Asteraceae	*Eclipta prostrata*	0	0	0	0	0	0	0
Pontederiaceae	*Eichhornia crassipes*	0	0	0	0	0	0	0
Cyperaceae	*Eleocharis baldwinii*	0	9	0	7	6	0	4
Cyperaceae	*Eleocharis equisetoides*	0	0	0	0	0	0	0
Cyperaceae	*Eleocharis* spp	0	0	0	0	0	0	0
Cyperaceae	*Eleocharis vivipara*	0	0	0	0	0	0	0
Poaceae	*Eragrostis elliotti*	0	0	0	0	0	0	0
Poaceae	*Eriocaulon decangulare*	0	0	0	0	0	0	0
Eriocaulaceae	*Saccharum giganteus*	0	0	0	0	0	1	1
Asteraceae	*Eupatorium capillifolium*	0	0	0	0	0	0	0
Asteraceae	*Eupatorium mikanioides*	0	0	0	0	0	0	1
Asteraceae	*Euthamia minor*	0	0	0	0	0	0	0
Cyperaceae	*Fuirena scirpoidea*	0	0	0	0	0	0	0
Rubiaceae	*Galium tinctorium*	0	1	0	0	0	1	2
Rubiaceae	*Hediotis uniflora*	0	0	0	0	0	0	0
Poaceae	*Hemarthria altissima*	0	0	0	0	0	0	0
Poaceae	*Hydrochloa caroliniana*	11	13	5	11	14	2	4
Apiaceae	*Hydrocotyle umbellata*	3	6	0	6	2	0	2
Poaceae	*Hymenachne amplexicaulis*	7	0	9	4	0	3	0
Liliaceae	*Hymenocallis latifolia*	0	0	0	0	0	0	0
Lamiaceae	*Hyptis alata*	0	0	0	0	0	0	0
Clusiaceae	*Hypericum edisonianum*	0	0	0	0	0	0	0
Clusiaceae	*Hypericum fasciculatum*	0	0	0	0	0	0	0
Clusiaceae	*Hypericum mutilum*	0	0	0	0	0	0	0
Convolvulaceae	*Ipomoea sagittata*	0	0	0	0	0	0	0
Juncaceae	*Juncus effusus*	1	5	5	4	1	9	7
Acanthaceae	*Justicia angusta*	1	0	0	0	0	0	1
Haemodoraceae	*Lachnanthes caroliana*	0	1	0	0	0	0	0
Poaceae	*Leersia hexandra*	0	1	0	0	0	3	4
Lemnaceae	*Lemna minor*	0	1	6	0	4	1	0
Hydrocharitaceae	*Limnobium spongia*	0	0	2	0	0	0	1
Scrophulariaceae	*Lindernia grandiflora*	0	5	0	0	3	0	0
Onagraceae	*Ludwigia arcuata*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia octovalvis*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia* spp	0	0	0	0	0	0	0
Onagraceae	*Ludwigia peruviana*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia pilosa*	0	0	0	0	0	0	0
Onagraceae	*Ludwigia repens*	0	8	7	10	6	3	4
Onagraceae	*Ludwigia suffruticosa*	0	0	0	0	1	0	0
Onagraceae	*Ludwigia virgata*	0	0	0	0	0	0	0
Cucurbitaceae	*Melothria pendula*	0	0	0	0	0	0	0
Asteraceae	*Mikania scandens*	0	0	0	0	0	0	1
Cucurbitaceae	*Momardica charantia*	0	0	0	0	0	0	1
Myricaceae	*Myrica cerifera*	0	0	0	0	0	0	0
Nymphaeaceae	*Nymphaea aquatica*	0	0	0	0	0	0	0
Apiaceae	*Oxypolis filiformis*	0	0	0	0	0	0	0
Poaceae	*Panicum dichotimiflorum*	0	0	0	0	0	0	0
Poaceae	*Panicum hemitomon*	5	8	1	6	2	8	11
Poaceae	*Panicum* sp.	0	0	0	0	0	0	0
Poaceae	*Panicum longifolium*	0	0	0	0	0	0	2
Poaceae	*Panicum repens*	1	3	0	5	1	2	2
Poaceae	*Panicum rigidulum*	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Poaceae	*Paspalum acuminatum*	4	6	13	10	11	2	5
Poaceae	*Paspalum conjugatum*	1	0	4	0	0	2	1
Poaceae	*Paspalidium geminatum*	1	0	0	0	0	0	0
Poaceae	*Paspalum notatum*	2	1	2	1	2	4	2
Poaceae	*Paspalum urvillei*	0	0	0	0	0	0	2
Verbenaceae	*Phyla nodiflora*	3	2	2	0	0	0	0
Asteraceae	*Pluchea odorata*	0	0	0	0	0	0	1
Asteraceae	*Pluchea rosea*	0	0	0	0	0	0	0
Polygonaceae	*Polygonum hydropiperoides*	0	0	0	0	1	0	0
Polygonaceae	*Polygonum punctatum*	4	14	7	5	11	11	5
Pontederiaceae	*Pontedaria cordata*	1	6	0	6	5	8	3
Haloragaceae	*Proserpinaca palustris*	0	0	0	0	0	1	1
Haloragaceae	*Proserpinaca pectinata*	0	0	0	1	0	0	0
Melastomataceae	*Rhexia* spp	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora* spp	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora cephalantha*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora fascicularis*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora filifolia*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora inundata*	0	0	0	1	0	0	1
Cyperaceae	*Rhynchospora megalocarpa*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora microcephala*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora nitens*	0	0	0	0	0	0	0
Cyperaceae	*Rhynchospora tracyi*	0	0	0	0	0	0	0
Rosaceae	*Rubus cuneifolius*	0	0	0	0	0	0	0
Gentianaceae	*Sabatia grandiflora*	0	0	0	0	0	0	0
Arecaceae	*Sabal palmetto*	0	0	0	0	0	0	0
Poaceae	*Sacciolepis striata*	0	0	1	0	2	3	2
Alismataceae	*Sagittaria graminea*	0	0	0	0	0	0	0
Alismataceae	*Sagittaria lancifolia*	0	0	0	0	0	1	1
Salviniaceae	*Salvinia minima*	0	0	0	0	0	0	0
Poaceae	*Schizachyrium scoparium*	0	0	0	0	0	0	0
Cyperaceae	*Scleria reticulata*	0	0	0	0	0	0	0
Fabaceae	*Sesbania herbacea*	0	0	0	0	0	0	0
Poaceae	*Setaria geniculata*	0	0	0	0	0	0	0
Asteraceae	*Solidago fistulosa*	0	0	0	0	0	0	0
Solanaceae	*Solanum viarum*	0	0	0	0	0	0	0
Poaceae	*Spartina bakeri*	0	0	0	0	0	0	0
Lentibulareaceae	*Utricularia foliosa*	0	0	0	0	2	0	0
Lentibulareaceae	*Utricularia purpurea*	0	0	0	0	0	0	0
Blechnaceae	*Woodwardia virginica*	0	0	0	0	0	0	0
Xyridaceae	*Xyris elliotii*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	1	0
Unknown	*Unknown*	0	0	0	2	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Unknown	*Unknown*	0	0	0	0	0	0	0
Invertebrates								
Chrysomeliidae	*Unknown*	0	0	0	0	0	0	0
Circulionidae	*Lissorhoptrus* sp.	2	0	1	5	4	2	2
Circulionidae	*Listronotus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Andocheilus exiguus*	0	0	0	1	0	0	0
Dytiscidae	*Bidessonotus* sp. 1	0	1	0	0	0	0	0
Dytiscidae	*Bidessonotus* sp. 2	0	0	0	0	0	0	0
Dytiscidae	*Brachyvatus apicatus*	0	0	0	0	0	0	0
Dytiscidae	*Celina* sp.	1	0	0	0	0	0	0
Dytiscidae	*Copelatus caelatipennis princeps*	1	3	0	7	0	1	0
Dytiscidae	*Coptotomus interrogatus*	0	0	0	1	0	0	0
Dytiscidae	*Coptotomus* sp.	0	0	0	0	0	0	0
Dytiscidae	*Cybister* sp.	0	0	0	0	0	0	2
Dytiscidae	*Desmopachria* sp.	0	0	0	0	5	0	1
Dytiscidae	*Hydaticus bimarginatus*	0	0	0	0	0	0	2
Dytiscidae	*Hydaticus* sp.	0	0	0	0	0	0	1
Dytiscidae	*Hydrovatus pustulatus compressus*	0	0	0	2	0	0	1
Dytiscidae	*Hydrovatus* sp.	0	0	1	11	0	0	2
Dytiscidae	*Laccophilus gentilis*	0	0	0	0	0	0	0
Dytiscidae	*Laccophilus proximus*	1	0	0	23	0	2	1
Dytiscidae	*Laccophilus* sp.	0	0	1	0	0	1	0
Dytiscidae	*Liodessus affinis*	0	0	0	0	0	0	0
Dytiscidae	*Liodessus* sp.	0	0	0	0	1	0	0
Dytiscidae	*Neobidessus pullus*	0	1	0	0	0	0	0
Dytiscidae	*Pachydrus princeps*	0	0	2	0	5	5	15
Dytiscidae	*Thermonectus basillaris*	0	2	0	8	2	4	6
Dytiscidae	*Uvarus* sp.	0	0	0	1	1	0	1
Dytiscidae	*Unknown*	0	0	0	0	0	0	0
Haliplidae	*Haliplus annulatus*	3	0	0	0	0	1	2
Haliplidae	*Haliplus* sp.	7	0	0	0	0	1	1

Appendix 1 (*Continued*)

Haliplidae	*Peltodytes dietrichi*	0	1	0	0	0	0	0
Haliplidae	*Peltodytes oppositus*	0	0	0	0	0	0	1
Haliplidae	*Peltodytes* sp.	0	0	0	0	0	0	0
Hydraeinidae	*Hydraena marginicollis*	0	0	0	0	2	0	0
Hydrophilidae	*Berosus corrini*	0	0	0	0	0	0	0
Hydrophilidae	*Berosus exiguus*	1	1	0	0	0	1	0
Hydrophilidae	*Berosus infuscatus*	0	5	0	0	0	0	0
Hydrophilidae	*Berosus pugnax*	0	0	0	0	0	0	0
Hydrophilidae	*Berosus* sp.	4	6	3	6	0	10	2
Hydrophilidae	*Derallus altus*	0	0	1	0	0	0	1
Hydrophilidae	*Dibolocelus ovatus*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus blatchleyi*	2	0	0	12	0	2	0
Hydrophilidae	*Enochrus cinctus*	0	0	0	3	1	2	0
Hydrophilidae	*Enochrus consors*	0	0	0	0	0	0	0
Hydrophilidae	*Enochrus ochraceus*	0	0	0	0	2	1	4
Hydrophilidae	*Enochrus pygmaeus*	0	2	0	1	0	0	0
Hydrophilidae	*Enochrus sublongus*	1	0	0	0	0	1	0
Hydrophilidae	*Enochrus* sp.	2	1	0	0	1	0	2
Hydrophilidae	*Helobata larvalis*	0	0	2	0	2	2	3
Hydrophilidae	*Hydrobiomorpha casta*	0	0	2	0	0	0	2
Hydrophilidae	*Hydrochus rugosus*	0	0	0	0	0	0	0
Hydrophilidae	*Hydrochus* sp.	0	0	0	0	0	0	0
Hydrophilidae	*Hydrophilus triangularis*	0	0	0	0	0	0	0
Hydrophilidae	*Paracymus nanus*	1	0	0	0	0	1	0
Hydrophilidae	*Paracymus reductus*	0	0	0	0	0	0	0
Hydrophilidae	*Paracymus* sp.	0	0	0	0	0	1	0
Hydrophilidae	*Phaenonotum exstriatum*	0	0	0	0	0	0	2
Hydrophilidae	*Tropisternus blatchleyi*	0	0	0	1	0	0	1
Hydrophilidae	*Tropisternus collaris*	0	4	0	0	0	0	0
Hydrophilidae	*Tropisternus lateralis nimbatus*	6	7	0	9	0	0	0
Hydrophilidae	*Tropisternus natator*	0	0	0	0	0	0	0
Hydrophilidae	*Tropisternus* sp.	11	3	2	6	11	17	4
Noteridae	*Hydrocanthus oblongus*	6	11	5	16	1	11	32
Noteridae	*Hydrocanthus* sp.	8	0	8	10	16	38	25
Noteridae	*Mesonoterus addendus*	0	0	0	0	0	0	0
Noteridae	*Mesonoterus/Pronoterus* sp.	0	0	0	0	0	0	0
Noteridae	*Suphis inflatus*	1	0	0	3	1	0	3
Noteridae	*Supisellus gibbulus*	2	0	2	6	0	5	4
Noteridae	*Suphisellus puncticollis*	0	0	0	0	0	0	0
Scirtidae	*Cyphon* sp.	0	0	2	0	0	0	0
Scirtidae	*Scirtes* sp.	0	0	8	0	4	5	17
Scirtidae	*Unknown*	0	0	0	0	0	0	0
Belastomatidae	*Juvenile*	6	3	6	5	9	1	4
Belastomatidae	*Abedus immaculatus*	0	0	0	0	0	0	0
Belastomatidae	*Belastoma testaceum*	1	1	0	0	0	0	0
Belastomatidae	*Belastoma lutarium*	0	0	0	1	0	3	0
Belastomatidae	*Lethocerus uhleri*	0	0	0	0	0	0	0
Belastomatidae	*Lethocerus griseus*	0	0	0	0	0	1	0
Belastomatidae	*Lethocerus* sp. (immature)	0	0	0	0	0	0	0
Corixidae	*Trichocorixa louisianae*	2	1	3	2	0	4	0
Corixidae	*Micronecta ludibunda*	0	0	0	1	0	0	0
Corixidae	*Immature*	0	0	0	0	0	1	0
Hebridae	*Hebrus* sp.	0	0	0	0	0	0	0
Hebridae	*Lipogomphus* cf. *brevis*	0	0	0	0	0	0	0
Hebridae	*Hebrus consolidus*	0	0	0	0	0	0	0
Hydrometridae	*Hydrometra wileyae*	0	0	0	0	0	0	0
Hydrometridae	*Hydrometra hungerfordi*	0	0	0	0	0	0	0
Hydrometridae	*Hydrometra australis*	0	0	0	0	0	0	0
Mesoveliidae	*Mesovelia amoena*	0	0	0	0	0	0	0
Mesoveliidae	*Mesovelia mulsanti*	0	0	0	0	0	0	0
Mesoveliidae	*Mesovelia* sp. (immature)	0	0	0	0	0	0	0
Naucoridae	*Pelocoris carolinensis*	0	0	0	0	0	0	0
Naucoridae	*Pelocoris* sp. (immature)	0	0	0	1	0	0	0
Naucoridae	*Pelocoris* cf. *balius*	1	0	0	0	0	0	0
Naucoridae	*Pelocoris femoratus*	0	0	0	1	0	0	0
Nepidae	*Ranatra australis*	0	0	1	0	0	0	0
Nepidae	*Ranatra kirkaldyi*	0	0	0	0	0	0	0
Notonectidae	*Buenoa confusa*	0	0	0	0	0	0	0
Notonectidae	*Buenoa margaritacae*	0	0	0	0	0	0	0
Notonectidae	*Buenoa* sp. (immature)	1	0	0	1	0	0	0
Notonectidae	*Notonecta indica*	0	0	0	0	0	0	0
Notonectidae	*Notonecta* sp. (immature)	0	0	0	0	0	0	0
Notonectidae	*Notonecta undulata*	0	0	0	1	0	0	0
Pleidae	*Unknown*	0	0	0	0	0	0	0
Pleidae	*Paraplea* cf. *puella*	0	0	0	0	0	0	0
Pleidae	*Paraplea* sp.	5	0	1	18	1	1	1
Pleidae	*Neoplea* sp.	0	0	0	0	0	0	0

Appendix 1 (*Continued*)

Saldidae	*Unknown*	0	0	0	0	0	0	0
Veliidae	*Microvelia* sp.	0	0	0	0	0	0	0
Veliidae	*Microvelia cubana*	0	0	0	0	0	0	0
Veliidae	*Microvelia americana*	0	0	1	1	0	0	0
Veliidae	*Platyvelia* cf. *brachialis*	0	0	0	0	0	0	0
Veliidae	*Stenovelia stagnalis*	0	0	0	0	0	0	0
Cicadellidae	*Unknown*	0	0	2	0	0	1	4
Cicadellidae	*Unknown*	0	0	0	0	0	0	0
Coenagrionidae	*Ishnura* sp.	5	0	1	10	0	0	8
Lestidae	*Lestes vidua*	0	0	0	0	0	0	0
Aeshnidae	*Anax junius*	0	0	0	3	0	1	2
Aeshnidae	*Coryphaeshnae ingens*	0	0	0	0	0	0	0
Aeshnidae	*Gomphaeshna antilope*	1	0	0	0	0	0	1
Aeshnidae	*Gomphaeshna* sp.	0	0	0	0	0	0	0
Libellulidae	*Erythemis simplicicollis*	1	0	0	0	0	0	0
Libellulidae	*Pachydiplax longipennis*	0	0	1	3	0	0	5
Libellulidae	*Tramea calverti*	0	0	0	0	0	0	0
Libellulidae	*Unknown*	1	0	0	1	3	0	0
Chaoboridae	*Chaoborius americanus*	0	0	0	0	0	0	1
Chaoboridae	*Unknown*	0	0	0	0	0	1	0
Ceratopogonidae	*Forcipomyia* sp.	0	0	0	0	0	0	0
Ceratopogonidae	*Unknown*	0	0	0	0	0	0	0
Ceratopogonidae	*Unknown*	0	0	0	0	0	1	0
Ceratopogonidae	*Unknown*	0	0	0	0	0	0	0
Canacidae	*Unknown*	0	0	0	0	0	0	0
Culicidae	*Anopheles* sp.	0	0	0	0	0	0	0
Culicidae	*Anopheles crucians*	4	0	2	2	4	8	9
Culicidae	*Culex* sp.	0	0	1	0	0	2	11
Culicidae	*Culex declarator*	0	0	0	0	0	0	0
Culicidae	*Culex erraticus*	4	0	2	1	3	7	3
Culicidae	*Culex nigripalpus*	0	0	0	0	0	0	6
Culicidae	*Mansonia titillans*	0	0	1	1	0	1	1
Culicidae	*Uranotaenia sapphirina*	6	0	0	0	32	14	46
Culicidae	*Unknown*	0	0	0	0	0	0	0
Culicidae	*Unknown*	2	0	4	0	8	2	6
Culicidae	*Unknown*	0	0	0	0	0	0	0
Chironomidae	*Unknown*	0	0	0	0	0	0	0
Chironomidae	*Unknown*	0	0	0	0	1	0	0
Chironomidae	*Unknown*	3	0	0	0	2	2	3
Chironomidae	*Ablabesmyia peleensis*	1	0	0	0	2	1	0
Chironomidae	*Beardius reissi*	9	0	9	0	3	1	6
Chironomidae	*Cantopelopia gesta*	1	0	0	4	1	5	20
Chironomidae	*Corynoneura* sp. *B*	0	0	0	0	0	0	0
Chironomidae	*Djalmabatista pulchra*	0	0	0	0	0	0	0
Chironomidae	*Fittkauimyia serta*	0	0	0	0	0	0	0
Chironomidae	*Goeldichironomus* sp.	0	0	0	0	0	0	0
Chironomidae	*Goeldichironomus* cf. *devineyae*	0	0	0	0	0	0	0
Chironomidae	*Goeldichironomus holoprasinus*	0	31	1	0	3	4	7
Chironomidae	*Goeldichironomus* cf. *natans*	0	0	14	0	3	0	3
Chironomidae	*Krenopelopia* cf. *hudsoni*	0	0	0	0	0	0	0
Chironomidae	*Labrundinia virescens*	0	0	0	0	0	0	0
Chironomidae	*Labrundinia* sp.	0	0	0	0	0	0	0
Chironomidae	*Larsia berneri*	0	0	0	0	0	0	0
Chironomidae	*Monopelopia boliekae*	0	0	0	0	1	10	2
Chironomidae	*Parachironomus tenuidaudatus*	0	0	0	0	0	0	0
Chironomidae	*Polypedilum polypedilum trigonus*	0	0	0	0	0	0	0
Chironomidae	*Tanypus* sp.	0	0	0	0	0	0	0
Chironomidae	*Xestochironomus xenolabis*	0	0	0	0	0	0	0
Ephydridae	*Brachydeutera argentata*	0	0	0	0	2	0	0
Mymaridae	*Unknown*	0	0	0	0	0	0	0
Scelionidae	*Unknown*	0	0	0	0	1	0	0
Sciomyzidae	*Renocera* sp.	0	0	0	0	0	0	0
Stratiomyidae	*Stratiomys* sp.	1	1	0	3	0	0	0
Stratiomyidae	*Unknown*	0	0	0	0	0	0	0
Tipulidae	*Unknown*	0	0	0	0	0	0	0
Tipulidae	*Tipula* sp.	0	0	0	0	0	0	0
Tabanidae	*Chrysops* sp.	0	0	0	0	0	0	0
Tabanidae	*Haematopota* sp.	0	0	0	0	0	0	0
Tabanidae	*Tabanus* sp.	0	0	0	0	0	0	0
Tabanidae	*Unknown*	0	0	0	0	1	0	0
Baetidae	*Callibaetis floridanus*	1	0	0	3	0	5	3
Baetidae	*Callibaetis pretiosus*	0	0	0	0	0	0	0
Baetidae	*Caenis macafferti*	0	0	0	0	0	0	0
Hypogastruridae	*Odontella* sp.	1	0	0	0	0	0	0
Sminthuridae	*Bourletiella* sp.	0	0	1	0	0	0	0

Appendix 1 (*Continued*)

Vertebrates								
Hylidae	*Acris gryllus*	0	0	0	0	0	0	0
Amphiumidae	*Amphium means*	0	0	0	0	0	0	0
Ictaluridae	*Ameirus nebulosus*	0	0	0	0	0	0	1
Elassomatidae	*Elassoma evergladei*	0	0	0	0	0	0	0
Catostomidae	*Erimyzon sucetta*	0	0	0	0	0	0	0
Fundulidae	*Fundulus chrysotus*	4	3	3	7	0	2	0
Fundulidae	*Fundulus cingulatus*	0	0	0	0	0	0	0
Fundulidae	*Fundulus lineolatus*	8	0	0	0	0	0	0
Microhylidae	*Gastrophryne carolinensis*	0	0	0	0	0	2	0
Poeciliidae	*Gambusia holbrooki*	142	13	27	14	11	36	16
Hylidae	*Hyla cinerea*	0	2	0	0	0	0	0
Hylidae	*Hyla femoralis*	0	0	0	0	0	0	0
Hylidae	*Hyla* sp.	1	2	0	5	0	0	4
Hylidae	*Hyla gratiosa*	0	0	0	0	0	0	0
Callichthyidae	*Hoplosternum littorale*	5	1	9	2	1	2	0
Hylidae	*Hyla squirella*	1	0	0	1	0	1	0
Cyprinodontidae	*Jordanella floridae*	4	2	2	2	0	0	1
Centrarchidae	*Lepomis gulosus*	0	1	0	0	0	0	0
Colubridae	*Nerodia cyclopion*	0	0	0	0	0	0	0
Colubridae	*Nerodia fasciata*	0	0	0	0	0	0	0
Colubridae	*Narodia floridana*	0	0	0	0	0	0	0
NA	*Unknown (PLAT)*	0	1	0	0	0	0	0
Sirenidae	*Pseudrobranchus striatus*	0	0	0	0	1	0	0
Ranidae	*Rana* sp.	0	0	0	0	0	0	0
Ranidae	*Rana catesbiana*	0	0	0	0	0	0	0
Ranidae	*Rana grylio*	0	1	0	0	0	0	0
Ranidae	*Lithobates sphenocephalus*	3	10	0	0	10	0	0
Sirenidae	*Siren lacertina*	1	0	0	1	0	0	1
NA	*Small fish*	0	0	0	0	0	0	0
Colubridae	*Seminatrix pygea*	0	0	0	0	0	0	0
Colubridae	*Thamnophis sauritus*	0	0	0	0	0	0	0
NA	*Unknown tadpole*	0	0	0	0	0	0	0

		P386	P523	P579	P595
	pasturetype	SN	SN	SN	SN
	richness_total	73	70	88	87
	sr_plant	16	30	33	32
	sr_invert	50	36	46	52
	sr_vert	7	4	9	3
	abun_invert	274	105	216	327
	abun_vert	42	8	30	20
Family	Species				
Plants					
Amaranthaceae	*Alternanthera philoxeroides*	9	12	7	0
Poaceae	*Amphicarpum muehlenbergianum*	0	0	0	3
Poaceae	*Andropogon* spp	0	0	0	0
Poaceae	*Andropogon virginicus* var. *glaucus*	0	4	0	6
Poaceae	*Andropogon virginicus* var. *virginicus*	0	0	0	0
Poaceae	*Aristida patula*	0	0	0	0
Asclepiadaceae	*Sarcostemma clausa*	0	0	0	0
Asteraceae	*Aster subulatus*	0	0	1	0
Poaceae	*Axonopus fissifolius*	0	2	4	9
Azollaceae	*Azolla caroliniana*	0	0	0	0
Scrophulariaceae	*Bacopa caroliniana*	0	4	7	6
Asteraceae	*Bidens mitis*	0	0	0	0
Cyperaceae	*Carex abolutescens*	1	2	0	0
Cyperaceae	*Carex glaucescens*	0	1	0	0
Apiaceae	*Centella erecta*	4	9	5	9
Rubiaceae	*Cephalanthus occidentalis*	0	0	0	0
Cyperaceae	*Cladium jamaicense*	0	0	0	0
Commelinaceae	*Commelina diffusa*	1	0	0	0
Lythraceae	*Cuphea carthagenensis*	0	0	0	0
Poaceae	*Cynodon dactylon*	0	1	1	0
Cyperaceae	*Kyllingia brevifolius*	0	0	0	0
Cyperaceae	*Cyperus distinctus*	0	0	0	0
Cyperaceae	*Cyperus haspan*	0	0	1	0
Cyperaceae	*Cyperus retrorsus*	0	0	0	0
Cyperaceae	*Cyperus surinamensis*	0	0	0	0
Cyperaceae	*Cyperus* spp	0	0	0	0
Cyperaceae	*Dichromena colorata*	0	0	0	0
Poaceae	*Dichanthelium erectifolium*	0	0	0	4
Rubiaceae	*Diodia virginiana*	0	8	10	8
Asteraceae	*Eclipta prostrata*	0	0	0	0
Pontederiaceae	*Eichhornia crassipes*	4	0	0	0
Cyperaceae	*Eleocharis baldwinii*	0	3	1	4
Cyperaceae	*Eleocharis equisetoides*	0	0	0	0

Appendix 1 (*Continued*)

Cyperaceae	*Eleocharis* spp	0	0	0	0
Cyperaceae	*Eleocharis vivipara*	0	1	3	0
Poaceae	*Eragrostis elliotti*	0	0	0	3
Poaceae	*Eriocaulon decangulare*	0	0	0	0
Eriocaulaceae	*Saccharum giganteus*	0	0	0	0
Asteraceae	*Eupatorium capillifolium*	0	1	0	0
Asteraceae	*Eupatorium mikanioides*	0	0	0	0
Asteraceae	*Euthamia minor*	0	0	0	0
Cyperaceae	*Fuirena scirpoidea*	0	0	0	7
Rubiaceae	*Galium tinctorium*	2	0	0	0
Rubiaceae	*Hediotis uniflora*	0	0	0	0
Poaceae	*Hemarthria altissima*	0	0	0	0
Poaceae	*Hydrochloa caroliniana*	3	9	10	0
Apiaceae	*Hydrocotyle umbellata*	0	3	3	0
Poaceae	*Hymenachne amplexicaulis*	0	0	0	0
Liliaceae	*Hymenocallis latifolia*	0	0	0	0
Lamiaceae	*Hyptis alata*	0	0	0	0
Clusiaceae	*Hypericum edisonianum*	0	0	0	0
Clusiaceae	*Hypericum fasciculatum*	0	0	0	0
Clusiaceae	*Hypericum mutilum*	0	0	0	0
Convolvulaceae	*Ipomoea sagittata*	0	0	0	0
Juncaceae	*Juncus effusus*	8	7	0	0
Acanthaceae	*Justicia angusta*	0	0	2	6
Haemodoraceae	*Lachnanthes caroliana*	0	0	0	0
Poaceae	*Leersia hexandra*	0	0	2	2
Lemnaceae	*Lemna minor*	0	0	2	0
Hydrocharitaceae	*Limnobium spongia*	0	0	0	0
Scrophulariaceae	*Lindernia grandiflora*	0	0	0	0
Onagraceae	*Ludwigia arcuata*	0	0	0	0
Onagraceae	*Ludwigia octovalvis*	0	1	0	2
Onagraceae	*Ludwigia* spp	0	0	0	2
Onagraceae	*Ludwigia peruviana*	1	0	0	0
Onagraceae	*Ludwigia pilosa*	0	0	0	0
Onagraceae	*Ludwigia repens*	0	6	2	0
Onagraceae	*Ludwigia suffruticosa*	0	0	2	7
Onagraceae	*Ludwigia virgata*	0	0	0	0
Cucurbitaceae	*Melothria pendula*	0	0	0	0
Asteraceae	*Mikania scandens*	0	1	0	0
Cucurbitaceae	*Momardica charantia*	0	0	0	0
Myricaceae	*Myrica cerifera*	0	0	0	0
Nymphaeaceae	*Nymphaea aquatica*	0	0	0	0
Apiaceae	*Oxypolis filiformis*	0	0	0	0
Poaceae	*Panicum dichotimiflorum*	0	0	0	0
Poaceae	*Panicum hemitomon*	3	9	13	9
Poaceae	*Panicum* sp.	0	0	1	5
Poaceae	*Panicum longifolium*	0	2	2	7
Poaceae	*Panicum repens*	0	0	0	0
Poaceae	*Panicum rigidulum*	0	0	0	0
Poaceae	*Paspalum acuminatum*	5	8	3	2
Poaceae	*Paspalum conjugatum*	2	1	1	0
Poaceae	*Paspalidium geminatum*	0	0	3	0
Poaceae	*Paspalum notatum*	7	4	2	5
Poaceae	*Paspalum urvillei*	0	0	0	0
Verbenaceae	*Phyla nodiflora*	0	2	0	0
Asteraceae	*Pluchea odorata*	0	0	0	4
Asteraceae	*Pluchea rosea*	0	0	0	0
Polygonaceae	*Polygonum hydropiperoides*	0	0	0	5
Polygonaceae	*Polygonum punctatum*	5	10	0	0
Pontederiaceae	*Pontedaria cordata*	1	1	11	5
Haloragaceae	*Proserpinaca palustris*	0	0	2	1
Haloragaceae	*Proserpinaca pectinata*	0	0	0	7
Melastomataceae	*Rhexia* spp	0	0	0	8
Cyperaceae	*Rhynchospora* spp	0	0	0	0
Cyperaceae	*Rhynchospora cephalantha*	0	0	0	0
Cyperaceae	*Rhynchospora fascicularis*	0	0	4	0
Cyperaceae	*Rhynchospora filifolia*	0	0	0	0
Cyperaceae	*Rhynchospora inundata*	0	8	9	10
Cyperaceae	*Rhynchospora megalocarpa*	0	0	0	0
Cyperaceae	*Rhynchospora microcephala*	0	0	0	0
Cyperaceae	*Rhynchospora nitens*	0	0	4	2
Cyperaceae	*Rhynchospora tracyi*	0	0	0	0
Rosaceae	*Rubus cuneifolius*	0	0	0	0
Gentianaceae	*Sabatia grandiflora*	0	0	0	0
Arecaceae	*Sabal palmetto*	0	0	0	0
Poaceae	*Sacciolepis striata*	0	2	0	0
Alismataceae	*Sagittaria graminea*	0	0	2	1
Alismataceae	*Sagittaria lancifolia*	0	1	7	2

Appendix 1 (*Continued*)

Salviniaceae	*Salvinia minima*	0	0	0	0
Poaceae	*Schizachyrium scoparium*	0	0	0	2
Cyperaceae	*Scleria reticulata*	0	0	0	0
Fabaceae	*Sesbania herbacea*	0	0	0	0
Poaceae	*Setaria geniculata*	0	0	0	0
Asteraceae	*Solidago fistulosa*	0	0	0	0
Solanaceae	*Solanum viarum*	1	0	0	0
Poaceae	*Spartina bakeri*	0	0	2	0
Lentibulareaceae	*Utricularia foliosa*	0	0	2	0
Lentibulareaceae	*Utricularia purpurea*	0	0	0	0
Blechnaceae	*Woodwardia virginica*	0	0	0	0
Xyridaceae	*Xyris elliotii*	0	0	0	0
Unknown	*Unknown*	0	0	0	0
Unknown	*Unknown*	0	1	0	1
Unknown	*Unknown*	0	0	0	0
Unknown	*Unknown*	0	0	0	0
Unknown	*Unknown*	0	0	0	0
Unknown	*Unknown*	0	0	0	0
Invertebrates					
Chrysomeliidae	*Unknown*	0	0	0	0
Circulionidae	*Lissorhoptrus* sp.	6	12	3	17
Circulionidae	*Listronotus* sp.	0	0	0	0
Dytiscidae	*Andocheilus exiguus*	0	0	6	0
Dytiscidae	*Bidessonotus* sp. 1	0	0	2	0
Dytiscidae	*Bidessonotus* sp. 2	1	1	0	0
Dytiscidae	*Brachyvatus apicatus*	0	0	0	0
Dytiscidae	*Celina* sp.	0	0	0	0
Dytiscidae	*Copelatus caelatipennis princeps*	8	0	0	1
Dytiscidae	*Coptotomus interrogatus*	0	0	1	0
Dytiscidae	*Coptotomus* sp.	0	0	0	0
Dytiscidae	*Cybister* sp.	1	0	0	0
Dytiscidae	*Desmopachria* sp.	1	0	5	0
Dytiscidae	*Hydaticus bimarginatus*	3	0	0	0
Dytiscidae	*Hydaticus* sp.	0	0	0	0
Dytiscidae	*Hydrovatus pustulatus compressus*	0	0	0	0
Dytiscidae	*Hydrovatus* sp.	1	0	1	0
Dytiscidae	*Laccophilus gentilis*	0	0	0	0
Dytiscidae	*Laccophilus proximus*	11	1	2	0
Dytiscidae	*Laccophilus* sp.	1	0	0	1
Dytiscidae	*Liodessus affinis*	0	0	0	0
Dytiscidae	*Liodessus* sp.	0	0	0	0
Dytiscidae	*Neobidessus pullus*	0	0	2	0
Dytiscidae	*Pachydrus princeps*	1	6	0	1
Dytiscidae	*Thermonectus basillaris*	5	0	2	0
Dytiscidae	*Uvarus* sp.	0	0	0	0
Dytiscidae	*Unknown*	0	0	0	0
Haliplidae	*Haliplus annulatus*	0	0	0	0
Haliplidae	*Haliplus* sp.	0	0	0	3
Haliplidae	*Peltodytes dietrichi*	0	0	0	0
Haliplidae	*Peltodytes oppositus*	0	0	0	0
Haliplidae	*Peltodytes* sp.	0	0	0	0
Hydraeinidae	*Hydraena marginicollis*	2	3	1	0
Hydrophilidae	*Berosus corrini*	0	0	0	0
Hydrophilidae	*Berosus exiguus*	0	1	0	0
Hydrophilidae	*Berosus infuscatus*	0	0	0	0
Hydrophilidae	*Berosus pugnax*	0	0	0	0
Hydrophilidae	*Berosus* sp.	0	3	3	5
Hydrophilidae	*Derallus altus*	1	1	1	3
Hydrophilidae	*Dibolocelus ovatus*	0	0	0	0
Hydrophilidae	*Enochrus blatchleyi*	0	0	0	1
Hydrophilidae	*Enochrus cinctus*	0	0	4	0
Hydrophilidae	*Enochrus consors*	0	0	0	0
Hydrophilidae	*Enochrus ochraceus*	2	1	4	5
Hydrophilidae	*Enochrus pygmaeus*	0	0	0	0
Hydrophilidae	*Enochrus sublongus*	0	3	0	0
Hydrophilidae	*Enochrus* sp.	0	0	4	0
Hydrophilidae	*Helobata larvalis*	1	0	0	2
Hydrophilidae	*Hydrobiomorpha casta*	0	0	0	0
Hydrophilidae	*Hydrochus rugosus*	0	0	0	0
Hydrophilidae	*Hydrochus* sp.	0	0	0	0
Hydrophilidae	*Hydrophilus triangularis*	0	1	0	0
Hydrophilidae	*Paracymus nanus*	0	0	0	0
Hydrophilidae	*Paracymus reductus*	0	0	0	0
Hydrophilidae	*Paracymus* sp.	0	0	0	0
Hydrophilidae	*Phaenonotum exstriatum*	0	0	0	0
Hydrophilidae	*Tropisternus blatchleyi*	0	0	0	0
Hydrophilidae	*Tropisternus collaris*	0	0	0	0

Appendix 1 (*Continued*)

Hydrophilidae	*Tropisternus lateralis nimbatus*	1	1	1	0
Hydrophilidae	*Tropisternus natator*	0	0	0	0
Hydrophilidae	*Tropisternus* sp.	4	0	4	0
Noteridae	*Hydrocanthus oblongus*	12	5	24	8
Noteridae	*Hydrocanthus* sp.	5	20	36	6
Noteridae	*Mesonoterus addendus*	0	0	0	0
Noteridae	*Mesonoterus/Pronoterus* sp.	0	0	0	0
Noteridae	*Suphis inflatus*	0	4	1	1
Noteridae	*Supisellus gibbulus*	2	15	15	2
Noteridae	*Suphisellus puncticollis*	0	0	0	0
Scirtidae	*Cyphon* sp.	0	0	0	0
Scirtidae	*Scirtes* sp.	4	0	0	0
Scirtidae	*Unknown*	0	0	0	0
Belastomatidae	*Juvenile*	7	4	1	2
Belastomatidae	*Abedus immaculatus*	0	0	0	1
Belastomatidae	*Belastoma testaceum*	0	0	0	0
Belastomatidae	*Belastoma lutarium*	0	0	0	0
Belastomatidae	*Lethocerus uhleri*	0	0	0	0
Belastomatidae	*Lethocerus griseus*	0	0	0	0
Belastomatidae	*Lethocerus* sp. (immature)	0	0	0	0
Corixidae	*Trichocorixa louisianae*	1	4	4	0
Corixidae	*Micronecta ludibunda*	0	0	0	0
Corixidae	*Immature*	0	0	0	0
Hebridae	*Hebrus* sp.	0	0	0	0
Hebridae	*Lipogomphus* cf. *brevis*	0	0	0	0
Hebridae	*Hebrus consolidus*	0	0	0	0
Hydrometridae	*Hydrometra wileyae*	0	0	0	0
Hydrometridae	*Hydrometra hungerfordi*	0	0	0	0
Hydrometridae	*Hydrometra australis*	0	0	0	0
Mesoveliidae	*Mesovelia amoena*	0	0	0	0
Mesoveliidae	*Mesovelia mulsanti*	0	0	0	0
Mesoveliidae	*Mesovelia* sp. (immature)	1	0	0	0
Naucoridae	*Pelocoris carolinensis*	0	0	0	0
Naucoridae	*Pelocoris* sp. (immature)	0	0	0	0
Naucoridae	*Pelocoris* cf. *balius*	0	0	0	0
Naucoridae	*Pelocoris femoratus*	0	0	0	0
Nepidae	*Ranatra australis*	0	0	1	0
Nepidae	*Ranatra kirkaldyi*	1	0	0	0
Notonectidae	*Buenoa confusa*	0	3	2	0
Notonectidae	*Buenoa margaritacae*	0	0	0	5
Notonectidae	*Buenoa* sp. (immature)	4	9	2	5
Notonectidae	*Notonecta indica*	0	0	0	0
Notonectidae	*Notonecta* sp. (immature)	1	0	0	0
Notonectidae	*Notonecta undulata*	0	0	0	0
Pleidae	*Unknown*	0	0	0	0
Pleidae	*Paraplea* cf. *puella*	0	0	0	0
Pleidae	*Paraplea* sp.	2	0	2	0
Pleidae	*Neoplea* sp.	0	0	0	0
Saldidae	*Unknown*	0	1	0	0
Veliidae	*Microvelia* sp.	0	0	2	0
Veliidae	*Microvelia cubana*	0	0	2	0
Veliidae	*Microvelia americana*	0	0	0	0
Veliidae	*Platyvelia* cf. *brachialis*	0	0	0	1
Veliidae	*Stenovelia stagnalis*	0	0	0	0
Cicadellidae	*Unknown*	2	2	1	3
Cicadellidae	*Unknown*	0	0	0	0
Coenagrionidae	*Ishnura* sp.	4	14	25	13
Lestidae	*Lestes vidua*	0	0	0	0
Aeshnidae	*Anax junius*	0	3	1	2
Aeshnidae	*Coryphaeshnae ingens*	0	1	1	0
Aeshnidae	*Gomphaeshna antilope*	0	0	0	0
Aeshnidae	*Gomphaeshna* sp.	0	0	0	0
Libellulidae	*Erythemis simplicicollis*	0	0	2	0
Libellulidae	*Pachydiplax longipennis*	2	1	9	11
Libellulidae	*Tramea calverti*	0	0	5	0
Libellulidae	*Unknown*	0	7	1	8
Chaoboridae	*Chaoborius americanus*	0	2	1	1
Chaoboridae	*Unknown*	0	0	0	0
Ceratopogonidae	*Forcipomyia* sp.	0	0	0	0
Ceratopogonidae	*Unknown*	0	1	0	0
Ceratopogonidae	*Unknown*	0	0	17	0
Ceratopogonidae	*Unknown*	0	0	0	0
Canacidae	*Unknown*	2	0	0	0
Culicidae	*Anopheles* sp.	0	0	0	0
Culicidae	*Anopheles crucians*	0	3	7	0
Culicidae	*Culex* sp.	0	3	0	0
Culicidae	*Culex declarator*	0	0	0	0
Culicidae	*Culex erraticus*	0	4	0	0

Appendix 1 (*Continued*)

Culicidae	*Culex nigripalpus*	0	0	0	0
Culicidae	*Mansonia titillans*	0	0	0	0
Culicidae	*Uranotaenia sapphirina*	0	14	19	21
Culicidae	*Unknown*	0	0	0	0
Culicidae	*Unknown*	1	2	3	0
Culicidae	*Unknown*	0	0	0	0
Chironomidae	*Unknown*	0	0	0	0
Chironomidae	*Unknown*	0	0	0	0
Chironomidae	*Unknown*	0	1	2	1
Chironomidae	*Ablabesmyia peleensis*	0	1	0	0
Chironomidae	*Beardius reissi*	1	14	0	3
Chironomidae	*Cantopelopia gesta*	0	11	7	8
Chironomidae	*Corynoneura* sp. *B*	0	0	0	1
Chironomidae	*Djalmabatista pulchra*	0	0	1	0
Chironomidae	*Fittkauimyia serta*	0	0	0	5
Chironomidae	*Goeldichironomus* sp.	0	0	0	0
Chironomidae	*Goeldichironomus* cf. *devineyae*	0	1	0	0
Chironomidae	*Goeldichironomus holoprasinus*	0	0	4	0
Chironomidae	*Goeldichironomus* cf. *natans*	0	0	0	0
Chironomidae	*Krenopelopia* cf. *hudsoni*	0	0	0	0
Chironomidae	*Labrundinia virescens*	0	0	57	0
Chironomidae	*Labrundinia* sp.	0	1	0	0
Chironomidae	*Larsia berneri*	0	0	0	0
Chironomidae	*Monopelopia boliekae*	0	0	0	0
Chironomidae	*Parachironomus tenuidaudatus*	0	0	0	0
Chironomidae	*Polypedilum polypedilum trigonus*	0	5	9	0
Chironomidae	*Tanypus* sp.	0	0	0	0
Chironomidae	*Xestochironomus xenolabis*	0	0	0	0
Ephydridae	*Brachydeutera argentata*	0	2	0	0
Mymaridae	*Unknown*	0	0	0	0
Scelionidae	*Unknown*	0	0	0	0
Sciomyzidae	*Renocera* sp.	0	0	0	0
Stratiomyidae	*Stratiomys* sp.	2	10	0	1
Stratiomyidae	*Unknown*	0	0	0	0
Tipulidae	*Unknown*	0	0	0	0
Tipulidae	*Tipula* sp.	0	0	0	0
Tabanidae	*Chrysops* sp.	0	0	0	0
Tabanidae	*Haematopota* sp.	0	0	0	0
Tabanidae	*Tabanus* sp.	0	1	1	2
Tabanidae	*Unknown*	0	0	2	0
Baetidae	*Callibaetis floridanus*	0	38	13	7
Baetidae	*Callibaetis pretiosus*	0	0	0	1
Baetidae	*Caenis macafferti*	0	0	1	0
Hypogastruridae	*Odontella* sp.	0	2	0	0
Sminthuridae	*Bourletiella* sp.	1	0	0	0
Vertebrates					
Hylidae	*Acris gryllus*	0	0	0	0
Amphiumidae	*Amphium means*	0	0	0	0
Ictaluridae	*Ameirus nebulosus*	1	0	1	0
Elassomatidae	*Elassoma evergladei*	0	0	0	0
Catostomidae	*Erimyzon sucetta*	0	0	0	0
Fundulidae	*Fundulus chrysotus*	0	0	1	0
Fundulidae	*Fundulus cingulatus*	0	0	0	5
Fundulidae	*Fundulus lineolatus*	0	0	0	0
Microhylidae	*Gastrophryne carolinensis*	0	0	0	0
Poeciliidae	*Gambusia holbrooki*	31	5	12	7
Hylidae	*Hyla cinerea*	0	1	6	0
Hylidae	*Hyla femoralis*	0	0	0	0
Hylidae	*Hyla* sp.	2	0	0	0
Hylidae	*Hyla gratiosa*	0	0	3	0
Callichthyidae	*Hoplosternum littorale*	0	1	3	0
Hylidae	*Hyla squirella*	0	0	1	0
Cyprinodontidae	*Jordanella floridae*	0	1	2	8
Centrarchidae	*Lepomis gulosus*	0	0	0	0
Colubridae	*Nerodia cyclopion*	0	0	0	0
Colubridae	*Nerodia fasciata*	2	0	0	0
Colubridae	*Narodia floridana*	1	0	0	0
NA	*Unknown (PLAT)*	0	0	0	0
Sirenidae	*Pseudrobranchus striatus*	0	0	0	0
Ranidae	*Rana* sp.	0	0	0	0
Ranidae	*Rana catesbiana*	0	0	0	0
Ranidae	*Rana grylio*	4	0	0	0
Ranidae	*Lithobates sphenocephalus*	0	0	1	0
Sirenidae	*Siren lacertina*	0	0	0	0
NA	*Small fish*	0	0	0	0
Colubridae	*Seminatrix pygea*	1	0	0	0
Colubridae	*Thamnophis sauritus*	0	0	0	0
NA	*Unknown tadpole*	0	0	0	0

Appendix 2.

Two most informative models for each response variable within each land use intensity. df_{num}: numerator degrees of freedom, log (£): maximized log likelihood, K: number of parameters, AIC: Akaike Information Criterion value (lower values indicate better models), Δ_i: difference between lowest AIC value and AIC_i, w_i: model weight.

Model		df_{num}	K	log (£)	AIC	Δ_i	w_i
Semi-natural pastures							
Composition (all taxa)	Wet dist[1]	17	2	−6.62	19.25	0.00	0.91
	Ditch distance × wet dist[1]	15	4	−6.43	25.71	5.71	0.05
Composition (plants)	Soil N	17	2	−17.67	41.34	0.00	0.23
	Ditch density[2]	17	2	−18.01	42.03	0.69	0.16
Composition (invertebrates)	Stocking index	17	2	−10.11	26.23	0.00	0.35
	Wet dist[1]	17	2	−10.81	27.62	1.39	0.18
Composition (vertebrates)	Soil P + soil C + soil C:N + soil N:P	14	5	−10.13	36.88	0.00	0.51
	Soil C	17	2	−16.86	39.72	3.59	0.09
Total richness	Ditch density[2]	17	2	−70.28	146.57	0.00	0.78
	Ditch distance + wet dist[1] + ditch density[2] + wet density[3]	14	5	−67.93	147.85	5.15	0.06
Plant richness	Soil C	17	2	−61.12	128.24	0	0.44
	Soil N	17	2	−61.37	128.75	0.51	0.34
Invertebrate richness	Ditch density[2]	17	2	−67.01	140.02	0	0.26
	Longitude	17	2	−67.38	140.77	0.74	0.18
Vertebrate richness	Ditch density[2]	17	2	−36.50	79.00	0	0.21
	Wetland depth	17	2	−36.85	79.69	0.69	0.15
Highly managed pastures							
Composition (all taxa)	Water TP	18	2	−18.63	43.26	0.00	0.14
	Wetland density 1000	18	2	−18.86	43.73	0.47	0.11
Composition (plants)	Soil C:N	18	2	−11.83	29.66	0.00	0.87
	Soil P + soil C + soil C:N + soil N:P	15	5	−9.93	31.86	5.77	0.05
Composition (invertebrates)	Latitude + longitude	17	3	−11.63	31.26	0.00	0.30
	Latitude	18	2	−13.19	32.37	0.31	0.25
Composition (vertebrates)	Soil C:N	18	2	−12.48	30.95	0.00	0.60
	Woodlot area	18	2	−13.00	31.99	1.04	0.35
Total richness	Water TP	18	2	−70.59	147.88	0.00	0.70
	NH_4 + NO_3 + TN + TP + block	14	6	−64.96	143.92	2.49	0.20
Plant richness	Water TP	18	2	−59.10	124.20	0.00	0.33
	Null	19	1	−69.12	127.84	3.16	0.07
Invertebrate richness	Soil C:N	18	2	−65.57	137.14	0.00	0.42
	Water TP	18	2	−66.38	138.77	1.63	0.18
Vertebrate richness	Soil N:P	18	2	−40.22	86.43	0	0.34
	Soil C:P	18	2	−41.36	88.73	2.29	0.11

[1] Log of distance to the nearest wetland.
[2] Total length of ditches within 400 m of wetland centroid.
[3] Total area of wetlands within 400 m of wetland centroid.

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