

*Coon Fork and South Fork Barrens State Natural Area Modified
BioBlitzes*

Final Report



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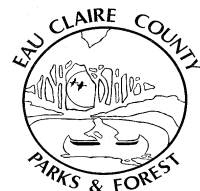


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INTRODUCTION

In June 2009, the Beaver Creek Reserve Citizen Science Center, the Wisconsin Department of Natural Resources (WDNR), and the Eau Claire County Parks and Forest Department (ECCF) partnered together to conduct a modified BioBlitz (henceforth referred to as BioBlitz) of the Coon Fork Barrens and South Fork Barrens State Natural Areas (SNA 313 (Appendix A) and SNA 314 (Appendix B) respectively). The purpose of the BioBlitzes was to provide Eau Claire County with a more current list of species present on the property for a variety of different taxonomic groups. A secondary purpose was to report any species of Special Conservation Need, as indicated in the Wisconsin Wildlife Action Plan, and third, to provide data that the County and State could use to determine where new barrens restoration opportunities might exist.

BioBlitz

The first BioBlitz in the United States took place at Kenilworth Park and Aquatic Gardens in Washington D.C. in 1996. A BioBlitz is a term referring to a rapid biological survey of a property in which as many species from as many taxonomic groups as possible are counted during a 24-hour period (Droege 2004). “The name and concept of the BioBlitz is not registered, not copyrighted, not trademarked, and not a government thing. It’s an idea that can be used, adapted, and modified by any group, who should freely use the name BioBlitz for their own purposes” (Droege 2004). A BioBlitz is a fun activity that brings together

adult citizens, students, and professionals to explore the natural world. It is also a tool used to document species occurrences and to identify rare or endangered species. A BioBlitz cannot, however, provide a complete inventory of species or be used as a method for a long-term monitoring program (Droege 2004). A BioBlitz can provide a “snapshot in time” of the species that occur on or near a property. The BioBlitzes conducted in this study are considered “modified” because rather than conducting sampling for all taxa in one 24-hour period, taxa were sampled on several different days throughout the summer according to availability of team leads and volunteers and, as appropriate, to the organisms being sampled.

Site Description

The Coon Fork Barrens and South Fork Barrens State Natural Areas were both designated in 1996 and are located in the eastern portion of Eau Claire County, north of the town of Augusta. The legal description for Coon Fork Barrens SNA is T26N R5W Sec. 19, 20, 28, 29, 30. The property contains 580 acres of open woodlands with jack pine and oak to savanna and brush prairie (WDNR 2009). The legal description for South Fork Barrens State Natural Area is T26N R5W Sec. 14 SW ¼. The property contains 120 acres and is uniformly Jack pine-oak barrens, with a steep south-facing bluff above the south fork of the Eau Claire River (WDNR 2009a).

METHODS

The Citizen Science Center Director, Sarah Braun, and Beaver Creek Reserve (BCR) Director, Rick Koziel, began formal

planning for the BioBlitz in June 2009 with the hiring of field technicians, Stephanie

Zinken and Jamie Dins to assist with organizing and coordinating the BioBlitzes.

During June, the field technicians made several visits to the SNAs to assess the access trails and roads on the property. The field technicians then contacted experts for the six taxonomic groups that were to be assessed on the property. They asked them to help determine protocols for collecting data for their taxa and to lead a group of volunteers through the collection procedures for the BioBlitzes. The seven taxonomic groups that were assessed were: (1) mammals, (2) reptiles and amphibians, (3) birds, (4) terrestrial plants, (5) bats, (6) worms, and (7) butterflies. The field technicians then used the Beaver Creek Reserve volunteer database to contact possible volunteers to take part in the BioBlitzes. They also contacted the students and professors of the Biology Department at the University of Wisconsin-Eau Claire, via an email-alert to invite them to participate in the event. Insects, Odonata, and Fish, were also scheduled to be sampled but field experts were unable to provide time to the project in 2009, therefore data for these groups was not collected. [Odonata are listed separate from the rest of the insects because there is a local volunteer who specializes in that group]. However, funding for a native bee study on Coon Fork SNA was received by Beaver Creek Reserve in 2010 and data from that study should be available by December 2010.

The field technicians created a poster using Adobe Illustrator (v. 12.0.1) describing the event. The poster was sent to all possible team leads and volunteers (Appendix C).

The field technicians and Citizen Science Director hosted an introduction and training seminar at the Beaver Creek Reserve Citizen Science Center for a group of fifteen potential BioBlitz volunteers and team leads on June 25, 2009 at Beaver

Creek Reserve. At the seminar, volunteers were introduced to the State Natural Areas and the BioBlitz program and provided logistical information about how the event would be conducted. After the introduction, each of the team leads met with their group of volunteers to explain data collection procedures, duration of collection and locations of collection sites.

Data collection occurred on multiple days between June 25, 2009 and May 2010 on days that were convenient for the team leads and volunteers and during time frames (wherever possible) that were most appropriate for the organisms being sampled.

Mammals. The small mammal trapping portion of this survey was completed as part of a larger study documenting small mammal community and natural community associations in Wisconsin conducted by Ryan Stephens, UW-Stevens Point. The majority of the text in this section is taken directly from his report (Stephens 2009). Three 190m-long transects were placed in the site, two in Coon Fork Barrens and one in South Fork Barrens, with Sherman box traps every 10m (for 20 traps per transect) and pitfall traps every 20m (for 10 traps per transect). The sixty Sherman box traps and thirty pitfall traps were set for live small mammals, reptiles and amphibians for overnight captures. The Sherman box traps were baited with 2.5 x 2.5 cm squares of paper towel containing peanut butter and dry oatmeal. The paper towel was coated in a thin layer of smooth peanut butter, sprinkled sparsely with dry oats. Then a dry sheet of paper towel was placed over it and one-inch squares were cut. Traps were checked daily for four consecutive days before they were moved to new locations and were checked twice daily, once in the morning and once in the evening.

Captured animals were identified, sexed, weighed, and marked with a slight ear notch. No distinction was made between

Peromyscus spp. where the white-footed mouse and woodland deer mouse were sympatric. Animals that were found dead in traps were prepared as study skins, skeletons, and tissues and deposited in the UWSP Museum of Natural History in Stevens Point, WI and the Smithsonian Museum of Natural History in Washington, D.C.

The following habitat data were measured at each transect: canopy closure, tree density, herbaceous cover, shrub cover, coarse woody debris, and litter depth. Percent canopy closure of hard and softwoods were estimated at every other trap station using an ocular tube and then aggregated across all 20 stations to provide an estimate of canopy closure. Herbaceous cover was estimated at every other trap station by placing a 1m x 1m frame over each trap station. Litter depth was also estimated at the center of every other trap station by pushing a ruler to the surface of the soil substrate. Percent coverage of coarse woody debris and low (< 2 m) and high (> 2 m) shrub cover was estimated by running a tape the full length of the transect and summing the distances that fell within the cover of the debris or the shrub canopy. These sums were then divided by the total length of the transect to determine the percent cover. Basal area of each tree species was calculated using a 10 factor prism at the center of trap 1, 5, 10, 15 and 20. Notes on species composition of herbaceous cover were also taken on each transect.

Reptiles and amphibians. Volunteers watched for reptiles and amphibians during their other survey activities, but did not conduct a formal survey of the reptile and amphibian populations at either State Natural Area.

Birds. Five experienced birders and one student volunteer walked the trails and searched the trees and open areas for birds using binoculars, their naked eye, and their ears. Birds were surveyed on July 7, 2009.

Terrestrial Plants. The CSC director and five volunteers walked the trails and visited all of the unique soil types on the properties to record a list of terrestrial plants (Appendix D). The soil map was developed using the USDA Web Soil Survey (USDA 2007). Samples that could not be quickly identified in the field were collected, pressed and identified in the lab.

Bats. The CSC Director and six volunteers walked the trails to collect Bat data with an AnaBat SD1 CF Bat Detector connected to an HP 2495 PDA Pocket PC with a GlobalSat BC-337 Compact Flash GPS Receiver. Bats were sampled according to the Wisconsin Citizen-Based Acoustic Bat Monitoring Project protocols (Redell 2008). Bat surveys were conducted on July 13 and August 3, 2009 at South Fork Barrens and July 14 and August 4, 2009 at Coon Fork Barrens.

Worms. The CSC Director and three volunteers collected worm data from one plot from each soil type on the properties. Soil types were determined using the USDA Web Soil Survey (USDA 2007). Plots were 33cm x 33cm and were sampled using the liquid mustard extraction technique (Hale 2007).

Butterflies. Data were collected on butterfly species by walking at a slow pace along trails and through open areas until a butterfly was spotted. Butterflies were netted and identified on site when possible and preserved for later identification when on site identification was uncertain. Butterflies were surveyed on May 14, 15 and 25, 2010.

RESULTS

Volunteers

A total of 34 volunteers and staff participated in training and/or data collection, for a total of 263 reported hours. Several volunteers never reported their hours, so this number is conservative.

Small Mammals. Small mammal data were collected on August 5th-9th for a total of four nights of trapping. The team lead and

a volunteer began checking traps on August 6th. Traps with small mammals in them were replaced with newly baited traps. Five species of small mammals were captured and recorded from Coon Fork Barrens and eight species of small mammals were captured and recorded from the South Fork Barrens (Table 1; Appendix E).

Table 1. Small mammal data collected by Ryan Stephens, UWSP, on the Coon Fork Barrens and South Fork Barrens State Natural Areas.

Common Name	Scientific Name	Coon Fork (5 species)	South Fork (8 species)
Southern flying squirrel	<i>Glaucomys volans</i>	0	3
White-footed mouse	<i>Peromyscus leucopus</i>	4	16
Meadow vole	<i>Microtus pennsylvanicus</i>	5	2
Southern red-backed vole	<i>Myodes gapperi</i>	0	1
Masked shrew	<i>Sorex cinereus</i>	7	2
Thirteen-lined ground squirrel	<i>Spermophilus tridecemlineatus</i>	4	1
Southern bog lemming	<i>Synaptomys cooperi</i>	0	1
Red squirrel	<i>Tamiasciurus hudsonicus</i>	0	1
Meadow jumping mouse	<i>Zapus hudsonius</i>	1	0
	TOTAL	21	27

Reptiles and Amphibians. One amphibian, a bullfrog, was recorded by a volunteer from the bird group. No other amphibians or reptiles were recorded during the BioBlitzes.

Birds. Bird data was collected on July 7, 2009. Fifty-four species of birds were either seen or heard on the Coon Fork Barrens SNA (Appendix F). Birds were never surveyed on the South Fork Barrens SNA due to time constraints of volunteers. Three Species of Greatest Conservation Need were heard at the Coon Fork Barrens SNA: black-billed cuckoo, brown thrasher, and field sparrow.

Terrestrial Plants. Terrestrial plant data was collected on July 16, July 17, and August 18, 2009.

There were seven distinct soil types present on the Coon Fork Barrens: Af, FrA, FmB, LuC, MdB, MdC, and Na (Appendix D). The Af soil type represents Alluvial land, wet, and is characterized by elevations of 680 to 1,500 feet, 0-2 percent slopes, and parent material of loamy and silty alluvium over sandy alluvium. The FrA soil type represents Friendship loamy sand and is characterized by elevations of 700-2,000 feet, 0-3 percent slopes, and sandy outwash parent material. The FmB soil type represents Fairchild and Merrilan soils and is characterized by elevations of 700-1,400 feet, 2-6 percent slopes, and parent material of sandy slope alluvium over stratified sandy and loamy residuum. The LuC soil type represents Ludington and Humbrid soils and is characterized by elevations of 700-1,400

feet, 6-12 percent slopes, and loamy slope or sandy slope alluvium over sandy and loamy residuum. The MdB soil type represents Menahga sand and is characterized by elevations of 670-1,600 feet, 1-6 percent slopes, and sandy outwash parent material. The MdC soil type represents Menahga sand and is characterized by elevations of 670-1,600 feet, 6-12 percent slopes, and sandy outwash parent material. The Na soil type represents Newsom loamy sand and is characterized by elevations of 600-2,000 feet, 0-2 percent slopes, and sandy alluvium parent material.

The number of terrestrial plant species identified in the Coon Fork Barrens SNA was 124 (Appendix G). Four new county records were recorded including *Hypericum canadense*, *Solidago ptarmicoides*, *Spergularia rubra*, and *Toxicodendron rydbergii*. Oak savanna and oak woodland indicator species (as defined by Pruka 1995) present on the property are listed in Table 2. There were six Category 1 species present and 12 Category 2 species present.

Only one soil type was present on the South Fork Barrens: MdB. The MdB soil type represents Menahga sand and is characterized by elevations of 670-1,600 feet, 1-6 percent slopes, and sandy outwash parent material. The number of terrestrial plant species identified on the property was 117 (Appendix H). Oak savanna and oak woodland indicator species present on the property are listed in Table 2. There were seven Category 1 species present and nine Category 2 species present.

Table 2. Oak savanna and oak woodland indicator species (as defined by Pruksa 1995) present on the Coon Fork Barrens SNA (6 Category 1; 12 Category 2) and South Fork Barrens SNA (7 Category 1; 9 Category 2).

	Category 1	Category 2
Coon Fork Barrens	<i>Hieracium canadense</i>	<i>Andropogon gerardii</i>
	<i>Krigia biflora</i>	<i>Schizachyrium scoparium</i>
	<i>Lupinus perennis</i>	<i>Asclepias tuberosa</i>
	<i>Lysimachia quadrifolia</i>	<i>Symphiotricum oolentangiense</i>
	<i>Pedicularis canadensis</i>	<i>Coreopsis palmata</i>
	<i>Ceanothus herbaceus</i> (syn. <i>C. ovatus</i>)	<i>Euphorbia corollata</i>
		<i>Galium boreale</i>
		<i>Helianthemum bicknellii</i>
		<i>Helianthus occidentalis</i>
		<i>Potentilla arguta</i>
		<i>Solidago nemoralis</i>
		<i>Sorghastrum nutans</i>
South Fork Barrens	<i>Castilleja coccinea</i>	<i>Anemone quinquefolia</i>
	<i>Ceanothus americanus</i>	<i>Asclepias tuberosa</i>
	<i>Hieracium canadense</i>	<i>Symphiotricum oolentangiense</i>
	<i>Krigia biflora</i>	<i>Coreopsis palmata</i>
	<i>Lysimachia lanceolata</i>	<i>Helianthemum bicknellii</i>
	<i>Lysimachia quadrifolia</i>	<i>Helianthus occidentalis</i>
	<i>Prenanthes alba</i>	<i>Panicum linearifolium</i>
		<i>Solidago nemoralis</i>
		<i>Solidago speciosa</i>

Bats. Bat surveys were conducted on July 13 and August 3, 2009 at South Fork Barrens and July 14 and August 4, 2009 at Coon Fork Barrens. Start and end times for the surveys and species found are included in Table 3. Five of Wisconsin's eight bat species (63%) were found on the properties, four of which are Species of Greater Conservation Need (SGCN). The species documented were Little brown myotis (*Myotis lucifugus*), Northern long-eared myotis (SGCN; *Myotis septentrionalis*),

Eastern red bat (SGCN; *Lasiurus borealis*), Silver-haired bat (SGCN; *Lasionycteris noctivagans*), and Hoary Bat (SGCN; *Lasiurus cinereus*). The Hoary bat was only documented on the South Fork Barrens property. The other four species were documented on both properties. (For maps of survey routes and bat calls see Appendix D). Bat data were reported to the Wisconsin Acoustic Bat Monitoring Program for inclusion in their database.

Table 3. Acoustic bat survey results. Five species documented, four of which are Species of Greatest Conservation Need (SGCN), indicated in bold.

	Date	Start Time (PM)	End Time (PM)	Species Found
Coon Fork Barrens	July 14, 2009	9:17	10:17	Little brown myotis, Northern long-eared myotis , Eastern red bat , and either a Big brown myotis or a Silver-haired bat
	August 4, 2009	9:06	10:15	Little brown myotis, Eastern red bat , Silver-haired bat
South Fork Barrens	July 13, 2009	9:32	10:20	Eastern red bat , Hoary bat , and either a Big brown myotis or a Silver-haired bat
	August 3, 2009	9:30	10:30	Little brown myotis, Silver-haired bat , Northern long-eared myotis , Eastern red bat , Hoary bat

Worms. Worms were collected on September 28, 2009 at Coon Fork Barrens and October 2, 2009 at South Fork Barrens since worm data is best collected during the fall when more worms have reached maturity and are easier to identify. One plot per soil type was sampled for worms, with the exception of the MdB soil type. Four plots were sampled in the MdB soil type at Coon Fork Barrens because it made up a large portion of the property. Two of the plots were sampled in MdB near where two separate roads cut through the property. One MdB sample was taken near the Coon Fork Campground, and one sample was taken from a more remote area of the soil type. Ten total plots were sampled in the Coon Fork Barrens State Natural Area.

MdB was the only soil type for the South Fork Barrens State Natural Area. Two plots were sampled on the property, one in the interior of the property and the other on the south side of the county road that cuts through the property. Plots were located arbitrarily within the soil types.

The worms were preserved in isopropyl alcohol and later transferred to formalin for 24 hours. Then they were transferred back to vials of isopropyl alcohol. All of the worms were counted and the following information recorded about them: adult or juvenile and ecological group. There are three ecological groups of worms in this region: epigeic, endogeic, and anecic. Epigeic worms generally live in the surface litter above the mineral soil or the top inch or so of soil and do not make permanent burrows. These are pigmented worms that are reddish-brown in color and tend to be less than 3 inches long when mature. Endogeic worms make branching burrows in the top 20 inches of the soil. These are unpigmented worms that are a grayish color and may have an albino pink head and are between 1-5 inches long when mature. Anecic worms make vertical burrows in the soil up to 6 feet deep, are pigmented a reddish brown color, and are between 5-8 inches long when mature (Hale 2007).

Once counted, the worms were shipped to the Great Lakes Worm Watch lab in Duluth, MN for identification to species. Table 4 shows the number of worms found in each plot, their age class (adults vs. juveniles), and species. In total, 81 worms from three species were collected from the SNA's (17 worms from South Fork Barrens and 64 from Coon Fork Barrens). The

majority of the worms were pigmented juveniles (68%) and adults (15%) of the species *Dendrobaena octeadra*. Two juvenile *Aporrectodea* spp. were recorded at the Coon Fork Barrens and one adult *Octolasion tyrtaeum* and 11 juvenile *Octolasion* spp. were recorded at the South Fork Barrens.

Table 4. Worm data collected from Coon Fork Barrens and South Fork Barrens State Natural Areas.

	Plot	Soil Type	Latitude	Longitude	<i>Dendrobaena octeadra</i>		<i>Aporrectodea</i> spp. (juvenile)	<i>Octolasion</i> spp. (juvenile)	<i>Octolasion tyrtaeum</i> (adult)	TOTAL
					Juveniles	Adults				
Coon Fork Barrens	1	MdB	44.71179	-91.01237	0	1	1	0	0	2
	2	MdB	44.70474	-91.01102	13	3	0	0	0	16
	3	MdB	44.70088	-91.00780	2	0	0	0	0	2
	4	MdB	44.69348	-91.01271	5	1	0	0	0	6
	5	MdC	44.70385	-91.01760	0	1	0	0	0	1
	6	FrA	44.71428	-91.02565	5	3	0	0	0	8
	7	FmB	44.71415	-91.02924	0	0	0	0	0	0
	8	Na	44.71087	-91.02635	3	2	0	0	0	5
	9	LuC	44.71452	-91.03181	8	0	0	0	0	8
	10	Af	44.71394	-91.02433	14	1	1	0	0	16
South Fork Barrens	1	MdB	44.73294	-90.95910	0	0	0	11	0	11
	2	MdB	44.73089	-90.95844	5	0	0	0	1	6
TOTAL	-	-	-	-	55	12	2	11	1	81

*Coordinates were taken in the WGS 84 datum

Butterflies. Eight species of butterflies were collected from the Coon Fork Barrens State Natural Area (Table 5; Appendix J), including the karner blue butterfly, a federally endangered species. No butterfly

data collection occurred in the South Fork Barrens due to lack of availability of team leads and volunteers. Karner Blue Butterfly data was reported to the Wisconsin DNR for inclusion in their tracking database.

Table 5. Butterfly data collected from Coon Fork Barrens State Natural Area.

Coon Fork Barrens State Natural Area Butterfly Data		
Collectors: Swanson, J., P. Kleintjes-Neff, C. Sandoval, T. Wirz, J. Ring, J. Holman, J. Soine, K. Smith, B. Stanton, P. Osthelder, N. Larson, B. Sippel, P. Schultz, J. Shaw		
Dates Collected: May 14-15 and May 25, 2010		
	Species Name (Common)	Species Name (Scientific)
1	Spring Azure	<i>Celastrina ladon</i>
2	Clouded Sulfur	<i>Colias philodice</i>
3	Olympia Marble	<i>Euchloe olympia</i>
4	Karner Blue	<i>Lycaeides melissa samuelis</i>
5	American Copper	<i>Lycaena phlaeas</i>
6	Eastern Tiger Swallowtail	<i>Papilio glaucus</i>
7	Northern Cloudywing	<i>Thorybes pylades</i>
8	Painted Lady	<i>Vanessa cardui</i>

Summary Results. The groups identified a total of 195 species at the Coon Fork Barrens State Natural Area including:

mammals (5), birds (54), terrestrial plants (124), bats (4), and butterflies (8).

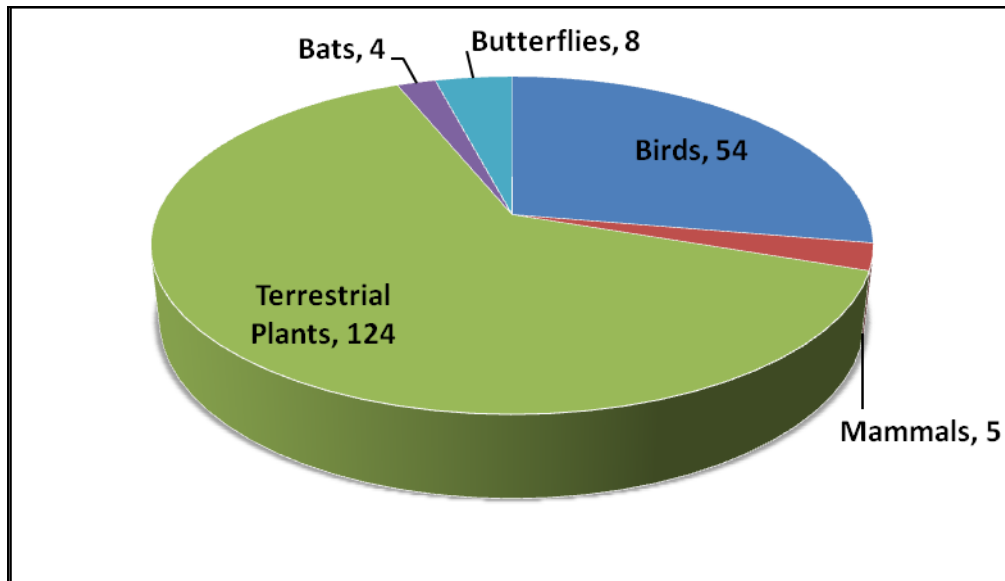


Figure 1. Number of species per taxa for Coon Fork Barrens State Natural Area: mammals (5), birds (54), terrestrial plants (124), bats (4), and butterflies (8).

The groups identified a total of 130 species at the Coon Fork Barrens State Natural Area

including: mammals (8), terrestrial plants (117), and bats (5).

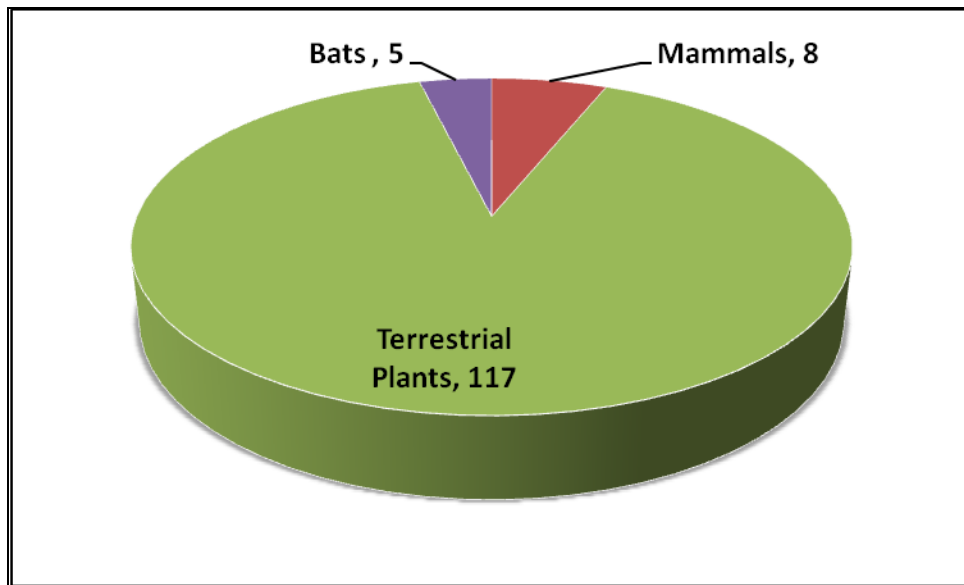


Figure 2. Number of species per taxa for South Fork Barrens State Natural Area: mammals (8), terrestrial plants (117), and bats (5).

DISCUSSION

The group of volunteers and leaders for this BioBlitz documented the presence of 195 species of organisms in the Coon Fork Barrens State Natural Area and 130 species in the South Fork Barrens State Natural Area. The results of this BioBlitz demonstrate that a group of volunteers and team leaders can provide an effective means of documenting the flora and fauna on a modest size property (between 100-200 acres) over a period of several days. In addition a total of seven Species of Greater Conservation Need, including three species of birds and four species of bats were reported, providing valuable data for the State Wildlife Action Plan. The results also indicate that the traditional BioBlitz method of collecting all data within a 24-hour period can and should be altered to maximize the number and types of organisms that are sampled on the property and to accommodate the schedules of the volunteers and leaders.

One of the challenges we faced when planning these BioBlitzes was recruiting sufficient team leaders and volunteers to cover the taxonomic groups we were interested in sampling. Recruitment of new volunteers to the BioBlitz program and mentoring of current volunteers so that they can become team leaders, will be critical to ensuring the longevity of the BioBlitz program so that we can blitz other properties in our region.

Significance of the BioBlitz

The 263 volunteer hours contributed to the BioBlitz represent more than six and a half 40-hour weeks that paid field staff would have had to commit to the property in order to obtain the flora and fauna data that was collected for this report. With budgets for natural resources projects continuing to be cut, the work contributed by these

volunteers is significant. The BioBlitz provided \$3,710 in cost-savings to the county through volunteer time (at \$12/hr) and mileage costs (\$0.485/mi; 1143 miles driven). This work also ensures the documentation of species on Eau Claire County lands, information that can be utilized by other land managers in the county.

Recommendations for BioBlitz Planning

During the course of planning this BioBlitz, the CSC Director, Beaver Creek Reserve Director and Field Technicians noted several things that could be done differently to improve future BioBlitzes. Recommendations include:

- Contact with volunteers and team leaders be made at least six months in advance of the BioBlitz dates whenever possible to ensure that participants can reserve the dates for the blitzes. A meeting should be held with just the team leaders four months prior to the BioBlitzes, to discuss protocols, providing team leaders with sufficient time to prepare. This meeting could be a conference call or an in-person meeting.
- Persons organizing the BioBlitzes allow team leads to determine appropriate dates for data collection to accommodate as many team leaders and organizations that can collect valuable data.
- Groups should conduct BioBlitzes on days specifically chosen for their organisms, such as during spring and fall migration for birds or during different blooming windows for terrestrial plants.
- Funds should be budgeted to pay an entomologist to identify insects

collected from the BioBlitz due to the time-consuming nature of insect ID and the lack of qualified volunteer entomologists in the region.

- Planning for an initial BioBlitz should begin at least 6 months in advance of the event.
- Team leaders determine the appropriate methods for collecting data about their organism group but suggest that organizers provide leaders with minimum data collection needs in advance. For the purposes of this BioBlitz, we asked groups to record species names, scientific and common, date of collection, and number of organisms seen or heard (wherever possible). Some groups collected additional data, such as GPS routes for bat surveys, which was then added to the report. The mammal and bird team leaders came prepared with checklists of species found in Wisconsin. These checklists allowed volunteers to simply mark the species they found on the sheet, rather than spending time looking up scientific names. We found this to be extremely useful and suggest that wherever possible, pre-made lists be used by each group. The terrestrial plant group especially benefited from a pre-made list provided by county

contacts, as a large amount of time was saved from looking up the scientific names in the field.

- It is recommended mileage reimbursement be included in any budget for future BioBlitz. As the distance to the field sites were 50-60 miles round trip in most cases, volunteers were reimbursed for mileage costs. In some cases, this was very useful in assuring that volunteers participated in the BioBlitz.
- It is recommended to maximize volunteer participation through direct contact with organizations such as bird clubs, plant groups, etc., to recruit volunteers whom may have an interest in assisting with data collection and field work. Press releases were distributed to local papers, there was communication with professors at local universities, as well as posters, and newsletter articles. It was found that direct contact with potential volunteers via phone or in person (not email), was the most effective strategy for recruiting. Recruitment and advertising should begin at least three months prior to the BioBlitz to allow for time to meet with potential groups.

CONCLUSION

The data presented in this report are the result of a modified BioBlitz conducted for the Eau Claire County Parks and Forest Department with funding provided through the Wisconsin Citizen-Based Monitoring Network and Eau Claire County. Through the development and implementation of this BioBlitz it was demonstrated that volunteers,

under the guidance of field experts serving as team leaders, could quickly and effectively document much of the flora and fauna that exists on the property, including Species of Greatest Conservation Need. We believe that using this method to rapidly compile species lists for a property should be used for future acquisitions of land by

Eau Claire County. We believe the data presented here support this claim. It is our hope that Beaver Creek Reserve Citizen

Science Center can continue to partner with Eau Claire County to better document the flora and fauna in the county.

TIMELINE

Included in Table 6 is the timeline that was followed for the planning and implementation of the BioBlitzes of Coon Fork and South Fork Barrens State Natural

Areas. The time frame for planning and implementing this project was much tighter than we recommend.

Table 6. Project Timeline.

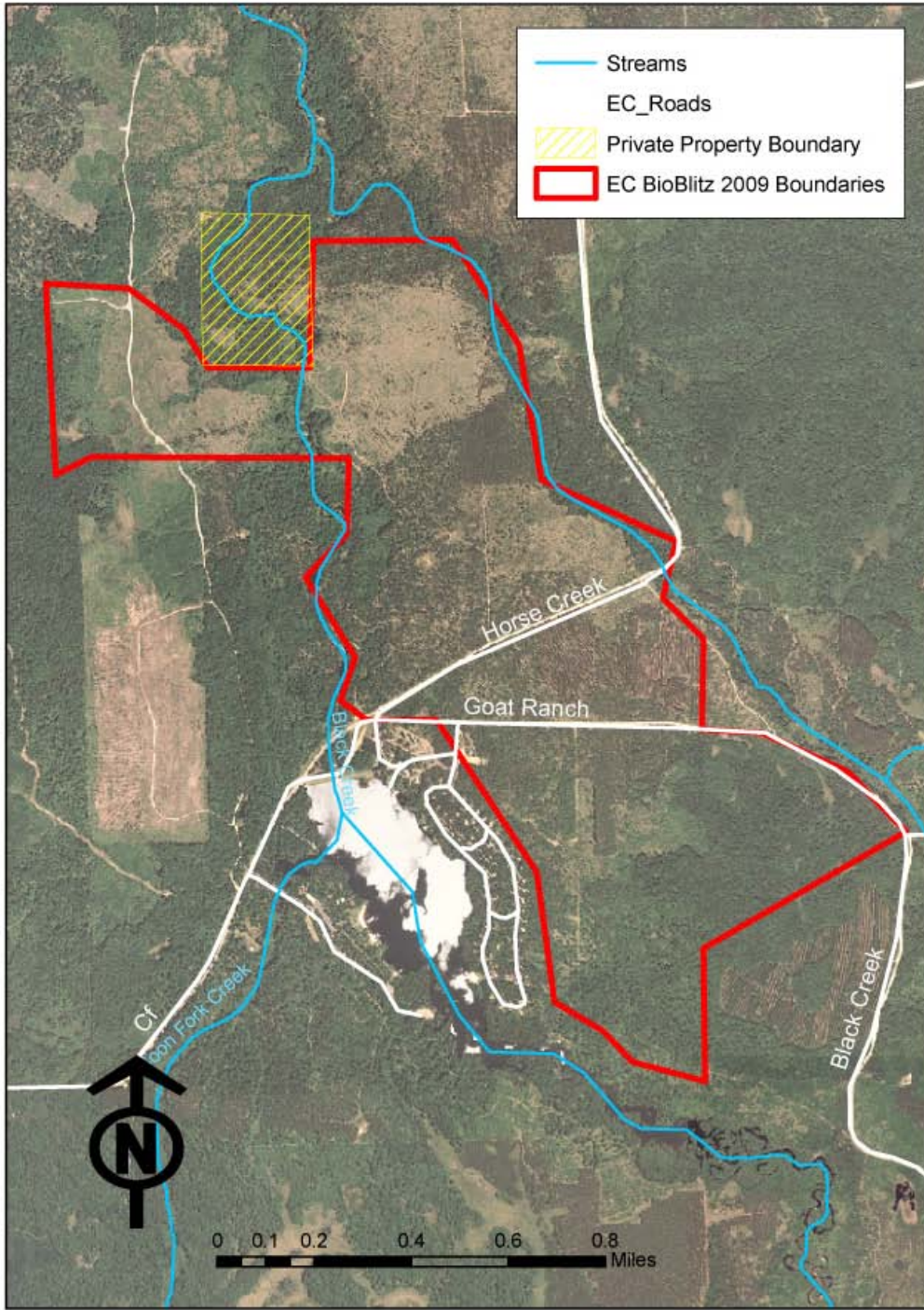
June 2009	June – May 2010	Jan - June 2010
Initial planning meetings	BioBlitzes (Data Collection)	Compiled Data and wrote report
Contacted field experts		
Contacted citizen volunteers and students		
Advertised		
Training June 25, 2009		
Initial data collection		

REFERENCES

- Dahlby, M. 2008. Fundamental Approach to Wild Lake Conservation on Private Land in Chippewa County. Gray literature. Chippewa County Land Conservation Department.
- Droege, S. 2004. BioBlitz. <http://www.pwrc.usgs.gov/blitz/>. United States Geological Survey Patuxent Wildlife Research Center. Accessed 16 June 2008.
- Hale, C. 2007. Earthworms of the Great Lakes. Kollath+Stensaas Publishing. Duluth.
- Pruka, B. 1995. Lists Indicate Recoverable Oak Savannas and Open Oak Woodlands in Southern Wisconsin. Restoration and Management Notes, Vol. 13 Issue 1, pp. 124-126.
- Redell, D. 2008. Wisconsin Citizen-Based Acoustic Bat Monitoring Project. Wisconsin Department of Natural Resources.
- Stephens, R. and E. Anderson. 2009. Small mammal community and natural community associations in Wisconsin. University of Wisconsin Stevens Point.
- USDA. 2007. Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov/app/>. United States Department of Agriculture Natural Resources Conservation Service. Accessed 22 Aug 2008.
- WDNR 2009. Coon Fork Barrens (No. 313). Wisconsin State Natural Areas Program. <http://www.dnr.state.wi.us/org/land/er/sna/index.asp?SNA=313> Accessed 14 Dec 2009. Last updated 11 Aug. 2009.
- WDNR 2009a. South Fork Barrens (No. 314). Wisconsin State Natural Areas Program. <http://www.dnr.state.wi.us/org/land/er/sna/index.asp?SNA=314> Accessed 14 Dec 2009. Last updated 11 Aug. 2009.

APPENDIX A

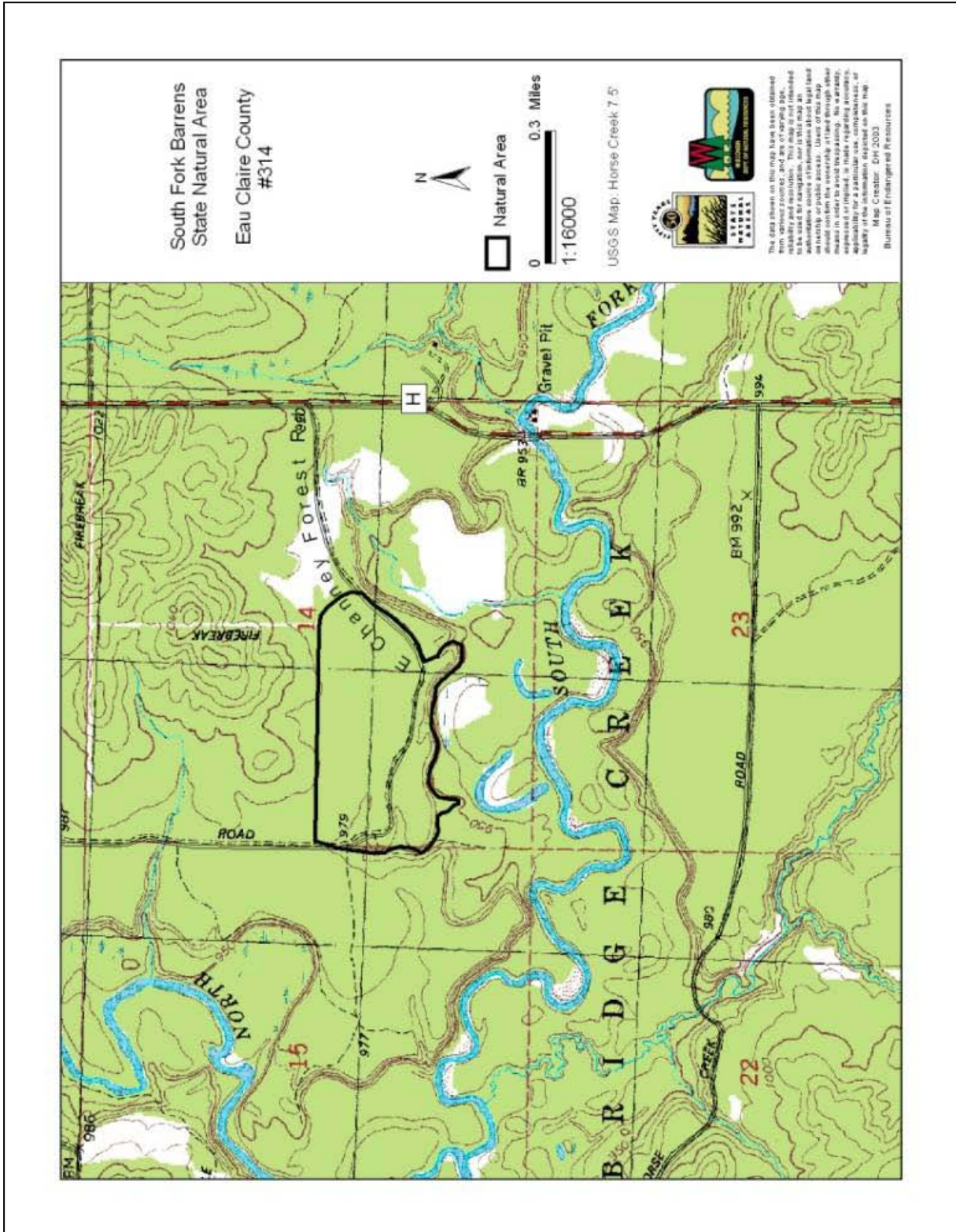
Coon Fork Barrens State Natural Area BioBlitz Boundaries 2009



Map created by Sarah Braun 2009


APPENDIX B

South Fork Barrens State Natural Area BioBlitz Boundaries 2009



APPENDIX C

BioBlitz Poster




connecting people with nature

PRESENTS

Beaver Creek BioBlitz 2009


Beaver Creek Reserve is looking for anyone interested in volunteering some of their time and knowledge towards the efforts of a grant through the Eau Claire County Forest. We will be surveying two State Natural Areas, and possibly several other sites in Chippewa County this summer.

We will be gathering mass data on the presence and types of fish, mammals (including bats), insects, birds, reptiles, amphibians, and both aquatic and terrestrial plants. In order to do so, we rely heavily on knowledgeable volunteers and the time they are willing to devote. If you are interested, please note the information below:



Bioblitz Training Day

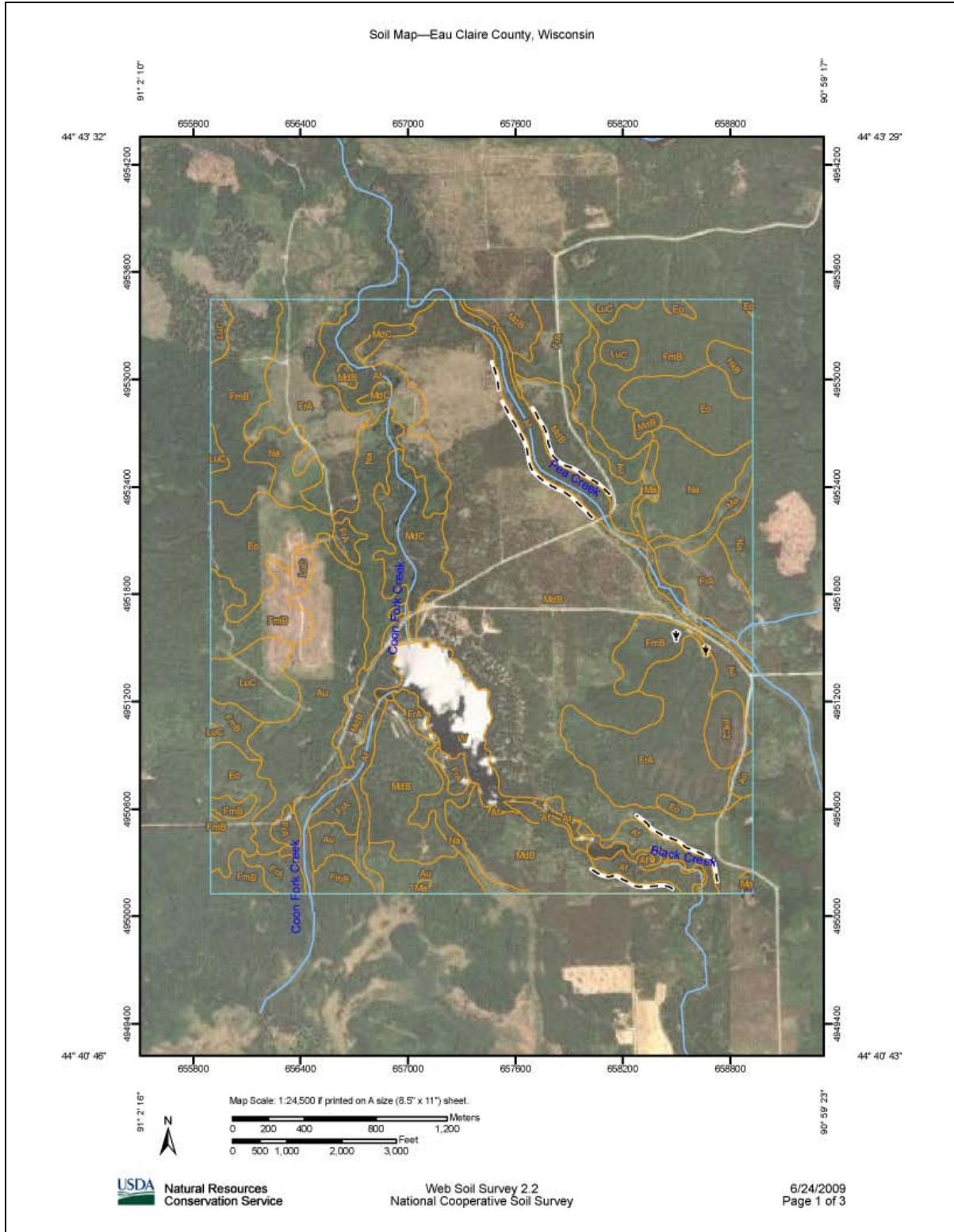
Thursday June 25th from 9 am to noon. We will be meeting in the Citizen Science Center, across the road from Beaver Creek's Nature Center.



For questions or more information, please contact Steph, Jamie, or Sarah at Beaver Creek Reserve 715.877.2212 or email Steph at zinkensm@uwec.edu.

Thank you for your time and efforts, we look forward to working with you!

APPENDIX D



*The blue box surrounding the soil types is not representative of the property boundaries.

APPENDIX D (cont'd)

MAP LEGEND

- Area of Interest (AOI)
- Area of Interest (AOI)
- Soils
- Soil Map Units
- Special Point Features**
 - Blowout
 - Borrow Pit
 - Clay Spot
 - Closed Depression
 - Gravel Pit
 - Gravelly Spot
 - Landfill
 - Lava Flow
 - Marsh or swamp
 - Mine or Quarry
 - Miscellaneous Water
 - Perennial Water
 - Rock Outcrop
 - Saline Spot
 - Sandy Spot
 - Severely Eroded Spot
 - Sinkhole
 - Slide or Slip
 - Sodic Spot
 - Spoil Area
 - Stony Spot

MAP INFORMATION

Map Scale: 1:24,500 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840. Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 15N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eau Claire County, Wisconsin
 Survey Area Data: Version 7, Apr 29, 2009

Date(s) aerial images were photographed: 6/17/2005; 6/19/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

MAP LEGEND

- Very Stony Spot
- Wet Spot
- Other
- Special Line Features**
 - Gully
 - Short Sleep Slope
 - Other
- Political Features**
 - Cities
- Water Features**
 - Oceans
 - Streams and Canals
- Transportation**
 - Rails
 - Interstate Highways
 - US Routes
 - Major Roads
 - Local Roads

APPENDIX D (cont'd)

Soil Map—Eau Claire County, Wisconsin

Map Unit Legend

Eau Claire County, Wisconsin (WI035)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Af	Alluvial land, wet	200.6	8.1%
Au	Au Gres loamy sand	215.3	8.7%
Eo	Elm Lake loamy sand	163.6	6.6%
FmB	Fairchild and Merrillan soils, 2 to 6 percent slopes	283.4	11.4%
FrA	Friendship loamy sand, 0 to 3 percent slopes	347.0	14.0%
HkB	Hiles and Kert soils, 2 to 6 percent slopes	13.0	0.5%
LuC	Ludington and Humbird soils, 6 to 12 percent slopes	70.8	2.8%
Ma	Markey muck	24.9	1.0%
MdB	Menahga sand, 1 to 6 percent slopes	813.8	32.8%
MdC	Menahga sand, 6 to 12 percent slopes	67.8	2.7%
Na	Newson loamy sand	178.9	7.2%
PlC2	Plainfield loamy sand, 6 to 12 percent slopes, eroded	21.2	0.9%
Tn	Terrace escarpments, sandy	5.0	0.2%
W	Water	79.3	3.2%
Totals for Area of Interest		2,484.6	100.0%

*Not all of the soil types listed in the legend fell within the boundaries of the BioBlitz property.

APPENDIX E

Small mammal raw data from Ryan Stephens for transects and species in Coon Fork and South Fork Barrens State Natural Areas.

Transect ID	UTM Zone	Starting UTM X	Starting UTM Y	Ending UTM X	Ending UTM Y	Bearing	Trap Type	Noc or Diurnal	Trap Nights	# of shermans	# of pitfalls	Sprung traps	<i>P. leucopus</i>	<i>Microtus pennsylvanicus</i>	<i>Sorex cinereus</i>	<i>Myodes gapperi</i>	<i>Spermophilus tridecemlineatus</i>	<i>Zapus hudsonius</i>	<i>Synaptomys cooperi</i>	<i>Glaucomys volans</i>	<i>Tamiasciurus hudsonius</i>								
53 (Coon Fork)	15	656358	4953111	656412	4953927	160	Sherman	N	4	20		8	2	2	1			2											
								D	3	20		7																	
								N	4		10						1												
								D	3		10																		
54 (Coon Fork)	15	657270	4951905	657290	4952080	350	Sherman	N	4	20		12	1					1											
								D	3	20		12										2							
								N	4		10							1											
								D	3		10										5								
56 (South Fork)	15	661429	4955181	661594	4955263	58	Sherman	N	4	20		35	14					1		1	3	1							
								D	3	20		3																	
								N	4		10																		
								D	3		10										2	2	2						

APPENDIX F

Coon Fork Barrens Bird Data	
<i>Birds highlighted in yellow are Species of Greatest Conservation Need</i>	
Collectors: Palzkill, J., A. Droske, S. Lindsley, S. Betchkal, M. Harden, R. Koziel	
Date Collected: Tuesday, July 7, 2009	
Sky: Clear Wind: Calm Temperature: 48°-62°	
<u>Common Name</u>	<u>Scientific Name</u>
1 American Crow	<i>Corvus brachyrhyncho</i>
2 American Goldfinch	<i>Carduelis tristis</i>
3 American Robin	<i>Turdus migratorius</i>
4 Bald Eagle	<i>Haliaeetus leucocephalus</i>
5 Barn Swallow	<i>Hirundo rustica</i>
6 Black Billed Cuckoo (SGCN)	<i>Coccyzus erythrophthalmus</i>
7 Black Headed Grosbeak	<i>Pheucticus melanocephalus</i>
8 Black-and-white Warbler	<i>Mniotilta varia</i>
9 Black-capped Chickadee	<i>Poecile atricapillus</i>
10 Blue Jay	<i>Cyanocitta cristata</i>
11 Brown Thrasher (SGCN)	<i>Toxostoma rufum</i>
12 Brown-headed Cowbird	<i>Molothrus ater</i>
13 Cedar Waxwing	<i>Bombycilla cedrorum</i>
14 Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>
15 Chipping Sparrow	<i>Spizella passerina</i>
16 Common Crackle	<i>Quiscalus quiscula</i>
17 Common Raven	<i>Corvus corax</i>
18 Common Yellowthroat Warbler	<i>Geothlypis trichas</i>
19 Downy Woodpecker	<i>Picoides pubescens</i>
20 Eastern Bluebird	<i>Sialia sialis</i>
21 Eastern Kingbird	<i>Tyrannus tyrannus</i>
22 Eastern Phoebe	<i>Sayornis phoebe</i>
23 Eastern Towhee	<i>Pipilo erythrophthalmus</i>
24 Eastern Wood-Pewee	<i>Contopus virens</i>
25 Field Sparrow (SGCN)	<i>Spizella pusilla</i>
26 Gray Catbird	<i>Dumetella carolinensis</i>
27 Great Crested Flycatcher	<i>Myiarchus crinitus</i>
28 Hairy Woodpecker	<i>Picoides villosus</i>
29 Hermit Thrush	<i>Catharus guttatus</i>
30 House Wren	<i>Troglodytes aedon</i>
31 Indigo Bunting	<i>Passerina cyanea</i>
32 Least Flycatcher	<i>Empidonax minimus</i>
33 Mourning Dove	<i>Zenaida macroura</i>
34 Nashville Warbler	<i>Vermivora ruficapilla</i>
35 Northern Cardinal	<i>Cardinalis cardinalis</i>
36 Northern Flicker	<i>Colaptes auratus</i>
37 Ovenbird Warbler	<i>Seiurus aurocapillus</i>
38 Pileated Woodpecker	<i>Dryocopus pileatus</i>
39 Pine Warbler	<i>Dendroica pinus</i>

APPENDIX F (cont'd)

Coon Fork Barrens Bird Data		
<i>Birds highlighted in yellow are Species of Greatest Conservation Need</i>		
Collectors: Palzkill, J., A. Droske, S. Lindsley, S. Betchkal, M. Harden, R. Koziel		
Date Collected: Tuesday, July 7, 2009		
Sky: Clear Wind: Calm Temperature: 48°-62°		
	Common Name	Scientific Name
40	Red Bellied Woodpecker	<i>Melanerpes carolinus</i>
41	Red-breasted Nuthatch	<i>Sitta canadensis</i>
42	Red-eyed Vireo	<i>Vireo olivaceus</i>
43	Ruffed Grouse	<i>Bonasa umbellus</i>
44	Sandhill Crane	<i>Grus canadensis</i>
45	Scarlet Tanager	<i>Piranga olivacea</i>
46	Song Sparrow	<i>Melospiza melodia</i>
47	Tree Swallow	<i>Tachycineta bicolor</i>
48	Veery Thrush	<i>Catharus fuscescens</i>
49	White-breasted Nuthatch	<i>Sitta carolinensis</i>
50	Wild Turkey	<i>Meleagris gallopavo</i>
51	Wood Duck	<i>Aix sponsa</i>
52	Yellow Warbler	<i>Dendroica petechia</i>
53	Yellow-rumped Warbler	<i>Dendroica coronata</i>
54	Yellow-throated Vireo	<i>Vireo flavifrons</i>

APPENDIX G

Coon Fork Barrens State Natural Area Terrestrial Plant Data		
Collectors: <i>Braun, S., M. Hardin, J. Rohrer, V. Meyer; S. Zinken, J. Schwarzmeier,</i>		
Date Collected: <i>July 16, 2009; July 17, 2009</i>		
	Species Name(Common)	Species Name(Scientific)
1	Red Maple	<i>Acer rubrum</i>
2	Yarrow	<i>Achillea millefolium</i>
3	Common Ragweed	<i>Ambrosia artemisifolia</i>
4	Juneberry	<i>Amelanchier (sp)</i>
5	Big bluestem	<i>Andropogon gerardii</i>
6	Pussytoes	<i>Antennaria neglecta</i>
7	Dogbane	<i>Apocynum androsaemifolium</i>
8	Wild columbine	<i>Aquilegia canadensis</i>
9	Rockcress	<i>Arabis lyrata</i>
10	Wild Sarsaparilla	<i>Aralia nudicaulis</i>
11	Bearberry, Kinnikinick	<i>Arctostaphylos uva-ursi</i>
12	Field Sagewort	<i>Artemisia caudata</i>
13	White Sagebrush	<i>Artemisia ludoviciana</i>
14	Butterflyweed	<i>Asclepias tuberosa</i>
15	Paper Birch	<i>Betula papyrifera</i>
16	Harebell	<i>Campanula rotundifolia</i>
17	Bicknell's sedge	<i>Carex bicknellii</i>
18	Pennsylvania sedge	<i>Carex pennsylvanica</i>
19	New Jersey tea	<i>Ceanothus americanus (New County Record; voucher sent to UW-Madison)</i>
20	Inland New Jersey tea	<i>Ceanothus herbaceus (syn. C. ovatus)</i>
21	Spotted knapweed	<i>Centaurea maculosa</i>
22	Canadian horseweed	<i>Conyza canadensis</i>
23	Goldthread	<i>Coptis trifolia</i>
24	Stiff Tickseed	<i>Coreopsis palmata</i>
25	Silky Dogwood	<i>Cornus oblique</i>
26	American hazelnut	<i>Corylus americana</i>
27	Moccasin Flower	<i>Cypripedium acaule</i>
28	Poverty oatgrass	<i>Danthonia spicata</i>
29	Honeysuckle	<i>Diervilla lonicera</i>
30	Flat-topped aster	<i>Doellingeria umbellata</i>
31	Trailing Arbutus	<i>Epigaea repens</i>
32	Purple lovegrass	<i>Eragrostis spectabilis</i>
33	Daisy Fleabane	<i>Erigeron strigosus</i>
34	Flowering spurge	<i>Euphorbia corollata</i>
35	Leafy spurge	<i>Euphorbia esula</i>
36	Grass-leaved goldenrod	<i>Euthamia graminifolia</i>
37	Wild strawberry	<i>Fragaria virginiana</i>
38	Northern bedstraw	<i>Galium boreale</i>
39	Wintergreen	<i>Gaultheria procumbens</i>

APPENDIX G (cont'd)

Coon Fork Barrens State Natural Area Terrestrial Plant Data		
Collectors: <i>Braun, S., M. Hardin, J. Rohrer, V. Meyer; S. Zinken, J. Schwarzmeier,</i>		
Date Collected: <i>July 16, 2009; July 17, 2009</i>		
	Species Name(Common)	Species Name(Scientific)
40	Black Huckleberry	<i>Gaylussacia baccata</i>
41	Rattlesnake manna grass	<i>Glyceria canadensis</i>
42	Frostweed	<i>Helianthemum bicknellii</i>
43	Giant Sunflower	<i>Helianthus giganteus</i>
44	Fewleaf Sunflower	<i>Helianthus occidentalis</i>
45	Richardson's alumroot	<i>Heuchera richardsonii</i>
46	Canadian Hawkweed	<i>Hieracium canadense</i>
47	Azure Bluet	<i>Houstonia caerulea (Special concern species)</i>
48	Long-leaved bluets	<i>Houstonia longifolia</i>
49	Canadian St. John's wort	<i>Hypericum canadense (New County Record!)</i>
50	Common St. John's wort	<i>Hypericum perforatum</i>
51	Common Winterberry	<i>Ilex verticillata</i>
52	Cynthia	<i>Krigia biflora</i>
53	Canada Lettuce	<i>Lactuca canadensis</i>
54	Roundhead Lespedeza	<i>Lespedeza capitata</i>
55	Ox-eye daisy	<i>Leucanthemum vulgare</i>
56	Tall Blazing Star	<i>Liatris aspera</i>
57	Bird's-foot trefoil	<i>Lotus corniculata</i>
58	Wild Lupine	<i>Lupinus perennis</i>
59	Water-horehound	<i>Lycopus sp.</i>
60	Lanceleaf loosestrife	<i>Lysimachia lanceolata</i>
61	Whorled Yellow Loosestrife	<i>Lysimachia quadrifolia</i>
62	Swamp-candles	<i>Lysimachia terrestris</i>
63	Canada Mayflower	<i>Maianthemum canadense</i>
64	Partridgeberry	<i>Mitchella repens</i>
65	Green Carpetweed	<i>Mollugo verticillata</i>
66	Wild Bergamot	<i>Monarda fistulosa</i>
67	Common evening-primrose	<i>Oenothera biennis</i>
68	Interrupted Fern	<i>Osmunda claytonia</i>
69	Cinnamon Fern	<i>Osmunda cinnamomea</i>
70	Canada Lousewort	<i>Pedicularis canadensis</i>
71	Timothy grass	<i>Phleum pratense</i>
72	Jack Pine	<i>Pinus banksiana</i>
73	Eastern White Pine	<i>Pinus strobus</i>
74	Racemed Milkwort	<i>Polygala polygama</i>
75	Black bindweed	<i>Polygonum convolvulus</i>
76	Arrowleaf Tearthumb	<i>Polygonum sagittatum</i>
77	Trembling aspen	<i>Populus tremuloides</i>
78	Tall Cinquefoil	<i>Potentilla arguta</i>

APPENDIX G (cont'd)

Coon Fork Barrens State Natural Area Terrestrial Plant Data		
Collectors: <i>Braun, S., M. Hardin, J. Rohrer, V. Meyer; S. Zinken, J. Schwarzmeier,</i>		
Date Collected: <i>July 16, 2009; July 17, 2009</i>		
	Species Name(Common)	Species Name(Scientific)
79	Sulphur cinquefoil	<i>Potentilla recta</i>
80	Common cinquefoil	<i>Potentilla simplex</i>
81	Three-toothed cinquefoil	<i>Potentilla tridentata</i>
82	Norwegian cinquefoil	<i>Potentilla norvegica</i>
83	Fragrant cudweed	<i>Pseudognaphalium obtusifolium</i>
84	Brackenfern	<i>Pteridium aquilinum</i>
85	White Oak	<i>Quercus alba</i>
86	Hill's Oak	<i>Quercus ellipsoidalis</i>
87	Black Oak	<i>Quercus macrocarpa</i>
88	Prairie rose	<i>Rosa arkansana</i>
89	Common blackberry	<i>Rubus allegheniensis</i>
90	Northern dewberry	<i>Rubus flagellaris</i>
91	Swamp dewberry	<i>Rubus hispidus</i>
92	Raspberry	<i>Rubus idaeus</i>
93	Black raspberry	<i>Rubus occidentalis</i>
94	Black-eyed susan	<i>Rudbeckia hirta</i>
95	Common sheep sorrel	<i>Rumex acetosella</i>
96	Prairie willow	<i>Salix humilis</i>
97	Little bluestem	<i>Schizachyrium scoparium</i>
98	Green bulrush	<i>Scirpus atrovirens</i>
99	Woolgrass	<i>Scirpus cyperinus</i>
100	German knotgrass	<i>Scleranthus annuus</i>
101	Lanceleaf figwort	<i>Scrophularia lanceolata</i>
102	Catbrier	<i>Smilax sp.</i>
103	Canada goldenrod	<i>Solidago canadensis var. scabra</i>
104	Early goldenrod	<i>Solidago juncea</i>
105	Gray goldenrod	<i>Solidago nemoralis</i>
106	Upland white goldenrod	<i>Solidago ptarmicoides (New County Record!)</i>
107	Indiangrass	<i>Sorghastrum nutans</i>
108	Roadside sand-spurry	<i>Spergularia rubra (New County Record!)</i>
109	Meadowsweet	<i>Spiraea alba</i>
110	Steeplebush	<i>Spiraea tomentosa</i>
111	Smooth hedgenettle	<i>Stachys hispida</i>
112	Sky-blue aster	<i>Symphiotricum oolentangiense</i>
113	Buckbrush	<i>Symphocarpos occidentalis</i>
114	Common tansy	<i>Tanacetum vulgare</i>
115	Western Poison Ivy	<i>Toxicodendron rydbergii (New County Record!)</i>
116	Bluejacket	<i>Tradescantia ohiensis</i>
117	Starflower	<i>Trientalis borealis</i>
118	Lowbush blueberry	<i>Vaccinium angustifolium</i>

APPENDIX G (cont'd)

Coon Fork Barrens State Natural Area Terrestrial Plant Data		
Collectors: <i>Braun, S., M. Hardin, J. Rohrer, V. Meyer; S. Zinken, J. Schwarzmeier,</i>		
Date Collected: <i>July 16, 2009; July 17, 2009</i>		
	Species Name(Common)	Species Name(Scientific)
119	Common mullien	<i>Verbascum thapsus</i>
120	American vetch	<i>Vicia americana</i>
121	Violet	<i>Viola sp.</i>
122	Bird's-foot violet	<i>Viola pedata</i>
123	Redtop	<i>Agrostis gigantea</i>
124	Blue-joint grass	<i>Calamagrostis canadensis</i>

APPENDIX H

South Fork Barrens State Natural Area Terrestrial Plant Data		
Collectors: <i>Braun, S., M. Hardin, J. Rohrer, V. Meyer, J. Schwarzmeier</i>		
Date Collected: <i>July 16 and August 18, 2009</i>		
	Species Name(Common)	Species Name(Scientific)
1	Red maple	<i>Acer rubrum</i>
2	Yarrow	<i>Achillea millefolium</i>
3	Juneberry sp.	<i>Amelanchier sp.</i>
4	Wood anemone	<i>Anemone quinquefolia</i>
5	Field pussytoes	<i>Antennaria neglecta</i>
6	Spreading dogbane	<i>Apocynum androsaemifolium</i>
7	Wild columbine	<i>Aquilegia canadensis</i>
8	Wild sarsaparilla	<i>Aralia nudicaulis</i>
9	Bearberry	<i>Arctostaphylos uva-ursi</i>
10	Common milkweed	<i>Asclepias syriaca</i>
11	Butterfly milkweed	<i>Asclepias tuberosa</i>
12	Paper birch	<i>Betula papifera</i>
13	Harebell or Bluebell	<i>Campanula rotundifolia</i>
14	Pennsylvania sedge	<i>Carex pensylvanica</i>
15	Indian paintbrush	<i>Castilleja coccinea</i>
16	New jersey tea	<i>Ceanothus americanus</i>
17	Spotted Knapweed	<i>Centuarea maculosa</i>
18	Bluebead lily	<i>Clintonia borealis</i>
19	Sweet Fern	<i>Comptonia peregrina</i>
20	Coreopsis sp.	<i>Coreopsis sp.</i>
21	Prairie Coreopsis	<i>Coreopsis palmata</i>
22	Bunchberry/Dogwood	<i>Cornus canadensis</i>
23	American hazelnut	<i>Corylus americana</i>
24	Hawthorn	<i>Crataegus sp.</i>
25	Moccasin flower	<i>Cypripedium acaule</i>
26	Poverty oat-grass	<i>Danthonia spicata</i>
27	Rosette grass	<i>Dichanthelium acuminatum ssp. columbianum</i>
28	Slender rosette grass	<i>Dichanthelium xanthophysum</i>
29	Lowbush honeysuckle	<i>Diervilla lonicera</i>
30	Flat-topped aster	<i>Doellingeria umbellata</i>
31	Prairie fleabane	<i>Erigeron strigosus</i>
32	Trailing arbutus	<i>Epigaea repens</i>
33	Common boneset	<i>Eupatorium perfoliatum</i>
34	Leafy spurge	<i>Euphorbia esula</i>
35	Large-leaved aster	<i>Eurybia macrophylla</i>
36	Wintergreen	<i>Gaultheria procumbens</i>
37	Fragrant cudweed	<i>Pseudognaphalium obtusifolium</i>
38	Frostweed	<i>Helianthemum bicknelli</i>
39	Giant sunflower	<i>Helianthus giganteus</i>
40	Western sunflower	<i>Helianthus occidentalis</i>

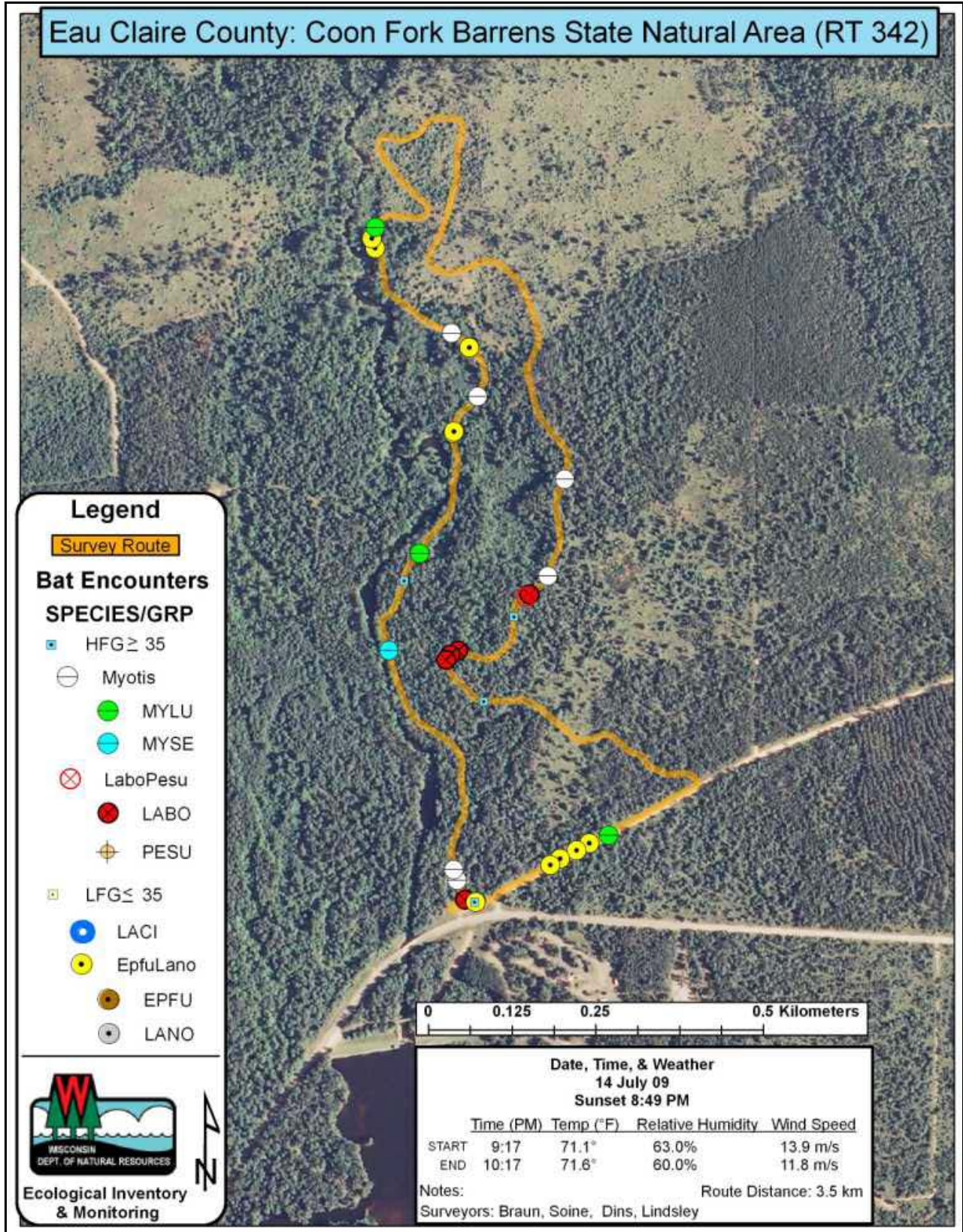
APPENDIX H (cont'd)

South Fork Barrens State Natural Area Terrestrial Plant Data		
Collectors: <i>Braun, S., M. Hardin, J. Rohrer, V. Meyer, J. Schwarzmeier</i>		
Date Collected: <i>July 16 and August 18, 2009</i>		
	Species Name(Common)	Species Name(Scientific)
41	Woodland sunflower	<i>Helianthus strumosus</i>
42	Orange hawkweed	<i>Hieracium aurantiacum</i>
43	Canada hawkweed	<i>Hieracium canadense</i>
44	Longleaf summer bluet	<i>Houstonia longifolia</i>
45	Common St. John's-wort	<i>Hypericum perforatum</i>
46	Common winterberry	<i>Ilex verticillata</i>
47	Poverty rush	<i>Juncus tenuis</i>
48	Prairie junegrass	<i>Koeleria macrantha</i>
49	Twoflower dwarfdandelion	<i>Krigia biflora</i>
50	Round-headed bush honeysuckle	<i>Lespedeza capitata</i>
51	Rough blazing-star	<i>Liatris aspera</i>
52	Limber honeysuckle	<i>Lonicera dioica</i>
53	Running clubmoss	<i>Lycopodium clavatum</i>
54	American water-horehound	<i>Lycopus americanus</i>
55	Bugleweed	<i>Lycopus uniflorus</i>
56	Lowland yellow loosestrife	<i>Lysimachia hybrida</i>
57	Lanceleaf loosestrife	<i>Lysimachia lanceolata</i>
58	Whorled yellow loosestrife	<i>Lysimachia quadrifolia</i>
59	Canada mayflower	<i>Maianthemum canadense</i>
60	Narrowleaf cowwheat	<i>Melampyrum lineare</i>
61	Wild bergamont	<i>Monarda fistulosa</i>
62	Indian pipe	<i>Monotropa uniflora</i>
63	Sensitive fern	<i>Onoclea sensibilis</i>
64	Interrupted fern	<i>Osmunda claytoniana</i>
65	Slimleaf panicgrass	<i>Panicum linearifolium</i>
66	Timothy	<i>Phleum pratense</i>
67	Black chokeberry	<i>Photina melanocarpa</i>
68	Virginia groundcherry	<i>Physalis virginiana</i>
69	Jack pine	<i>Pinus banksiana</i>
70	Red Pine	<i>Pinus resinosa</i>
71	White Pine	<i>Pinus strobus</i>
72	Blackseed plantain	<i>Plantago rugelii</i>
73	Racemed milkwort	<i>Polygala polygama</i>
74	Jointweed	<i>Polygonella articulata</i>
75	Bigtooth aspen	<i>Populus grandidentata</i>
76	Quaking aspen	<i>Populus tremuloides</i>
77	Common cinquefoil	<i>Potentilla simplex</i>
78	Three-toothed cinquefoil	<i>Potentilla tridentata</i>
79	White lettuce	<i>Prenanthes alba</i>

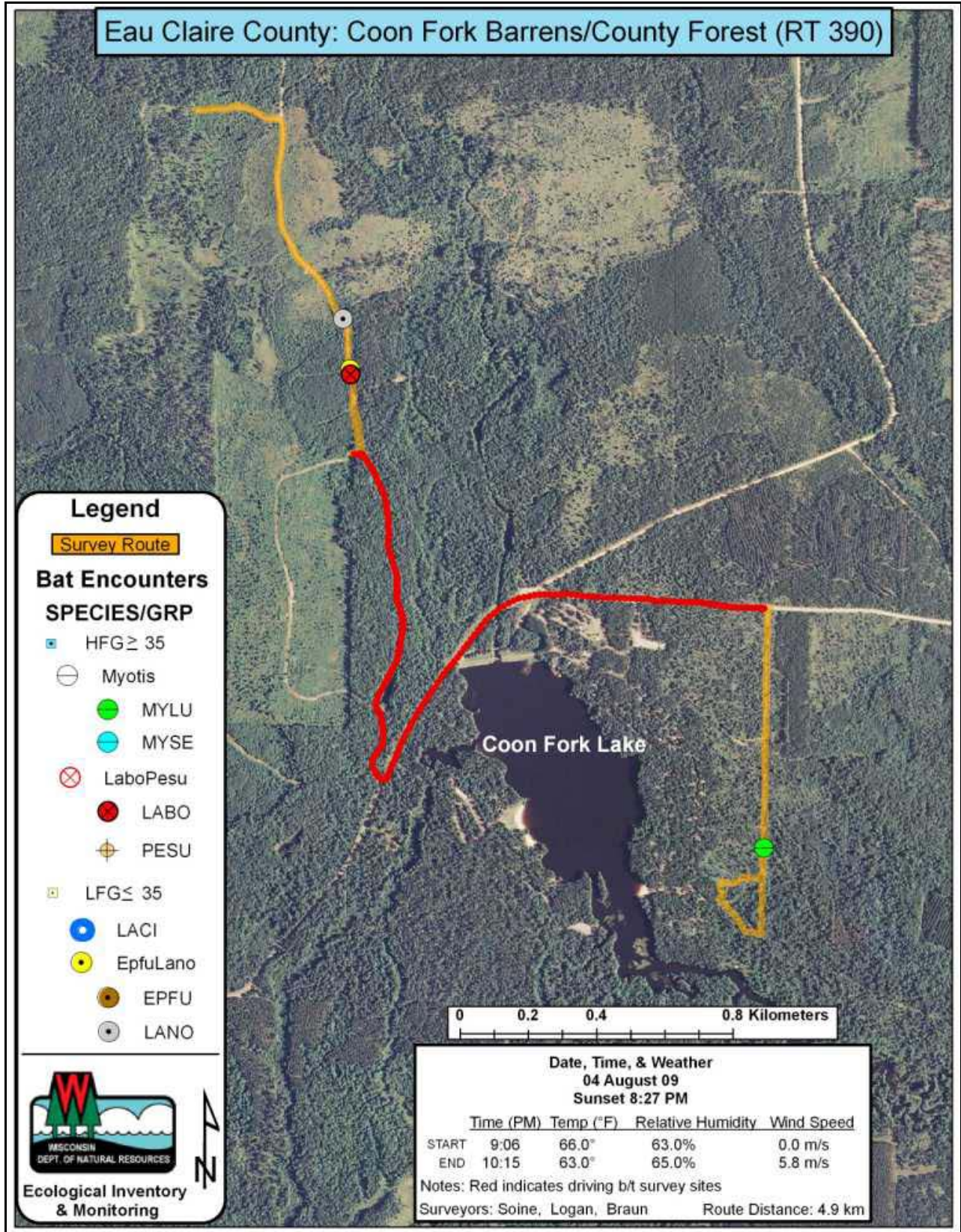
APPENDIX H (cont'd)

South Fork Barrens State Natural Area Terrestrial Plant Data		
Collectors: <i>Braun, S., M. Hardin, J. Rohrer, V. Meyer, J. Schwarzmeier</i>		
Date Collected: <i>July 16 and August 18, 2009</i>		
	Species Name(Common)	Species Name(Scientific)
80	American plum	<i>Prunus americana</i>
81	Sandcherry	<i>Prunus pumila ssp. susquehanae</i>
82	Black Cherry	<i>Prunus serotina</i>
83	Chokecherry	<i>Prunus virginiana</i>
84	Bracken fern	<i>Pteridium aquilinum</i>
85	White oak	<i>Quercus alba</i>
86	Northern pin oak	<i>Quercus ellipsoidalis</i>
87	Black oak	<i>Quercus macrocarpa</i>
88	??	<i>Rhus vadiaus</i>
89	Prairie rose	<i>Rosa arkansana</i>
90	Pasture rose	<i>Rosa carolina</i>
91	Allegheny blackberry	<i>Rubus allegheniensis</i>
92	Northern dewberry	<i>Rubus flagellaris</i>
93	Black raspberry	<i>Rubus occidentalis</i>
94	Grayleaf red raspberry	<i>Rubus strigosus</i>
95	Prairie willow	<i>Salix humilis</i>
96	Canadian blacksnakeroot	<i>Sanicula canadensis (?)</i>
97	Green bulrush	<i>Scirpus atrovirens</i>
98	False solomon's seal	<i>Smilacina racemosa</i>
99	Bristly greenbrier	<i>Smilax tamnoides</i>
100	Canada goldenrod	<i>Solidago canadensis</i>
101	Grass-leaved goldenrod	<i>Solidago graminifolia</i>
102	Early goldenrod	<i>Solidago juncea</i>
103	Missouri goldenrod	<i>Solidago missouriensis</i>
104	Gray goldenrod	<i>Solidago nemoralis</i>
105	Showy goldenrod	<i>Solidago speciosa</i>
106	Steeplebush	<i>Spiraea tomentosa</i>
107	Meadowsweet	<i>Spiraea alba</i>
108	Lindley's heart-leaved aster	<i>Symphotrichum ciliolatum</i>
109	Calico aster	<i>Symphotrichum lateriflorum</i>
110	Sky-blue aster	<i>Symphotrichum oolentangiense</i>
111	Arrow-leaved aster	<i>Symphotrichum urophyllum</i>
112	Common tansy	<i>Tanacetum vulgare</i>
113	Purple meadow-rue	<i>Thalictrum dasycarpum</i>
114	Starflower	<i>Trientalis borealis</i>
115	Lowbush blueberry	<i>Vaccinium angustifolium</i>
116	Culver's root	<i>Veronicastrum virginicum</i>
117	Bird's-foot violet	<i>Viola pedata</i>

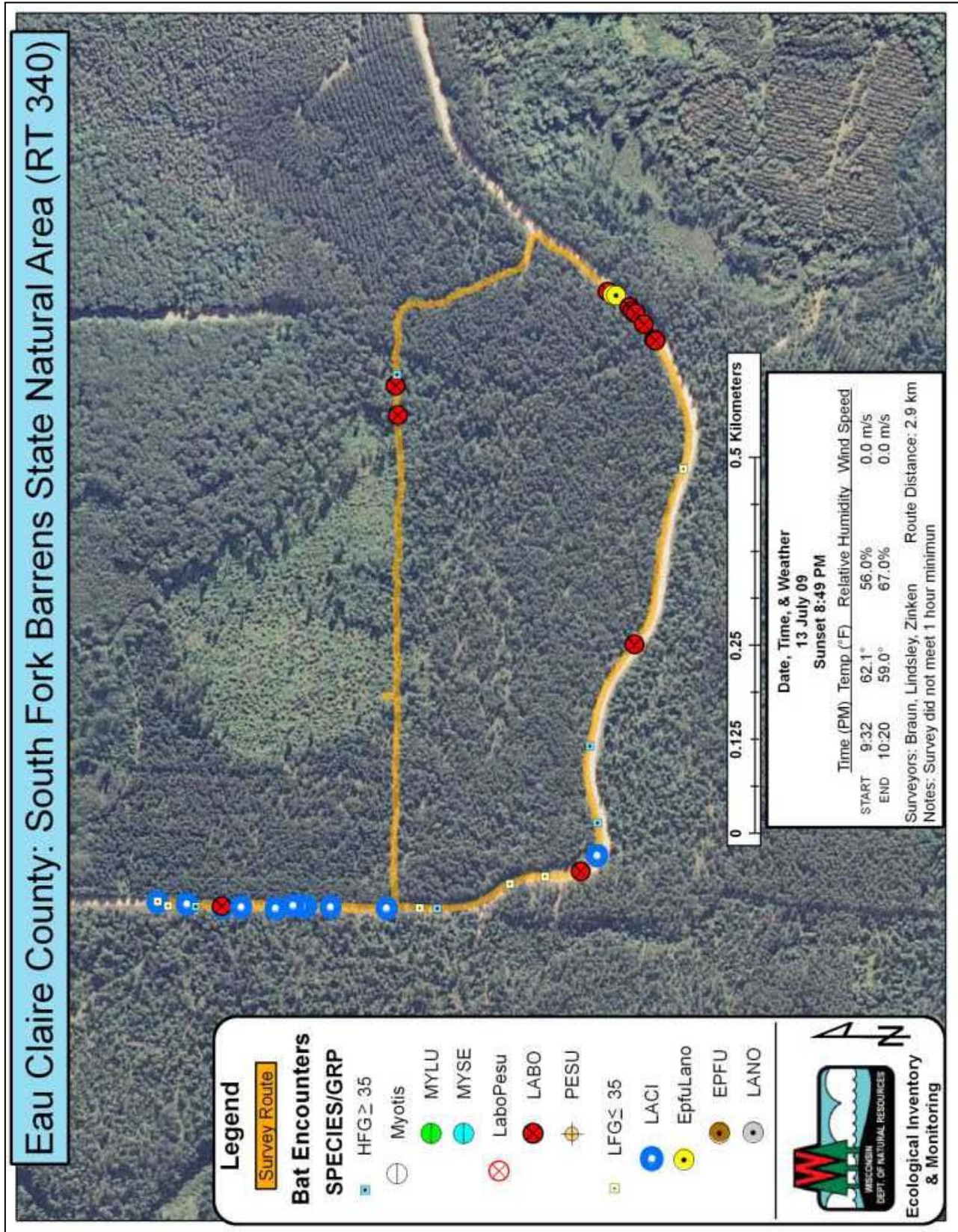
APPENDIX I



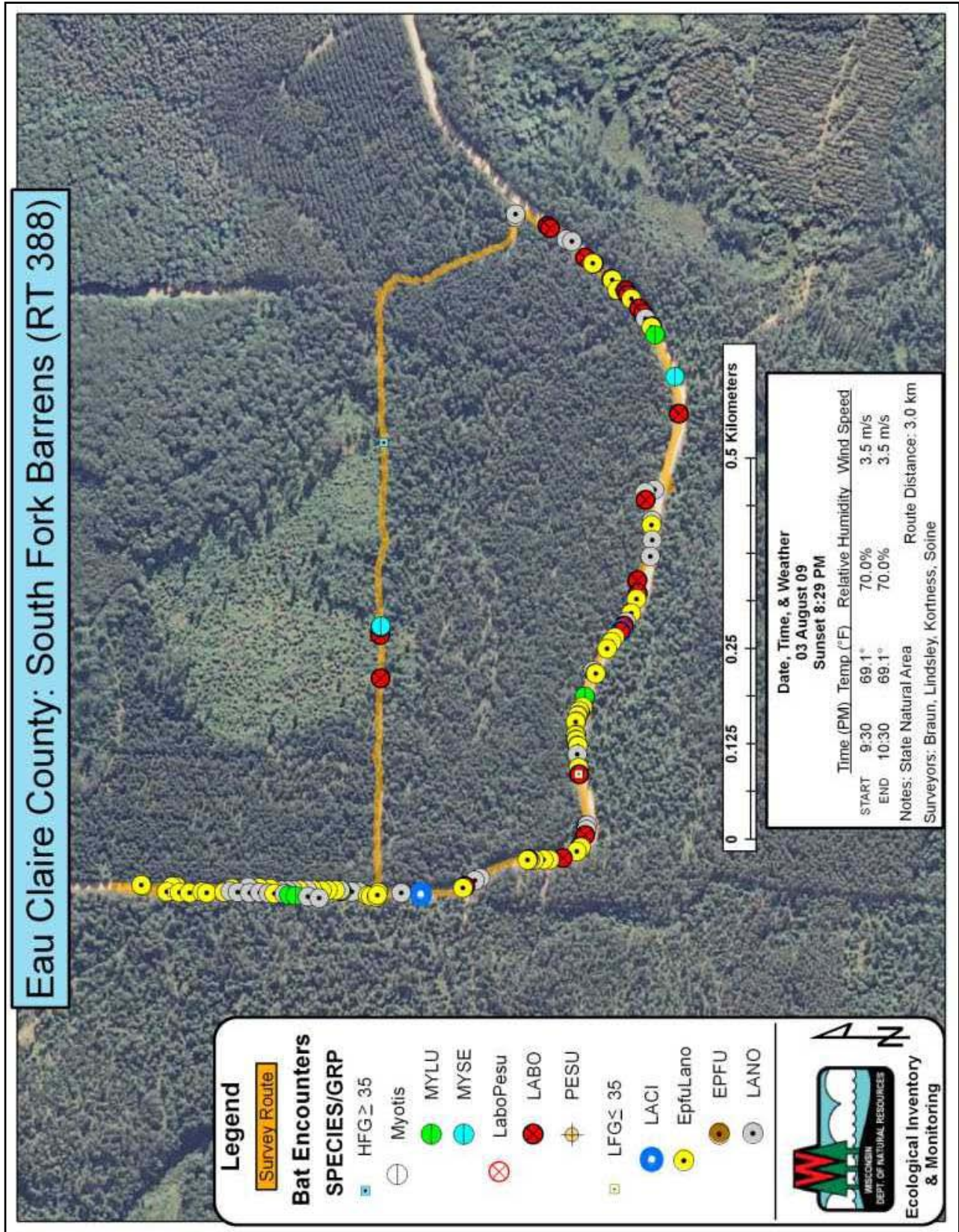
APPENDIX I (cont'd)



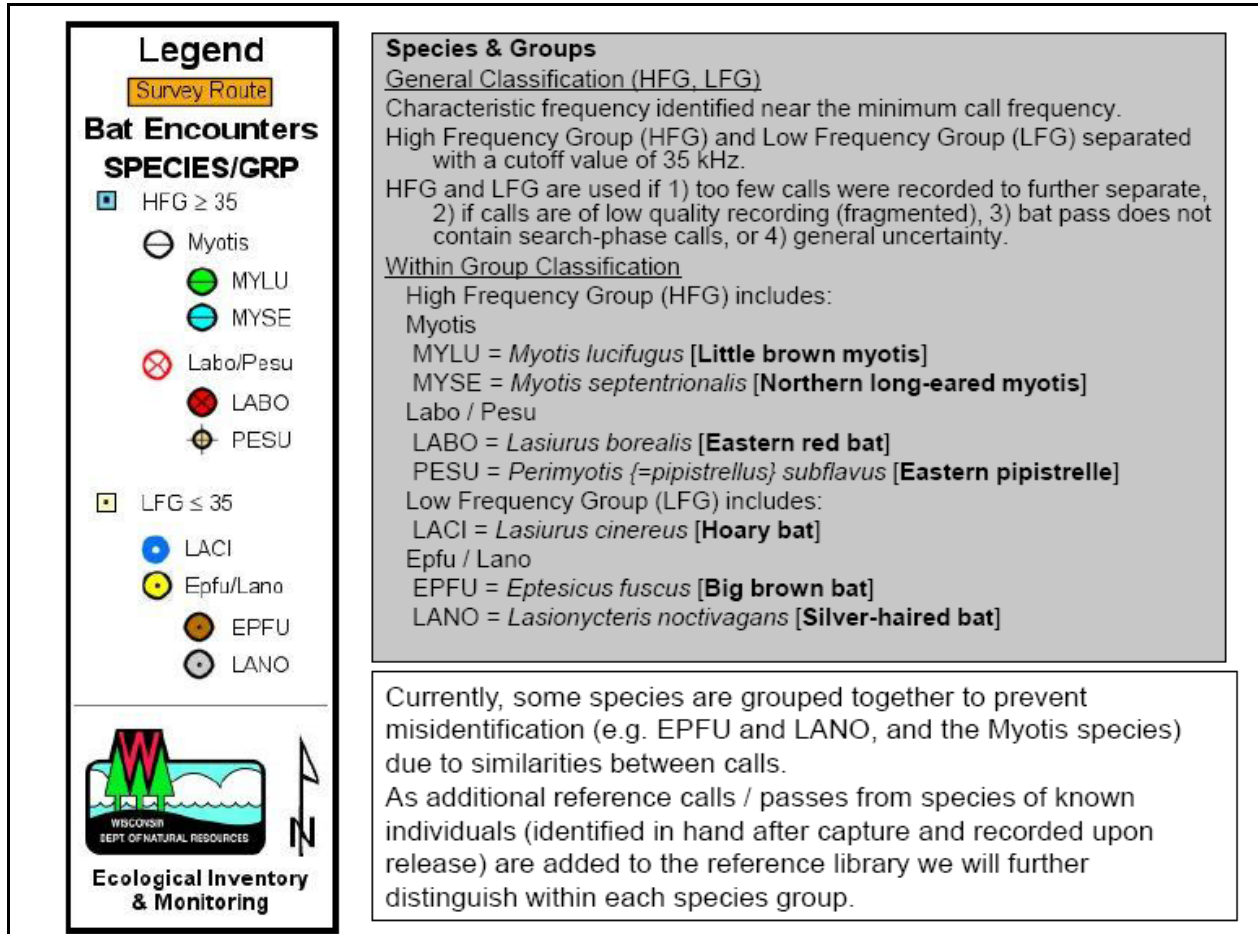
APPENDIX I (cont'd)



APPENDIX I (cont'd)



APPENDIX I (cont'd)



APPENDIX J

Coon Fork Barrens State Natural Area Butterfly Data	
Collectors: Swanson, J., P. Kleintjes-Neff, C. Sandoval, T. Wirz, J. Ring, J. Holman, J. Soine, K. Smith, B. Stanton, P. Osthelder, N. Larson, B. Sippel, P. Schultz, J. Shaw	
Dates Collected: May 14-15 and May 25, 2010	
Species Name (Common)	Species Name (Scientific)
1 Spring Azure	<i>Celastrina ladon</i>
2 Clouded Sulfur	<i>Colias philodice</i>
3 Olympia Marble	<i>Euchloe olympia</i>
4 Karner Blue	<i>Lycaeides melissa samuelis</i>
5 American Copper	<i>Lycaena phlaeas</i>
6 Eastern Tiger Swallowtail	<i>Papilio glaucus</i>
7 Northern Cloudywing	<i>Thorybes pylades</i>
8 Painted Lady	<i>Vanessa cardui</i>