

provided by Apex to characterize foraging areas. Analysis of foraging area size was conducted in ANOVA and results were evaluated at the $\alpha = 0.05$ level.

RESULTS AND DISCUSSION

Mist-Net Survey

Mist-net surveys were conducted at 42 sites: 13 sites from 23 – 31 July 2015 and 29 sites from 11-22 July 2016 (Table 1, Figure 2). A total of 438 bats of four species were captured, including eight (6 female, 2 male) northern long-eared bats (Table 2). Big brown bats (*Eptesicus fuscus*) comprised 79 percent of total captures (n=344) and eastern red bats (*Lasiurus borealis*) comprised 19 percent of total captures (n=82). Completed bat capture data sheets are provided in Appendix A, photographs of mist-net sites are provided in Appendix B, and representative photographs of each bat species captured are provided in Appendix C.

Table 1. Mist-net site locations, Emerson West Wind Project, Ohio, 2015 and 2016.

Site No. (2015)	Latitude	Longitude	Site Location
1	41.16711	-82.88433	N. County Rd. 29, Schriener Prop., Woodlot Near Pond
2	41.11582	-82.84374	Stream Corridor SE of Township Rd. And Trail 0197
4	41.15500	-82.85590	Woodlot off Reedtown Rd.
5	41.16730	-82.84803	Woodlot W of CR 4 With Intermittent Stream
6	41.18653	-82.84962	Woodlot S of CR 46
8	41.17072	-82.89307	Stream off CR 136
9	41.14356	-82.92948	Woodlot S of E Township Rd. 124
10	41.15312	-82.92621	Forest Gap; Logging Road; Pond in Forest
11	41.13920	-82.99223	CR 122
13	41.17809	-82.89062	Woodlot Logging Road off Stream
16	41.15765	-82.98926	Pond in Woodlot W of CR 28 and S Of East CR 24
24	41.17804	-82.88861	Logging Rd. Through Woodlot; Open Water of Emergent Wetland
36	41.15548	-83.00470	Woodlot S of County Rd. 24

Site No. (2016)	Latitude	Longitude	Site Location
1	41.16944	-83.04229	Sugar Creek and Adjacent Ag. Field North of CR38
2	41.20319	-82.86285	Narrow Wood Lot Between Cornfields
3	41.15308	-83.02780	Small Woodlot South of E Township Rd. 130
4	41.15697	-83.02715	Open Woodlot Between Ag. Fields
5	41.10144	-82.88085	Woodlot and Ag. Field
6	41.11510	-82.87659	Woodlot N of Shrine Ditch
7	41.17536	-83.04250	Open Woodlot Adjoining Wheat Field
8	41.15554	-82.94446	Woodlot
9	41.15329	-82.94029	Inside Woodlot with Dry Stream Bed
10	41.15516	-82.90984	Woodlot W of Township Rd. 81
11	41.08601	-82.97935	Woodlot N of Hwy. and W of Cooper Rd.
12	41.16958	-83.03641	Small Woodlot off CR38
13	41.13262	-82.83958	Woodlot S of East Township Rd. 122
14	41.13567	-82.96475	Logged Woodlot Adjoining Corn Field
15	41.15335	-83.02054	Woodlot N of E Township Rd. 130
16	41.13923	-83.04941	Morrison Creek Near E Township Rd. 122
17	41.11934	-82.97486	Trails in Woodlot
18	41.13416	-82.97333	Nets in Open Areas and Dry Stream Bed in Woodlot and Edge
19	41.13266	-82.84191	Woodlot South of E Township Rd. 122
20	41.10168	-82.90656	Woodlot W of Center Heights Rd.
21	41.15591	-83.02460	Forested Area with Pond
22	41.09254	-82.83337	Woodlot Adjacent to County Line Rd. 105
23	41.08845	-82.85002	Woodlot S of E Township Rd. 106
24	41.11955	-82.98499	Woodlot E of Powerline Cut S of 162
25	41.14166	-83.02054	Small Woodlot with Dry Creek, Surrounded by Bean
26	41.15928	-83.04395	Woodlot/Forest Edge
27	41.11877	-82.91131	Small Woodlot Surrounding Carpenter Ditch
28	41.13056	-82.99911	Woodlot W of N Township Rd. 181
29	41.09148	-82.86643	Woodlot South of Trail 0106

Table 2. Total bat captures by species, age, sex, and reproductive status, Emerson West Wind Project, Ohio, 2015 and 2016.

Species	Adult Male		Adult Female				Juvenile		Escaped	Total
	NR	S	P	L	PL	NR	Female	Male		
<i>Eptesicus fuscus</i>	43	49	0	42	86	8	48	58	10	344
<i>Lasiurus borealis</i>	2	8	0	9	13	1	25	19	5	82
<i>Lasiurus cinereus</i>	0	0	0	0	0	0	1	3	0	4
<i>Myotis septentrionalis</i>	2	0	0	4	0	0	1	0	1	8

* NR=non-reproductive, S=scrotal, P=pregnant, L=lactating, PL=post-lactating

Diurnal Radio Telemetry

In accordance with the ODNR/USFWS approved study plans, three northern long-eared bats were radio-tagged and tracked to locate diurnal roost trees (Table 3). The three northern long-eared bats from sites 13, 1, and 5 captured in 2015 were not tracked because the maximum number of northern long-eared bats to be tracked had been met prior to their capture. Those individuals are not included here because they are not located within this Project. The juvenile female captured in 2016 was not radio-tagged due to its low mass (5.75 g). One of the two MYSE captured on the same night at Site 7 (2016) was not radio-tagged because they were assumed to be part of the same colony and biologists wanted to spread the telemetry effort across the Project as much as possible.

Radio-tagged bats were tracked for at least seven days each, resulting in the identification of 10 roost trees (Table 4, Figures 3-5). If a bat was roosting within a parcel where access was not allowed, the roost tree was not located for that day. The most commonly used tree species were green ash (*Fraxinus pennsylvanica*; n=4) followed by American elm (*Ulmus americana*; n=2) (Table 4). Two of the roost trees were only identifiable to genus (*Fraxinus* and *Quercus* respectively). Completed roost tree data sheets are in Appendix D and roost tree photographs are in Appendix E.

Table 3. Northern long-eared bats captured and radio-tagged during the mist-net survey, Emerson West Wind Project, Ohio, 2015 and 2016.

Species ¹	Site No. (2015)	Band Number (ODNR)	Age ²	Sex ³	Reproductive Status ⁴	Mass (g)	Transmitter Freq. (172.xxx) BAT ID
MYSE	13	17178	A	F	L	7.50	205
MYSE	13	17179	A	F	L	7.00	-
MYSE	1	17172	A	M	NR	7.00	-
MYSE	5	- ⁵	J	F	NR	6.00	-

Species	Site No. (2016)	Band Number (ODNR)	Age	Sex	Reproductive Status	Mass (g)	Transmitter Freq. (172.xxx) BAT ID
MYSE	7	23528	A	F	L	7.00	-
MYSE	7	23529	A	F	L	7.50	387
MYSE	17	23580	A	M	NR	7.00	267
MYSE	11	22705	J	F	NR	5.75	-

¹ MYSE=northern long-eared bat

² A=adult, J=juvenile

³ F=female, M=male

⁴ NR=non-reproductive, L=lactating

⁵ Escaped before band could be fitted

Table 4. Northern long-eared bat roost trees located during radio telemetry efforts, Emerson West Wind Project, Ohio, 2015 and 2016.

Roost Tree No.	Year	Tree Species	DBH (cm)	Estimated Height (m)		Condition ¹	Tree Ranking ²	Bat Species Use_BAT ID	No. Calendar Days Used
				Tree	Roost				
140	2015	<i>Fraxinus</i> sp.	48.5	25.0	20.0	S	C	MYSE_205	2
314	2015	<i>Quercus</i> sp.	91.0	18.5	-	S	C	MYSE_205	2
860	2016	<i>Fraxinus pennsylvanica</i>	45.5	12.0	6.0	S	C	MYSE_387	1
196	2016	<i>Ulmus americana</i>	19.9	16.0	5.0	S	S	MYSE_387	1
610	2016	<i>Fraxinus pennsylvanica</i>	29.5	7.0	6.5	S	S	MYSE_387	1
602	2016	<i>Fraxinus pennsylvanica</i>	40.5	18.0	9.0	S	C	MYSE_387	1
603	2016	<i>Fraxinus pennsylvanica</i>	44.5	17.0	5.0	S	C	MYSE_387	1
309	2016	<i>Populus deltoides</i>	35.0	12.0	-	S	C	MYSE_267	1
258	2016	<i>Carya ovata</i>	28.1	18.0	-	S	C	MYSE_267	2
251	2016	<i>Ulmus americana</i>	23.7	12.0	9.0	S	S	MYSE_267	1

¹ S = snag; ² C = canopy, S = sub canopy



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Emerson West Wind Project
Roost Tree Location
Bat 205, Adult Female
Myotis septentrionalis



Seneca County,
Ohio

 Roost Tree (2015)

 Project Boundary

Coordinate System: NAD
1983 StatePlane Ohio
North FIPS 3401 Feet
Projection: Lambert
Conformal Conic
Datum: North American
1983
Sources: ESRI, USGS,
Apex Clean Energy,
Copperhead Consulting
Date: 3/30/2017

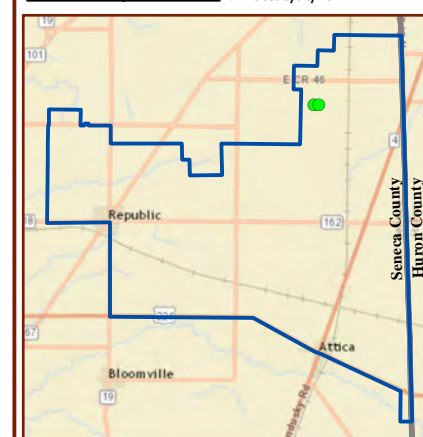
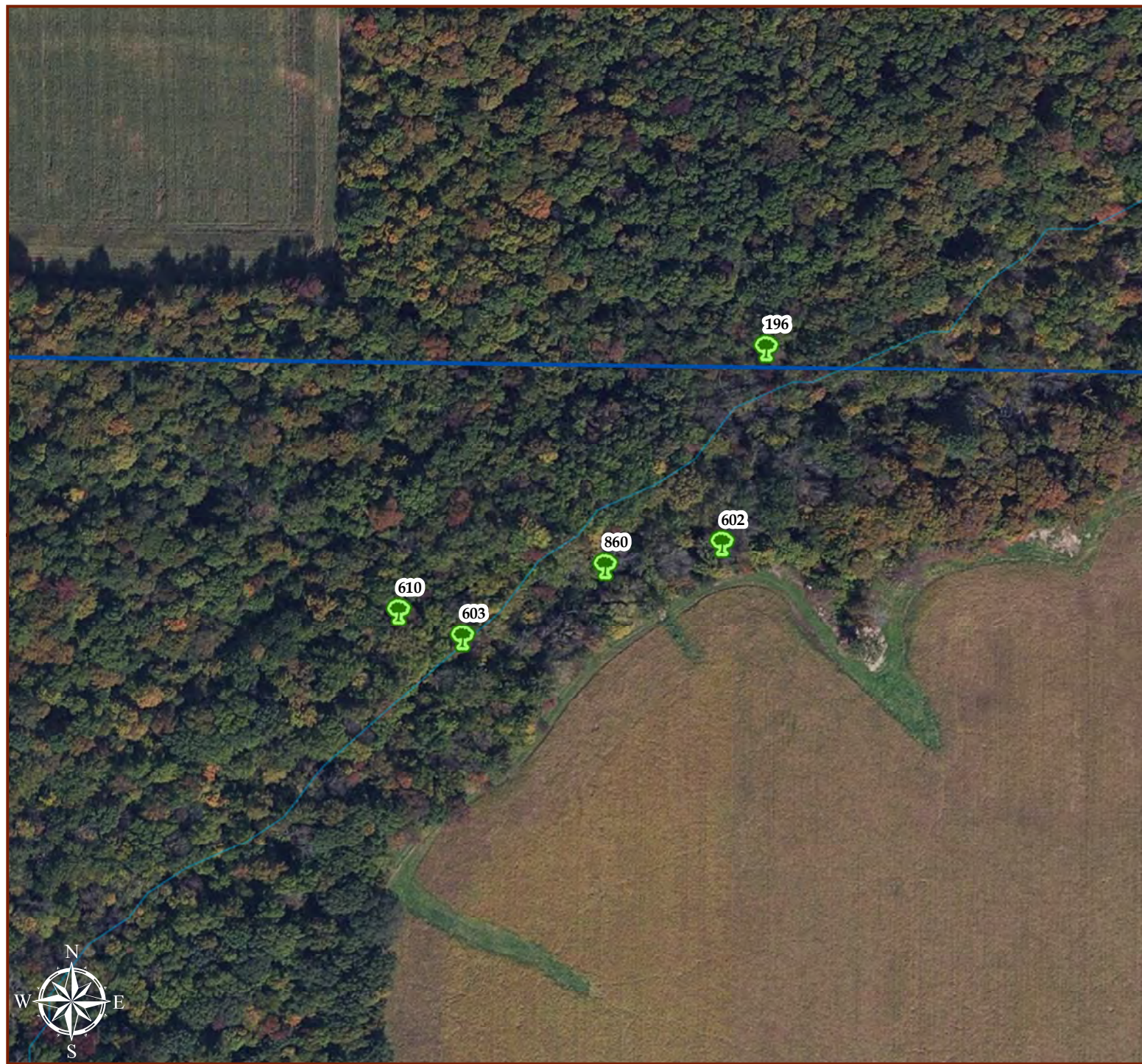


Figure 3. Roost trees used by northern long-eared bat, MYSE 205, Emerson West Wind Project, Seneca County, Ohio, 2015.



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Emerson West Wind Project Roost Tree Location

Bat 387, Adult Female
Myotis septentrionalis



Seneca County,
Ohio

-  Roost Tree (2016)
-  Project Boundary

1:2,400
or
1 inch = 200 ft



Coordinate System: NAD
1983 StatePlane Ohio
North FIPS 3401 Feet
Projection: Lambert
Conformal Conic
Datum: North American
1983
Sources: ESRI, USGS,
Apex Clean Energy,
Copperhead Consulting
Date: 3/30/2017

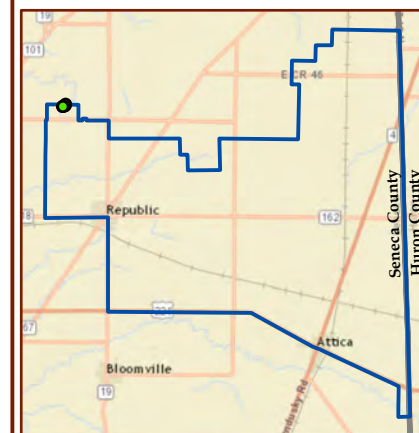
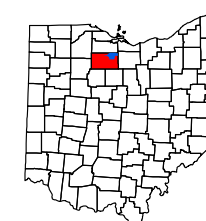


Figure 4. Roost trees used by northern long-eared bat, MYSE 387, Emerson West Wind Project, Seneca County, Ohio, 2016.



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Emerson West Wind Project
Roost Tree Location
Bat 267, Adult Male
Myotis septentrionalis



Seneca County,
Ohio

-  Roost Tree (2016)
-  Project Boundary

Coordinate System: NAD
1983 StatePlane Ohio
North FIPS 3401 Feet
Projection: Lambert
Conformal Conic
Datum: North American
1983
Sources: ESRI, USGS,
Apex Clean Energy,
Copperhead Consulting
Date: 3/30/2017

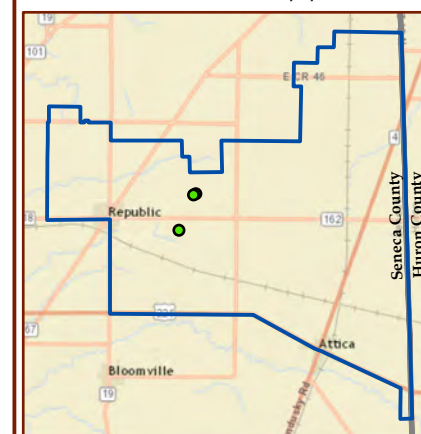


Figure 5. Roost trees used by northern long-eared bat, MYSE 267, Emerson West Wind Project, Seneca County, Ohio, 2016.

Radio-tagged bat(s) not located by ground crew(s) after a few hours of searching were located by an aerial telemetry crew the same day. In these cases, the aerial crew provided coordinates of the bat's estimated location to the ground crew, allowing them to quickly pick up the transmitter signal and locate the roost tree. All radio-tagged bats were accounted for during each day of tracking, except for MYSE 205, which could not be located by either the ground or aerial crew on 29 July 2015. However, MYSE 205 was heard again on 30 July 2015 where it was found in roost tree 314 (Table 5).

During tracking, all northern long-eared bats switched roost trees at least three times (Tables 5-7). The greatest number of roost tree switches (n = 8) was done by an adult female northern long-eared bat (MYSE 387) that used at least seven different roost trees over nine days (Table 6).

Table 5. Roost tree (RT) use by radio-tagged northern long-eared bat, MYSE 205, Emerson West Wind Project, Ohio, 2015.

Bat ID	Bat ¹	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	1-Aug	2-Aug
205	AF-MYSE	RT140	RT140	no signal	RT314	RT314	off parcel	off parcel

¹ AF = adult female, MYSE=northern long-eared bat

Table 6. Roost tree (RT) use by radio-tagged northern long-eared bat, MYSE 387, Emerson West Wind Project, Ohio, 2016.

Bat ID	Bat ¹	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
387	AF-MYSE	RT860	RT196	RT610	off parcel	RT602	off parcel	RT603	off parcel	RT30 9

¹ AF = adult female, MYSE=northern long-eared bat

Table 7. Roost tree (RT) use by radio-tagged northern long-eared bat, MYSE 267, Emerson West Wind Project, Ohio, 2016.

Bat ID	Bat ¹	19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
267	AM-MYSE	off parcel	off parcel	off parcel	RT258	RT251	RT258	off parcel

¹ AM = adult male, MYSE=northern long-eared bat

Emergence Counts

A total of 21 emergence counts were conducted in 2015 and 2016. The highest emergence count from a single roost tree was six bats, which occurred only once at RT603 on 18 July 2016 (Tables 8-10).

Table 8. Number of emerging bats from roosts used by northern long-eared bat, MYSE 205, Emerson West Wind Project, Ohio, 2015.

Roost No.	27-Jul	28-Jul	30-Jul
140	2	2	-
314	-	-	3
Total Bats	2	2	3

Table 9. Number of emerging bats from roosts used by northern long-eared bat, MYSE 387, Emerson West Wind Project, Ohio, 2016.

Roost No.	12-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul
860	3	0	-	-	-	-	-	-	-
196	-	0	0	-	-	-	-	-	-
610	-	4	0	-	-	-	-	-	-
602	-	-	-	2	1	-	-	-	-
603	-	-	-	-	-	6	0	-	-
309	-	-	-	-	-	-	-	1	0
Total Bats	3	4	0	2	1	6	0	1	0

Table 10. Number of emerging bats from roosts used by northern long-eared bat, MYSE 267, Emerson West Wind Project, Ohio, 2016.

Roost No.	22-Jul	23-Jul	24-Jul	25-Jul
258	1	2	3	1
251	-	1	1	-
Total Bats	1	3	4	1

Foraging Telemetry

Foraging data were collected for three radio-tagged northern long-eared bats within the project area: one in 2015 and two in 2016. MYSE 205 was tracked in 2015 from 28 July-1 August (Figure 6). MYSE 387 was tracked from 12-18 July, but no data were collected on 13 July due to inclement weather, resulting in six nights of foraging data (Figure 7). MYSE 267 was tracked for four nights from 19-22 July (Figure 8). The number of foraging location points collected for each bat ranged from 63 to 295 (Table 11).

Table 11. Number of nights tracked and number of foraging location points collected for three adult northern long-eared bats, Emerson West Wind Project, Ohio, 2015 and 2016.

Year	Dates	Bat ID	Sex	Repro. Status*	No. Nights Tracked	No. Points Collected
2015	28 July - 1 Aug	205	Female	L	5	63
2016	12 - 18 July	387	Female	L	6	295
2016	19 - 22 July	267	Male	NR	4	147

* L = lactating, NR = non-reproductive

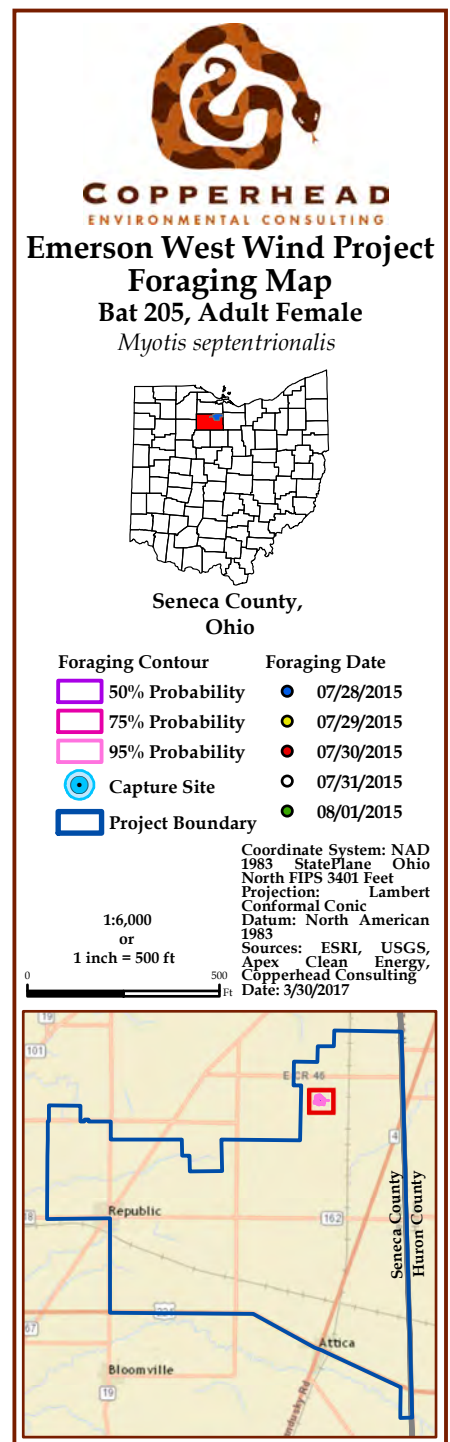
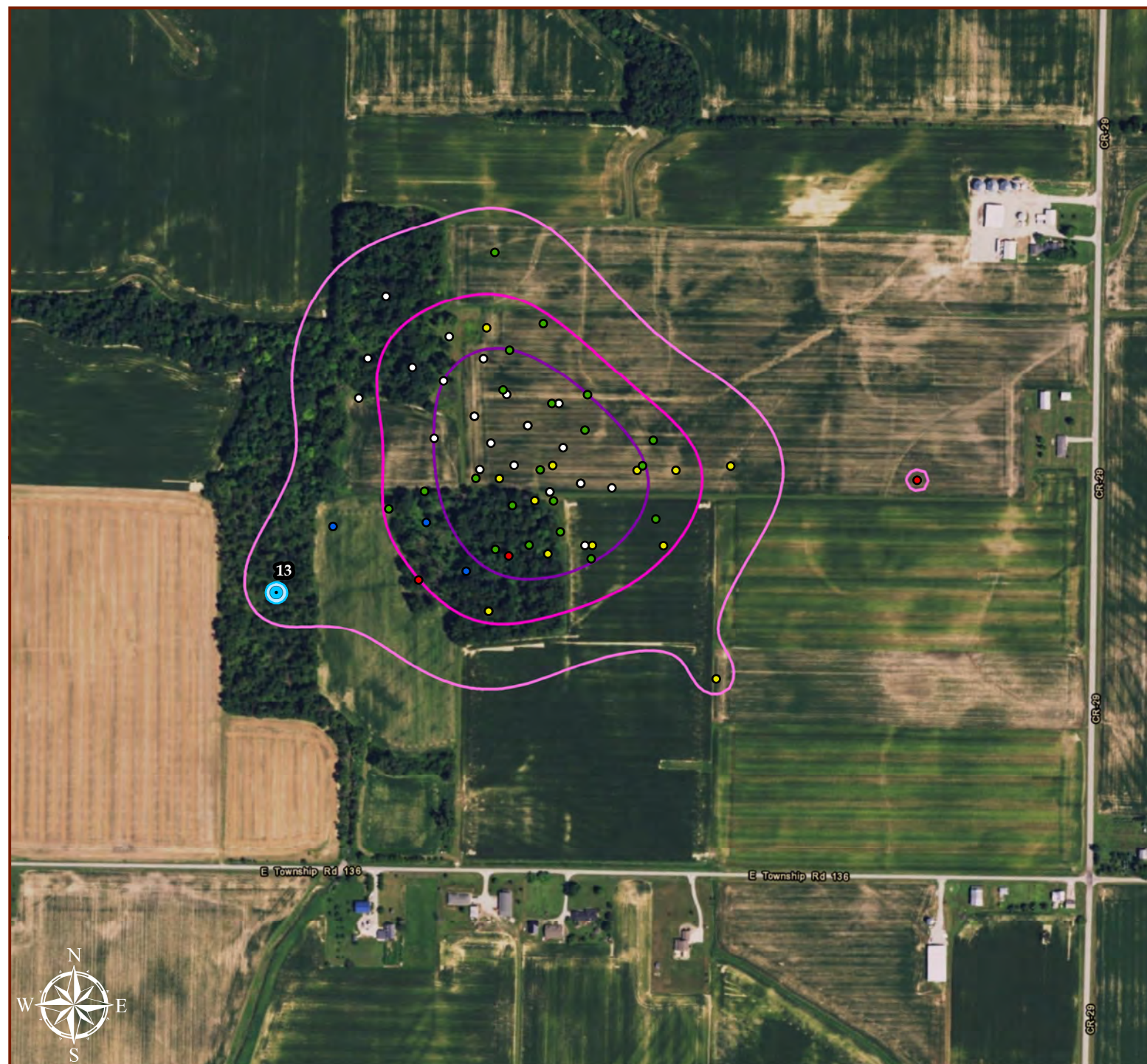


Figure 6. Foraging area utilized by female northern long-eared bat, MYSE 205, Emerson West Wind Project, Ohio, 2015.

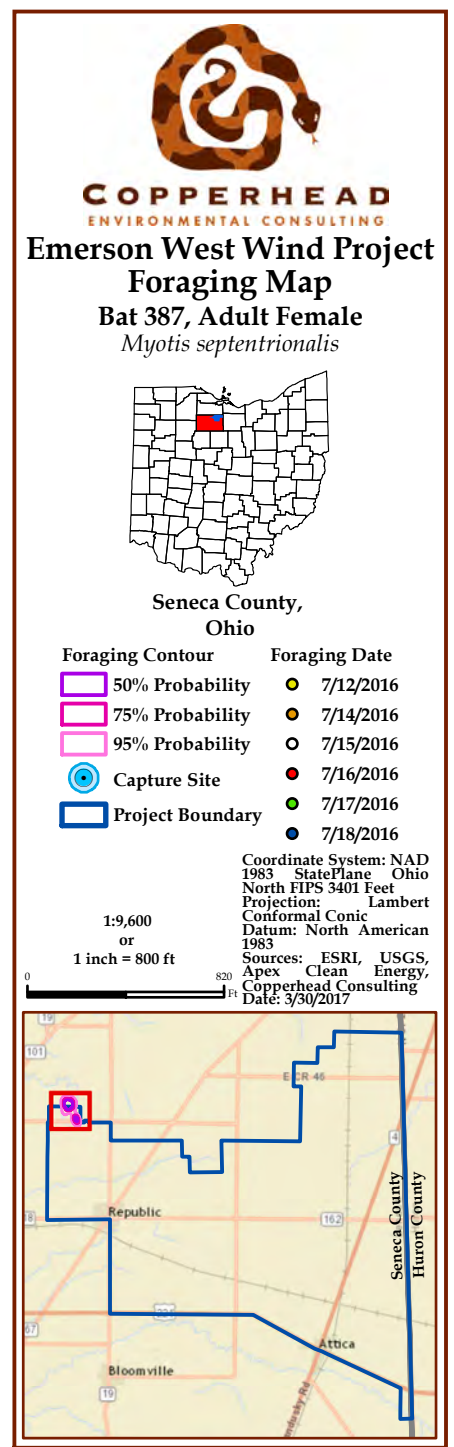
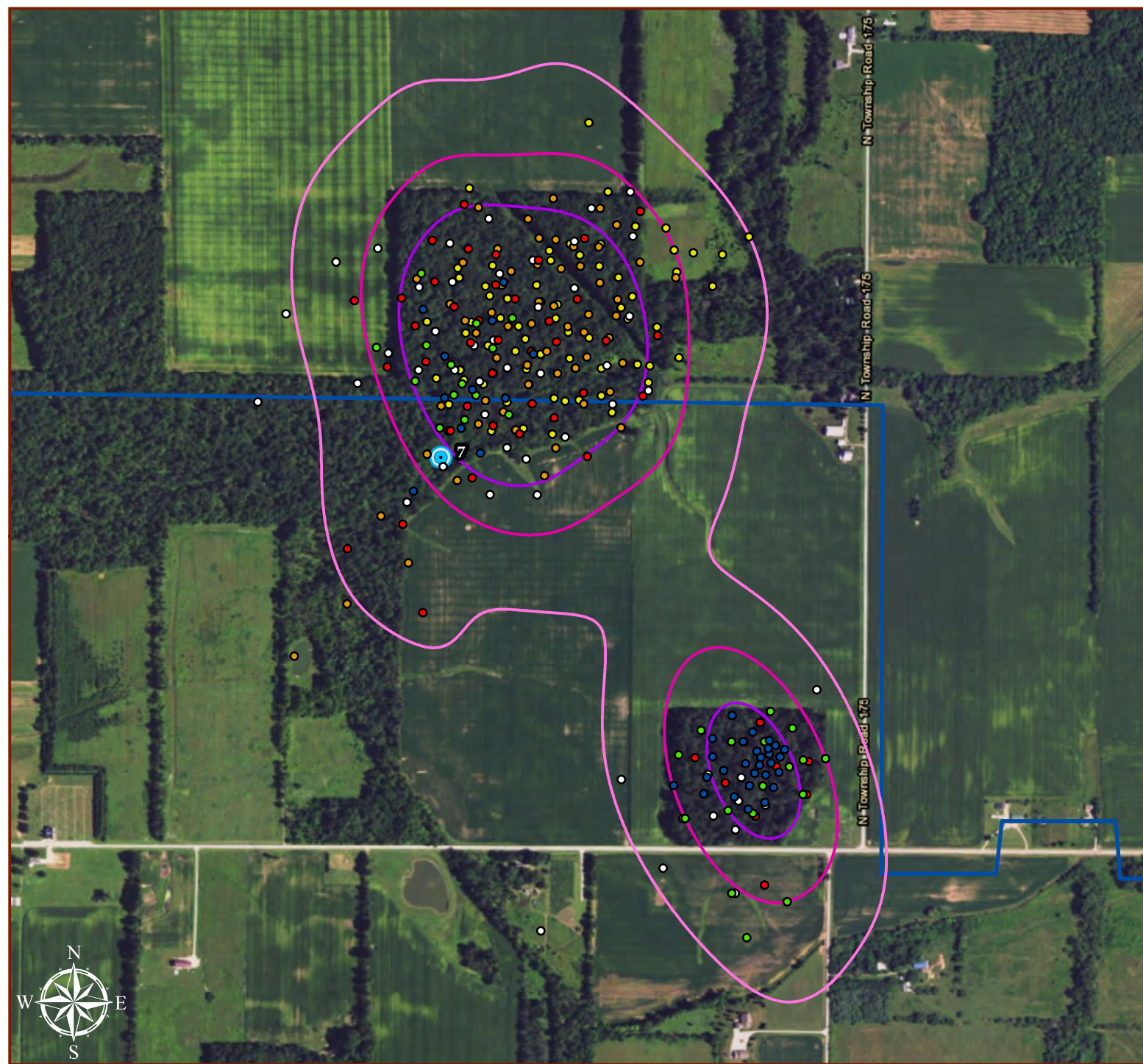


Figure 7. Foraging area utilized by female northern long-eared bat, MYSE 387, Emerson West Wind Project, Ohio, 2016.

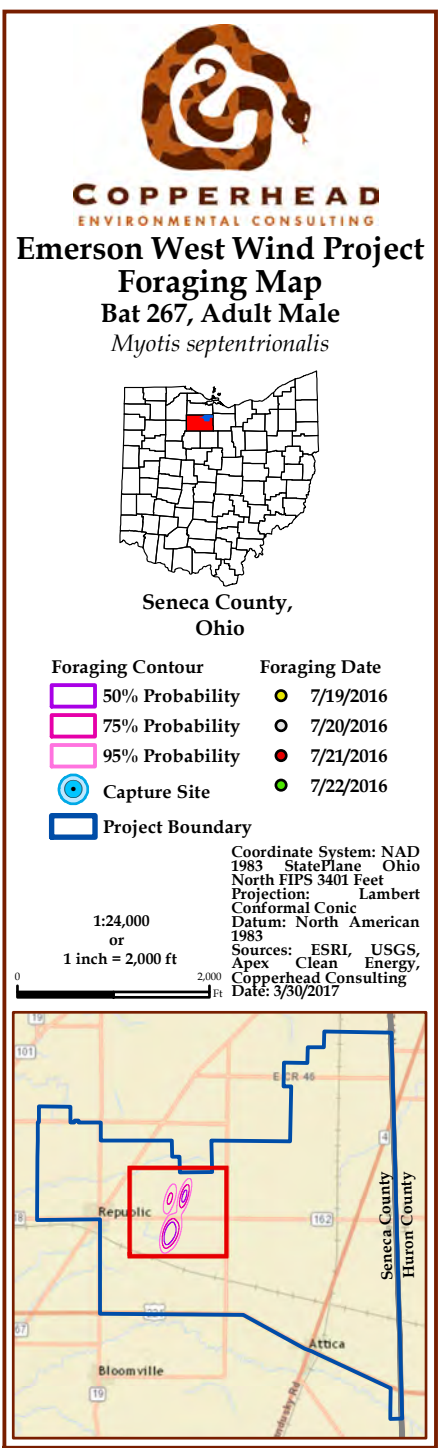
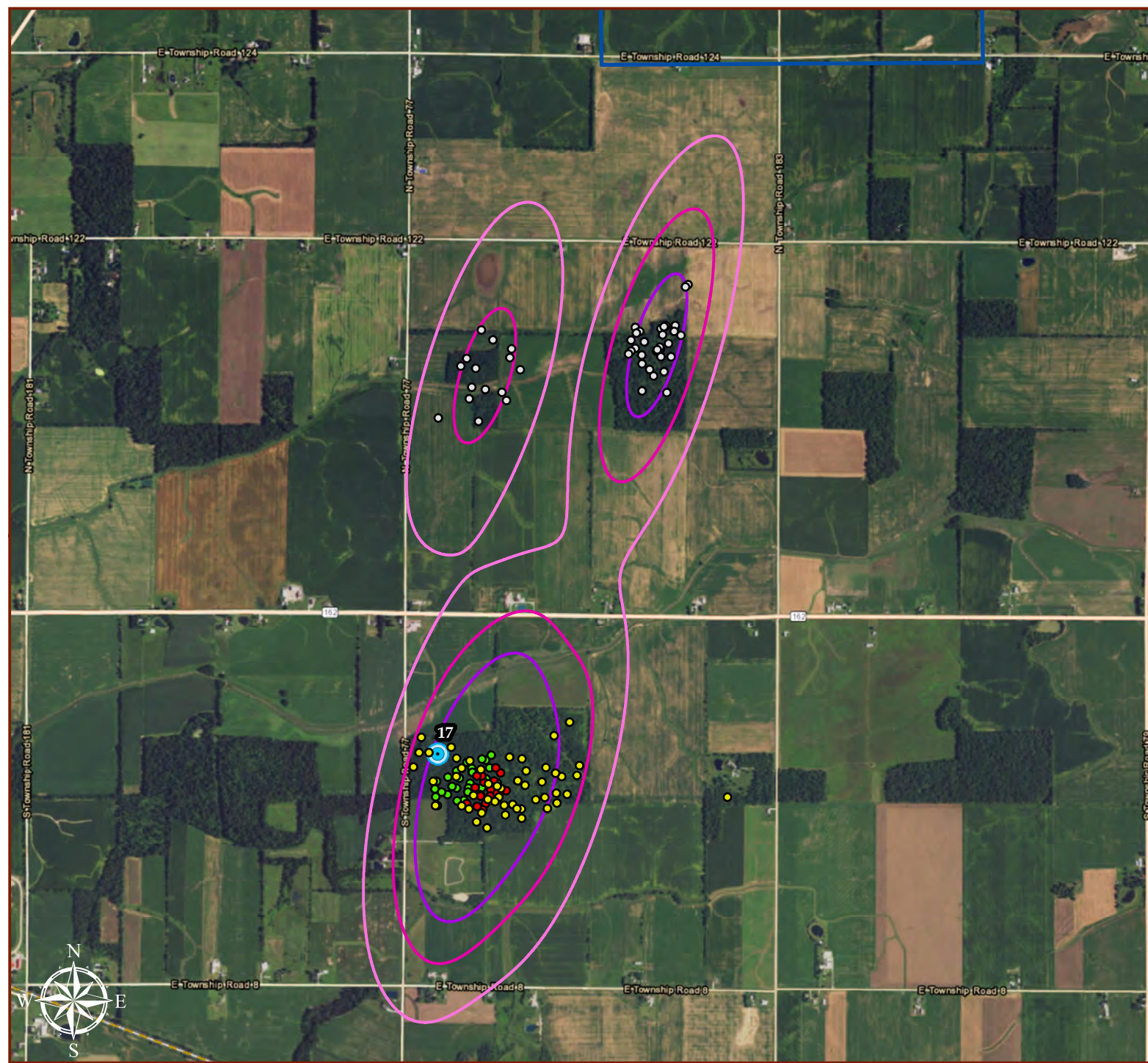


Figure 8. Foraging areas utilized by male northern long-eared bat, MYSE 267, Emerson West Wind Project, Ohio, 2016.

There was a large range in the size of foraging areas among bats within each foraging area contour (Table 12, Figure 9), but no difference in individual foraging area sizes ($F_{4,4} = 4.923$, $P = 0.076$, Figure 13) within each foraging area contour (Table 13). The farthest foraging point from a known roost for MYSE 205 was 0.5 kilometers, 1.0 kilometers for MYSE 387, and 2.2 kilometers for MYSE 267.

Table 12. Mean foraging area sizes for three adult northern long-eared bats, Emerson West Wind Project, Ohio, 2015 and 2016.

Foraging Area (acres)					
mean 95% contour	range	mean 75% contour	range	mean 50% contour	range
353.7	52.6 - 786.6	152.9	22.7 - 338.6	68.6	10.6 - 148.1

Table 13. Foraging area sizes for adult northern long-eared bats, Emerson West Wind Project, Ohio, 2015 and 2016.

Foraging Area (acres)						
Year	Dates	Bat ID	Sex	95% contour	75% contour	50% contour
2015	28 July - 1 Aug	205	Female	52.6	22.7	10.6
2016	12 - 18 July	387	Female	221.8	97.3	47.1
2016	19 - 22 July	267	Male	786.6	338.6	148.1

Most foraging location points of all bats were within forested habitat (81.4%), with some points within agricultural fields (16.6%) and some within forested fencerows (1.4%, Table 14, Fig 10). For those points outside forest or forested fencerows, the mean and median distance from forest edge for all bats were 58.2 meters and 41.5 meters, respectively.

Table 14. Foraging habitat use by number of location points of three northern long-eared bats, Emerson West Wind Project, 2015 and 2016.

Habitat	Female Bat 387	Male Bat 267	Female Bat 205	Total
Forest	259	130	22	411
Fence Row	4	3	0	7
Field	32	14	38	84
<i>Total No. points</i>	295	147	60	502

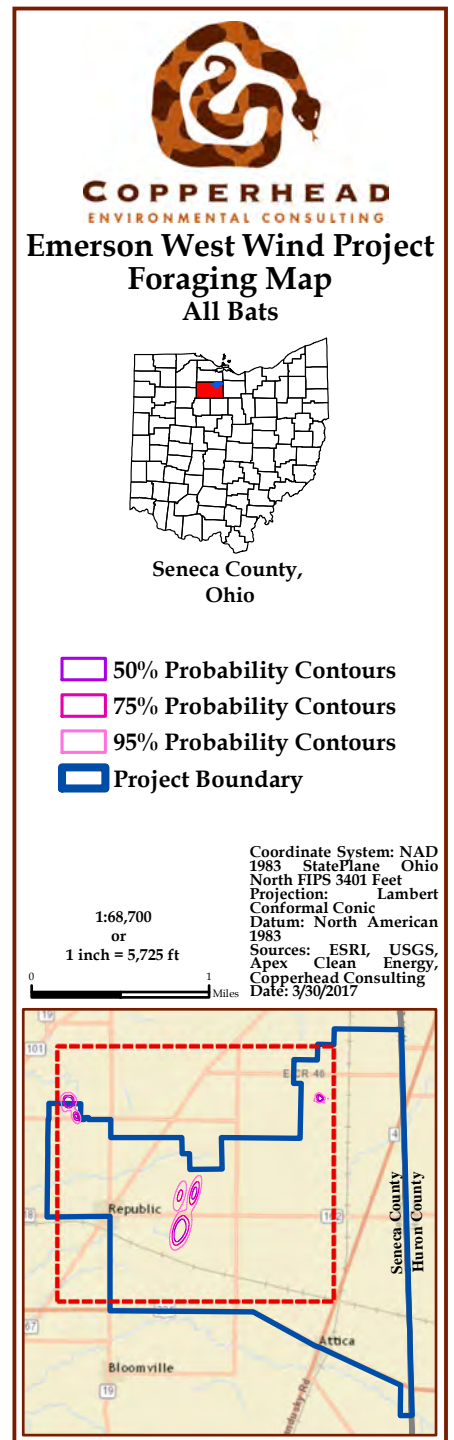
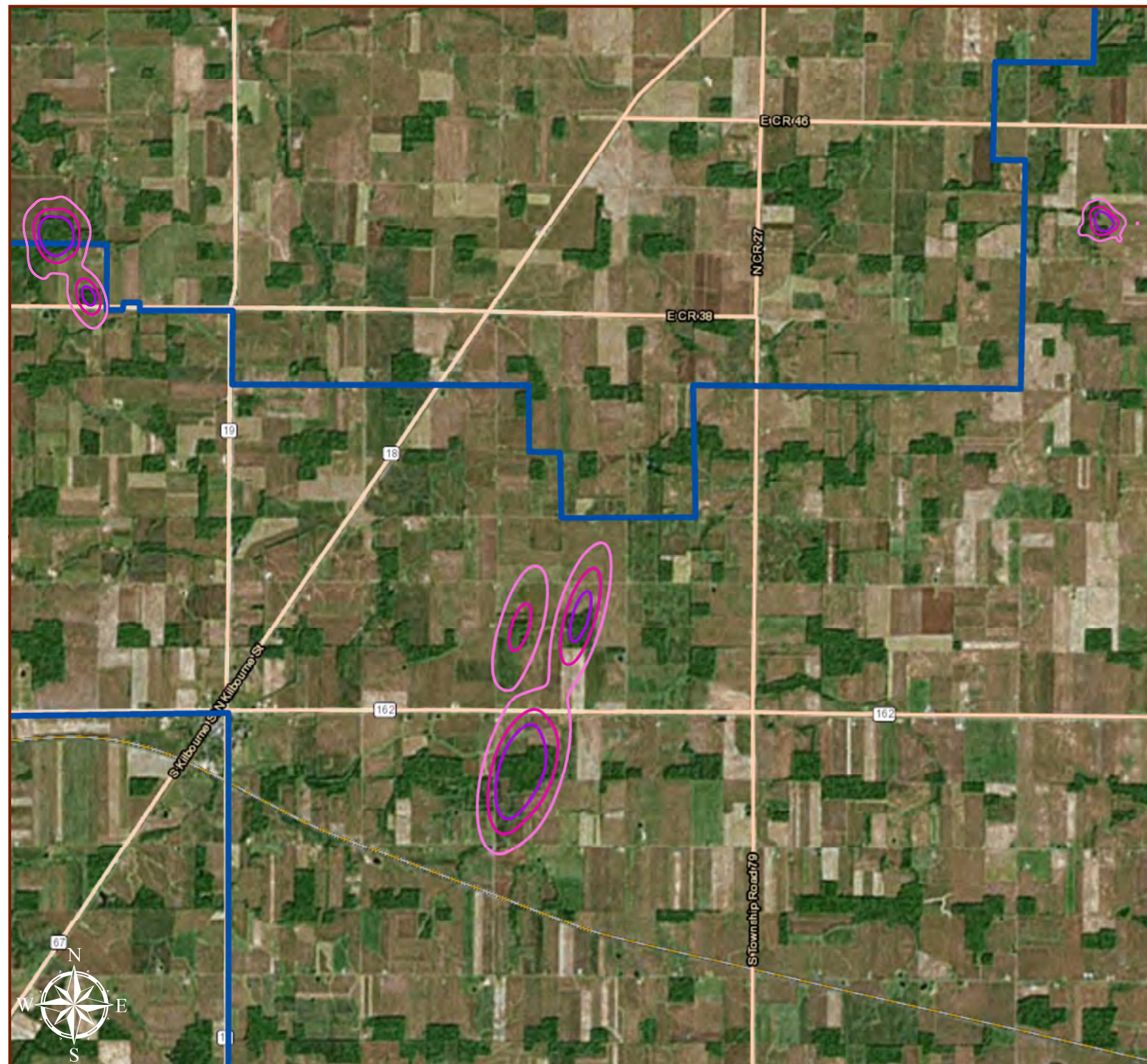


Figure 9. Foraging areas of three northern long-eared bats, Emerson West Wind Project, Ohio, 2015 and 2016.

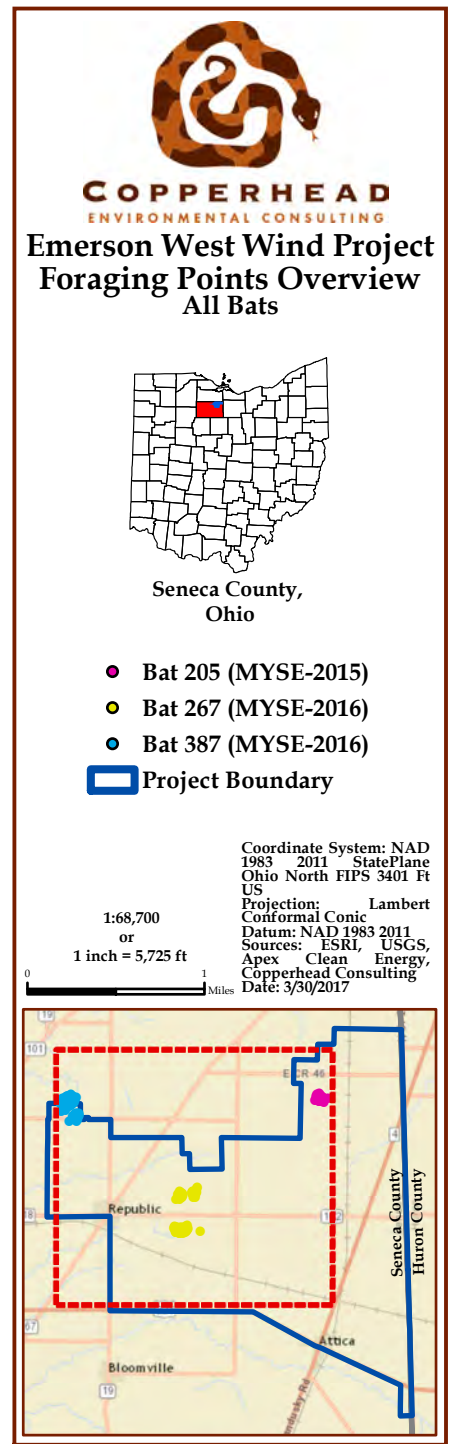
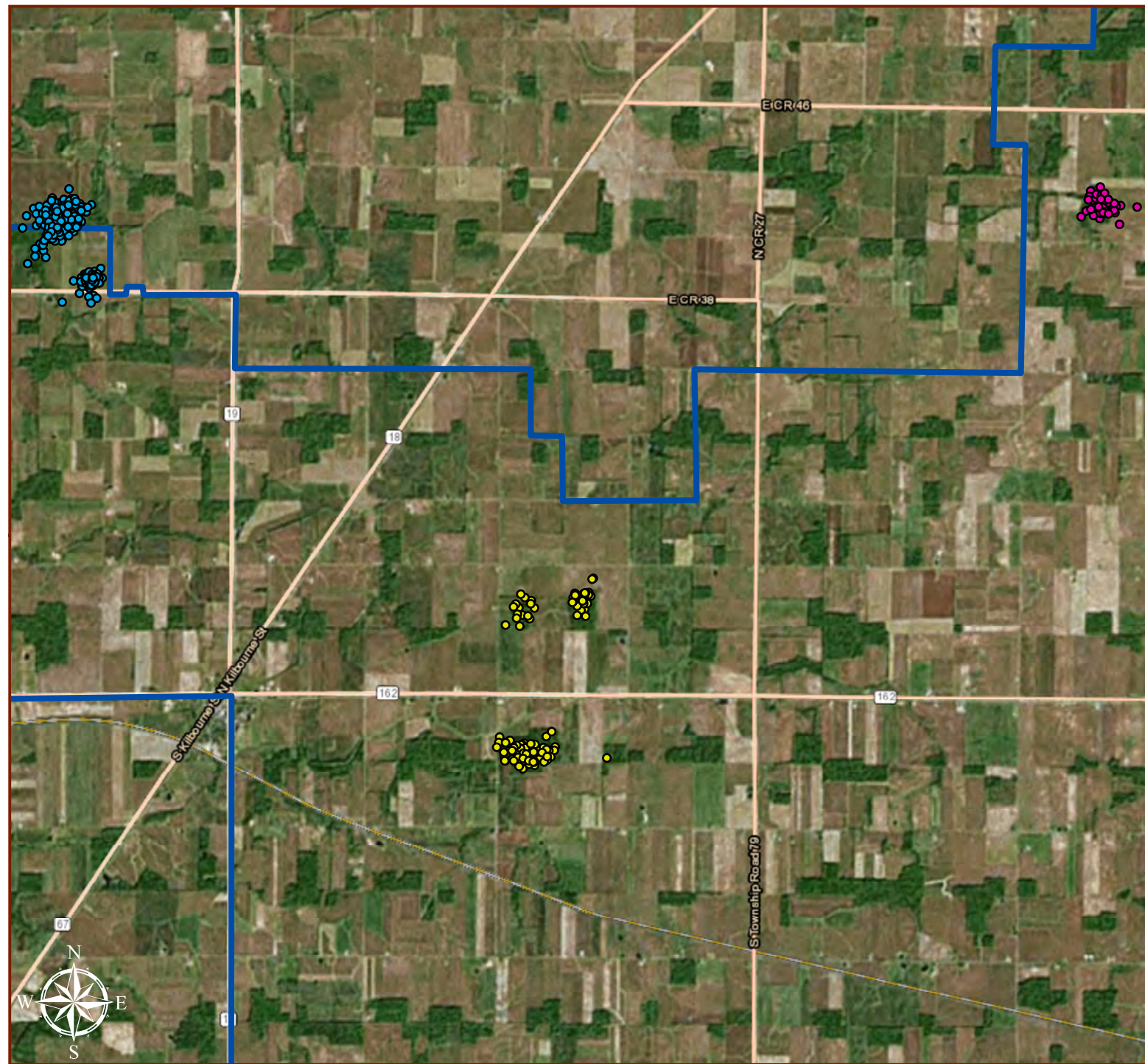


Figure 10. All foraging location points collected on three adult long-eared bats, Emerson West Wind Project, Ohio, 2015 and 2016.

CONCLUSIONS

No Indiana bats were captured within the Project area in 2015 or 2016. Eight northern long-eared bats were captured. No other state-listed bats were captured.

Foraging areas of northern long-eared bats were primarily restricted to forest and forest edges, with individual foraging location points well clustered. All northern-long eared bats were captured within their respective estimated foraging areas. On average, bats located foraging or commuting in open areas were within 58 meters of forest habitat, suggesting that northern long-eared bats in this area show a preference for foraging and commuting within forests, forested fence rows, and forested waterways.

The range of foraging area sizes identified during this study was consistent with the foraging telemetry study conducted on Myotis bats in 2015 (Wetzel et al. 2016). The male northern long-eared bat had the largest foraging area of the three bats analyzed in this study, utilizing a greater number of woodlots than the other bats during the time they were tracked. The 2015 female bat had the smallest home range, but also appeared to be using an area with less available forested habitat based on the aerial imagery, which was the preferred habitat for the three bats overall.

Results of this study suggest that siting of turbines away from forested habitat should greatly reduce the risk of turbine collision during summer for female northern long-eared bats and to a lesser extent for males.

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APPENDIX A

Mist-Net Data Sheets

501- Emerson West Wind Project Bat Survey, Seneca County, Ohio, July 2015 and 2016.

Business Confidential – Not for Public Disclosure

Mist Netting Data Form

Sheet of

Site No. 1 Project No./Name 412.D1 / Emerson Creek Date 9/31/2015
 Site Location N CR 2A, Woodlot near pond
 County Seneca State OH Time Up 8:50 Time Down 2:00
 Lat/Lon; UTM: N/E 41.167111 W/N -82.884334 Zone Datum NAD83 Observers Rain Storm
Brandon Smith

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#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
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Moon Phase 100 % Wax / Wane

	Rise	Set
Sun	<u>6:25am</u>	<u>8:51pm</u>
Moon	<u>9:23pm</u>	<u>9:10am</u>

Time	Temp (F)	Sky	Wind	No. Bats
<u>9:00</u>	<u>68</u>	<u>1</u>	<u>0</u>	<u>0</u>
<u>10:51</u>	<u>63.5</u>	<u>1</u>	<u>0</u>	<u>0</u>
<u>2:00</u>	<u>58.1</u>	<u>1</u>	<u>0</u>	<u>0</u>

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Please Return to:

P.O. Box 73, Paint Lick, KY, 40461.
(859) 925-9012

Mist Netting Data Form

Site No. 2 Project No./Name 012.01? / Emerson Gusk Date 7/27/2015
 Site Location N County Rd. 29, Schriener bog, Woodlot near pond
 County Seneca State OH Time Up 9:06 Time Down 2:06
 Lat/Lon; UTM: N/E 41.167111 W/N 82, 884234 Zone — Datum NAD83 Observers Rain Stormy, Brandon Smith

COPPERHEAD
ANIMAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	11:23	MYSE	A	M	NR	7	36	J	2.0	0	0	17172	—
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
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Moon Phase 37% ☒ Wax ☐ Wane

	Rise	Set
Sun	<u>6:22 am</u>	<u>8:55 pm</u>
Moon	<u>5:51 pm</u>	<u>2:16 am</u>

Time	Temp (F)	Sky	Wind	No. Bats
<u>9:30</u>	<u>68</u>	<u>1</u>	<u>0</u>	<u>0</u>
<u>11:23</u>	<u>68</u>	<u>1</u>	<u>0</u>	<u>1</u>
<u>2:06</u>	<u>62</u>	<u>1</u>	<u>0</u>	<u>1</u>

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

Comments:

Please Return to:

P.O. Box 73, Paint Lick, KY, 40461.
(859) 925-9012

Property owner - Harold Daniels

Mist Net Site Habitat Sheet

Site No. 1

Project No./Name 412.01 / Emerson Creek

Date 7/27/2015

Lat/Lon; UTM: N/E 41 167111

W/N -82.884334

Zone

Observers Ram Sten, Brandon Smith

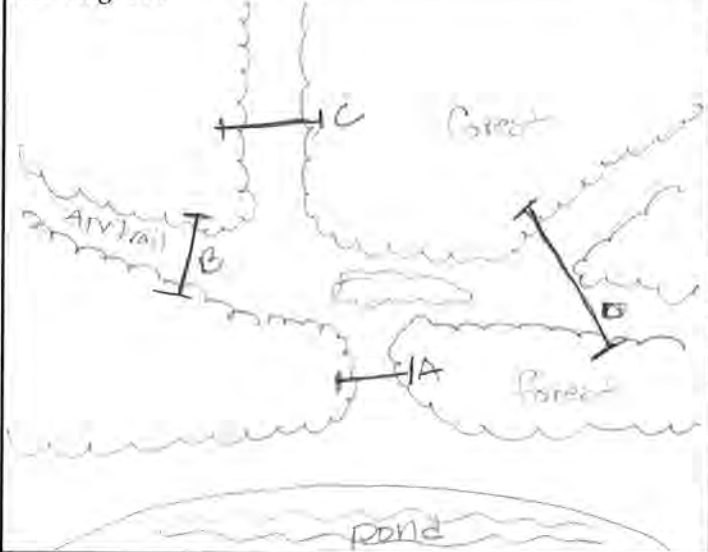
Datum: NAD83

County Seneca

State NY

Quad Firestone

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	20ft	1cm	7/27/2015
B	20ft	1cm	7/27/2015
C	20ft	1cm	7/27/2015
D	20ft	1cm	7/27/2015
E			
F			

Site Photographs
 Camera: Ram 15
 Photo Log: 1A, 1B, 1C, 1D

Dominant Vegetation					
1. <u>Red Maple</u>	4. <u>Green ash</u>				
2. <u>SB Hickory</u>	5. <u>Sugar maple</u>				
3. <u>Co Hornwood</u>	6. <u></u>				

Net Set by Habitat						
Habitat	A	B	C	D	E	F
River						
Stream						
Pond						
Corridor	X	X	X	X		
Cave						
Mine						
Forest						
Gap						
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

- 3 **Roost habitat:** 1. **Poor:** No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
 2. **Moderate:** Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
 3. **Optimal:** Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.
- 3 **Water Resources:** 1. **Poor:** bat drinking resources not present at the site.
 2. **Moderate:** Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
 3. **Optimal:** Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.
- 3 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
 1. **Poor:** Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
 2. **Moderate:** some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
 3. **Optimal:** Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.
- 2 **Land Cover:** 1. **Poor:** Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
 2. **Marginal:** Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
 3. **Optimal:** Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

11 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012



Mist Netting Data Form

Sheet ____ of ____

Site No. 2 Project No./Name 412 / Apex Energy Emerson Cr. Wind Date 26 July 2015
 Site Location Stream corridor southeast of Township Rd 9 and Trail 0197
 County Seneca State OH Time Up 2050 Time Down 0150-0155
 Lat/Lon; UTM N/E 41.11582 (W/N -82.84374) Zone 18 Datum NAD83 Observers K. Pearman, A. Trusdale



#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2340	EPFU	A	M	NR	17.0	45	A	1.5	0	-	-	-
2	0015	EPFU	A	M	NR	16.25	45	C	1.5	0	-	-	-
3	0110	LABO	J	F	NR	10.5	40	C	3.5	0	-	-	-
4													
5													
6													
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28													
29													
30													

Species Abbreviations: *Corynorhinus rafinesquii* (CORA); *Corynorhinus t. virginianus* (COVI); *Eptesicus fuscus* (EPFU); *Lasiurus borealis* (LABO); *Lasiurus cinereus* (LACI); *Lasiurus seminolus* (LASE); *Lasionycteris noctivagans* (LANO); *Myotis austroriparius* (MYAU); *Myotis grisescens* (MYGR); *Myotis leibii* (MYLE); *Myotis lucifugus* (MYLU); *Myotis septentrionalis* (MYSE); *Myotis sodalis* (MYSO); *Nycticeius humeralis* (NYHU); *Perimyotis subflavus* (PESU); *Tadarida brasiliensis* (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Moon Phase <u>60%</u> (Wax / Wane)		
	Rise	Set
Sun	<u>0620</u>	<u>2055</u>
Moon	<u>1628</u>	<u>0202</u>

Time	Temp (F)	Sky	Wind	No. Bats
<u>2100</u>	<u>68.9</u>	<u>2</u>	<u>0</u>	<u>0</u>
<u>2209</u>	<u>65.1</u>	<u>3</u>	<u>1</u>	<u>0</u>
<u>2307</u>	<u>66.4</u>	<u>2</u>	<u>1</u>	<u>1</u>
<u>0007</u>	<u>64.6</u>	<u>3</u>	<u>0</u>	<u>1</u>
<u>0140</u>	<u>62.8</u>	<u>2</u>	<u>1</u>	<u>-</u>

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Netting Data Form

Site No. 2 Project No./Name 412 / APEX / Emerson Creek Wild Date 31 July 2015
 Site Location Stream Corridor SE of CR 9 & Trail 0197
 County Seneca State OH Time Up 2048 Time Down 0148
 Lat/Lon; UTM: N/E 41.11 58.2 W/N -82.84374 Zone Datum NAD83 Observers K. Pearman
Alexi Padonier

COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2135	EPFU	J	F	NR	12.25	46	B	5	0	—	—	—
2	2218	EPFU	A	F	PL	20.0	50	B	6	0	—	—	—
3	2245	EPFU	A	F	PL	21.0	49	B	6	0	—	—	—
4	0155	LABO	J	F	NR	10.75	41	B	6	0	—	—	—
5													
6													
7													
8													
9													
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29													
30													

Moon Phase 97 % Wax / Wane

	Rise	Set
Sun	<u>0625</u>	<u>2050</u>
Moon	<u>2050</u>	<u>0642</u>

Time	Temp (F)	Sky	Wind	No. Bats
<u>2100</u>	<u>74.1</u>	<u>0</u>	<u>1</u>	<u>—</u>
<u>2200</u>	<u>69.6</u>	<u>0</u>	<u>1</u>	<u>1</u>
<u>2300</u>	<u>65.4</u>	<u>1</u>	<u>1</u>	<u>2</u>
<u>0000</u>	<u>63.7</u>	<u>2</u>	<u>1</u>	<u>0</u>
<u>0100</u>	<u>60.6</u>	<u>1</u>	<u>0</u>	<u>0</u>
<u>0200</u>	<u>59.2</u>	<u>1</u>	<u>0</u>	<u>0</u>
<u>0300</u>				

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type Unit # Date Start time Stop time
 Date Start time Stop time
 Date Start time Stop time

Weatherproofing Coordinates Comments:

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Net Site Habitat Sheet

Site No. 2

Project No./Name

412 / APEX / Englewood Creek

Date

31 July 2015Lat/Lon; UTM: N/E 41.11582

W/N

-82.84374

Zone

Observers

K Pearson, Alex PadoverDatum: NAD83

County

Seneca

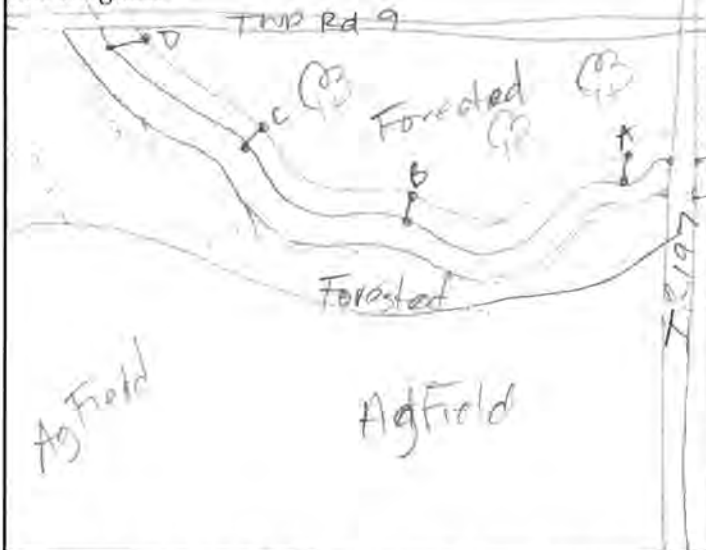
State

OH

Quad

Centerston

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	5.2	9	31 July
B	5.2	9	31 July
C	7.8	12	31 July
D	5.2	9	31 July
E			
F			

Site Photographs

Camera:

Photo Log:

Dominant Vegetation

1. Koeleria cristata
2. Galium aparine
3. Quercus palustris
4. Aster saccharum
5. _____
6. _____

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream						
Pond						
Corridor	✓	✓	✓	✓		
Cave						
Mine						
Forest						
Gap						
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

- 1 **Roost habitat:** 1. **Poor:** No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
 2. **Moderate:** Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
 3. **Optimal:** Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.
- 2 **Water Resources:** 1. **Poor:** bat drinking resources not present at the site.
 2. **Moderate:** Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
 3. **Optimal:** Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.
- 2 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
 1. **Poor:** Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
 2. **Moderate:** some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
 3. **Optimal:** Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.
- 2 **Land Cover:** 1. **Poor:** Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
 2. **Marginal:** Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
 3. **Optimal:** Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

7 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012

COPPERHEAD
ENVIRONMENTAL CONSULTING

Mist Net Site Habitat Sheet

Site No. 2Project No./Name 412, Apex Clean Energy Cr.Emerson
Paint Lick, KY
Date 26 July 2015Lat/Lon; UTM: N/E 411582 W/N -82.84374Zone —Observers K. Pearman, A. TrumbleDatum: NAD83 County SenecaState OH Quad Center ton

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	5.2	4	26 July
B	7.8	12	
C	5.2	9	
D	5.2	9	
E			
F			

Site Photographs
 Camera: Kelsey's
 Photo Log: Kat

Dominant Vegetation						
1. <u>Populus deltoides</u>			4. <u>Acer saccharum</u>			
2. <u>Gleditsia triacanthos</u>			5. _____			
3. <u>Quercus palustris</u>			6. _____			
Net Set by Habitat						
Habitat	A	B	C	D	E	F
River						
Stream	✓					
Pond						
Corridor			✓	✓		
Cave						
Mine						
Forest						
Gap		✓				
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

- 1 **Roost habitat:** 1. Poor: No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
 2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
2 3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.
- Water Resources:** 1. Poor: bat drinking resources not present at the site.
2 2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
 3. Optimal: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.
- Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
2 1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
 2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
 3. Optimal: Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.
- Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
2 2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
 3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

7 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012



Mist Netting Data Form

Sheet _____ of _____

Site No. 4 Project No./Name 412 / EMERSON CREEK Date 7-25-14
 Site Location WOODLOT off RICECORN RD
 County SEAL State OH Time Up 2055 Time Down 0155
 Lat/Lon; UTM: N/E 41.155 W/N -82.855 Zone Datum NAD83 Observers MTM, TAB



#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	10:00	EPFU	J	F	NR	17	45	D	4	0	-	-	-
2	10:30	EPFU	A	M	S	17.5	46	C	2	0	-	-	-
3	10:30	EPFU	J	F	NR	17	45	A	5	1	-	-	-
4	12:15	EPFU	A	F	PL	20	47	A	2	0	-	-	-
5													
6													
7													
8													
9													
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30													

Moon Phase <u>60 %</u>		Wax / Wane
	Rise	Set
Sun		<u>2055</u>
Moon		

Time	Temp (F)	Sky	Wind	No. Bats
9:00	82	1	0	0
10:00	79	0	0	3
11:00	76	0	0	0
12:00	75	0	0	1
1:00	75	3	1	0
2:00	73	2	1	0

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Netting Data Form

Site No. 4 Project No./Name 412 / EMERSON CREEK Date 7-30-15
 Site Location WOODLOT OFF REBOWDOWN RD
 County SENECA State OH Time Up 8:50 Time Down 2:00
 Lat/Lon; UTM: N/E 41.155 W/N -82.8559 Zone — Datum NAD83 Observers MTM, TAB

COPPERHEAD
INSTRUMENTS • RESEARCH

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	10:45	LAR	A	F	PL	14.5	40	E	1	0	—	—	—
2	10:45	EPFU	A	M	S	17	47	B	2	0	—	—	—
3													
4													
5													
6													
7													
8													
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10													
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30													

Moon Phase \ 100 % Wax / Wane

	Rise	Set
Sun		8:50
Moon		

Time	Temp (F)	Sky	Wind	No. Bats
9:00	78	0	1	0
10:00	75	0	1	2
11:00	73	0	1	0
12:00	70	0	1	0
1:00	66	0	1	0
2:00	64	0	1	0

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

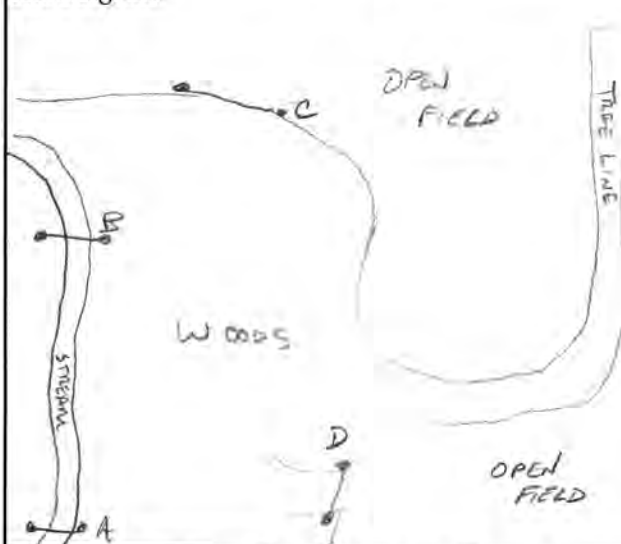
Comments:

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Net Site Habitat Sheet

Site No. 4Project No./Name 421 / EMERSON CREEKDate 7-25-15Lat/Lon; UTM: N/E 41.155W/N -82.8559Zone Observers MTM, TABDatum: NAD83County SENECAState OHQuad Flat Rock

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	6	6	7-25
B	6	6	7-25
C	9	12	7-25
D	6	9	7-25
E			
F			

Site Photographs

Camera:

Photo Log:

Dominant Vegetation

1. RED OAK	4. ELM
2. WILLOW	5.
3. CATALPA	6.

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream	✓	✓				
Pond						
Corridor						
Cave						
Mine						
Forest			✓	✓		
Gap						
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

- 2 **Roost habitat:** 1. **Poor:** No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
 2. **Moderate:** Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
 3. **Optimal:** Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.
- 2 **Water Resources:** 1. **Poor:** bat drinking resources not present at the site.
 2. **Moderate:** Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
 3. **Optimal:** Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.
- 1 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
 1. **Poor:** Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
 2. **Moderate:** some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
 3. **Optimal:** Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.
- 2 **Land Cover:** 1. **Poor:** Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
 2. **Marginal:** Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
 3. **Optimal:** Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

7 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012



Mist Netting Data Form

Sheet of

Site No. 5 Project No./Name YR / Emerson Creek Date 7-25-15
 Site Location Woodlot west of 4 w/intermittent stream
 County Seneca State OH Time Up 8:50 Time Down 2:00
 Lat/Lon; UTM: N/E 41.167295 W/N 82.848025 Zone Datum NAD83 Observers ES, ER

COPPERHEAD
ENVIRONMENTAL RESEARCH

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	9:00	LABO ESC											
2	11:00	MYSE	J	F	NR	6	30	A	2	0		Escaped before banding	
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Moon Phase	%	Wax / Wane
	Rise	Set
Sun		6:55
Moon		

Time	Temp (F)	Sky	Wind	No. Bats
9:00	83	1	2	1
10:00	78	0	2	0
11:00	77	0	2	1
12:00	75	1	1	0
1:00	74	1	2	0
2:00	74	0	2	0

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Netting Data Form

Site No. 5 Project No./Name 412 / Emerson Creek Date 7-30-15
 Site Location Woodlot west of 4 w/ intermittent stream
 County Seneca State OH Time Up 20:50 Time Down 01:59
 Lat/Lon; UTM: N/E 41.167295 W/N 82.848025 Zone — Datum NAD83 Observers ES, RR



COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	1:30	LABO	J	F	NR	12	39	D	2	0	—	—	—
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

Moon Phase % Wax / Wane

	Rise	Set
Sun		8:59
Moon		

Time	Temp (F)	Sky	Wind	No. Bats
9:00	80	0	2	0
10:00	77	0	2	0
11:00	73	0	2	0
12:00	69	0	2	0
1:00	68	0	1	

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Weatherproofing _____

Coordinates _____

Comments: _____

Please Return to:
P.O. Box 73, Paint Lick, KY, 40461.
(859) 925-9012

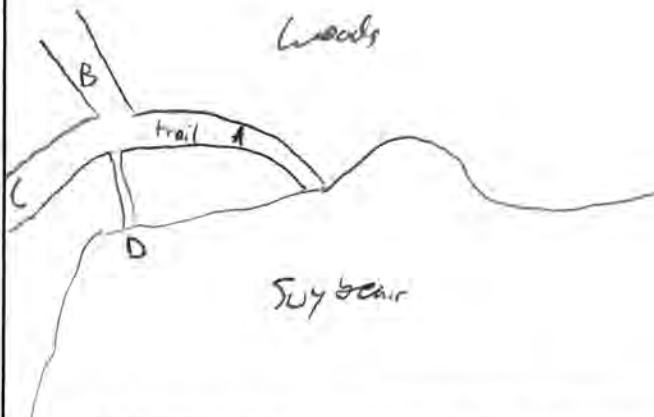
Mist Net Site Habitat Sheet

Site No. 5Project No./Name 412 / Emerald CreekDate 7-25-15

Lat/Lon: UTM: N/E

41.167295 W/N 82.848025Zone —Observers ES, RRDatum: NAD83County SenecaState OHQuad Flat Rock

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	9	5	7
B	6	9	
C	6	5	
D	6	12	
E			
F			

Site Photographs

Camera:

Photo Log:

Dominant Vegetation

1. <u>Red Maple</u>	4. _____
2. <u>Red oak</u>	5. _____
3. <u>Gray bark Hickory</u>	6. _____

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream						
Pond						
Corridor	X	X	X			
Cave						
Mine						
Forest				X		
Gap						
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

3 **Roost habitat:** 1. Poor: No or few snags ≥ 5 " DBH with sloughing bark or other usable roost features (cracks, crevices, etc)

2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.

2 3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.**Water Resources:** 1. Poor: bat drinking resources not present at the site.

2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.

3. Optimal: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.

3 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).

1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging

2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.

3. Optimal: Mature forest. Diverse age classes of trees present. Trees >15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.1 **Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.

2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.

3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

01 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012

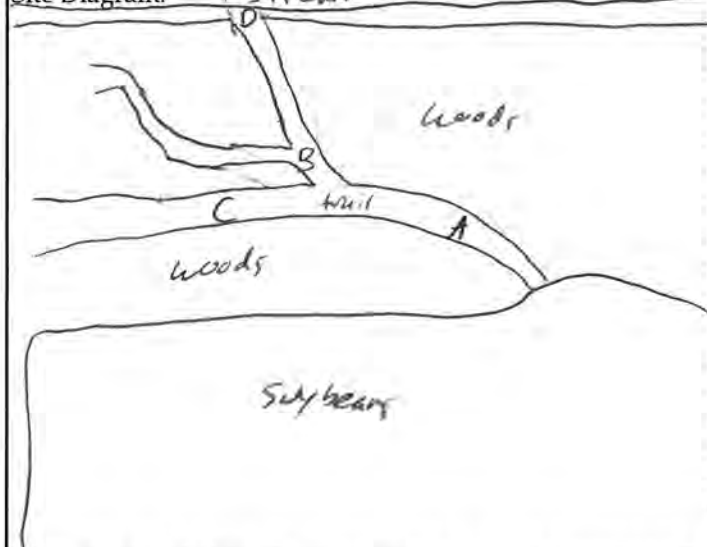


COPPERHEAD

Mist Net Site Habitat Sheet

Site No. 5Project No./Name 412 / Emerson CreekDate 7-30-15Lat/Lon; UTM: N 41.467295 W 82.848025Zone 18Observers ES, RRDatum: NAD83 County Seneca State OH Quad Flat Rock

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	9	6	
B	6	12	
C	6	6	
D	6	9	
E			
F			

Site Photographs

Camera:

Photo Log:

Dominant Vegetation

1. <u>Red Maple</u>	4. _____
2. <u>Red oak</u>	5. _____
3. <u>Shagbark Hickory</u>	6. _____

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream						
Pond						
Corridor	*	*	*	*		
Cave						
Mine						
Forest						
Gap						
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

3**Roost habitat:** 1. **Poor:** No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)2. **Moderate:** Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.3. **Optimal:** Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.2**Water Resources:** 1. **Poor:** bat drinking resources not present at the site.2. **Moderate:** Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.3. **Optimal:** Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.3**Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).1. **Poor:** Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging2. **Moderate:** some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.3. **Optimal:** Mature forest. Diverse age classes of trees present. Trees >15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.1**Land Cover:** 1. **Poor:** Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.2. **Marginal:** Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.3. **Optimal:** Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.9**Total Habitat Score** (Should be between 4 & 12)Comments: narrow stream between woodlot and field

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012

COPPERHEAD
Environmental Solutions

Mist Netting Data Form

Sheet ____ of ____

Site No. 5 Project No./Name 412 / Emerson Creek Date 7-29-15
 Site Location Woodlot South of CR 410
 County Seneca State OH Time Up 9:00 Time Down 2:00
 Lat/Lon; UTM: N/E 41.18653 W/N 82.84462 Zone — Datum NAD83 Observers Eric Smith
Rebecca Radcliff



COPPERHEAD ENVIRONMENTAL

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	9:10	EPFU	A	M	S	17	44	B	2	0	—	—	—
2	11:30	LABO	J	F	NR	11	41	C	2	0	—	—	—
3	1:00	LABO	J	F	NR	11	40	C	1	0	—	—	—
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
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21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

Moon Phase	%	Wax / Wane
	Rise	Set
Sun	0622	8:51
Moon	1916	0431

Time	Temp (F)	Sky	Wind	No. Bats
9:00	80	1	1	1
10:00	78	1	1	0
11:00	78	2	2	1
12:00	78	1	2	0
1:00	76	0	2	0
2:00	74	0	2	0

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Netting Data Form

Site No. 6 Project No./Name 412 / Emerson Creek Date 7/31/15
 Site Location Woodlot South of CR 410
 County Seneca State OH Time Up 8:30 Time Down 1:55
 Lat/Lon ; UTM: N/E 41.18653 W/N 72.74962 Zone — Datum NAD83 Observers Eric Smith

COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	9:05	ERFU	A	M	S	7	44	B	2				
2	10:00	LABO	J	M	NR	9	37	C	4				
3	12:30	LABO	J	F	NR	11	40	B	4				
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
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17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

Moon Phase	%	Wax / Wane
	Rise	Set
Sun		8:44
Moon		

Time	Temp (F)	Sky	Wind	No. Bats
9:00	78	1	2	1
10:00	75	0	2	1
11:00	71	0	2	0
12:00	71	1	2	1
1:00	71	1	2	0
2:00	68	1	2	0

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

Comments: _____

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Net Site Habitat Sheet

Site No. 6Project No./Name 412 / Emerson CreekDate 7-29-15Lat/Lon ; UTM: N 41.18653W 92.84962Zone 18Observers Eric SmithDatum: NAD83 County SenecaState OH Quad Flat Rock

Site Diagram:

Net	Height (m)	Length (m)	Dates
A	6	6	7/29, 7/31
B	9	9	7/29, 7/31
C	6	6	7/29, 7/31
D	6	6	7/29, 7/31
E			
F			

Site Photographs

Camera: _____

Photo Log: _____

Dominant Vegetation

1. <u>Red Maple</u>	4. _____
2. <u>Shagbark</u>	5. _____
3. <u>Elm</u>	6. _____

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream						
Pond						
Corridor	X	X	X	X		
Cave						
Mine						
Forest						
Gap						
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

3 **Roost habitat:** 1. Poor: No or few snags ≥ 5 " DBH with sloughing bark or other usable roost features (cracks, crevices, etc)

2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.

3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.1 **Water Resources:** 1. Poor: bat drinking resources not present at the site.

2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.

3. Optimal: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.

2 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).

1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging

2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.

3. Optimal: Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.2 **Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.

2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.

3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

8 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012



COPPERHEAD

Mist Netting Data Form

Sheet 1 of

Site No. 2 Project No./Name 412 / EMERSON CREEK Date 7/26/15
 Site Location STREAM OFF OF 136
 County SENECA State OH Time Up 8:55 Time Down 2:00
 Lat/Lon; UTM: N/E 41.17072 W/N -82.89307 Zone Datum NAD83 Observers MTM, RRR



#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	9:10	LABO	A	F	PL	14	41	C	3	0	—	—	—
2	9:45	EPFU	A	F	PL	17	47	D	2	0	—	—	—
3	10:30	EPFU	A	F	PL	20	49	B	2	0	—	—	—
4	11:30	EPFU	A	F	PL	20	50	C	9	0	—	—	—
5	11:45	EPFU	A	F	PL	21	47	B	1	0	—	—	—
6	1:40	EPFU	A	F	PL	17	48	C	8	0	—	—	—
7													
8													
9													
10													
11													
12													
13													
14													
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23													
24													
25													
26													
27													
28													
29													
30													

Moon Phase 50 % (Wax) / Wane

	Rise	Set
Sun	0621	9:00
Moon	1632	0246

Time	Temp (F)	Sky	Wind	No. Bats
9:00	73	3	1	2
10:00	71	3	1	1
11:00	70	3	1	2
12:00	69	2	1	0
1:00	66	2	1	1
2:00	66	2	1	0

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Netting Data Form

Site No. 8 Project No./Name 412 / EMERSON CREEK Date 7-29-15
 Site Location STREAM OF 136
 County SENECA State OHIO Time Up 8:50 Time Down 2:00
 Lat/Lon; UTM: N/E 41.17072 W/N -82.89307 Zone 18 Datum NAD83 Observers MTM, TAB

COPPERHEAD
IMPROVING THE WORLD

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	10:50	EPFW	A	M	S	20	46	C	1.5	0	—	—	—
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
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19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

Moon Phase % Wax / Wane

	Rise	Set
Sun	0622	2052
Moon	1914	0431

Time	Temp (F)	Sky	Wind	No. Bats
9:00	81	2	0	0
10:00	79	2	1	1
11:00	77	1	1	0
12:00	77	0	2	0
1:00	76	0	2	0

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

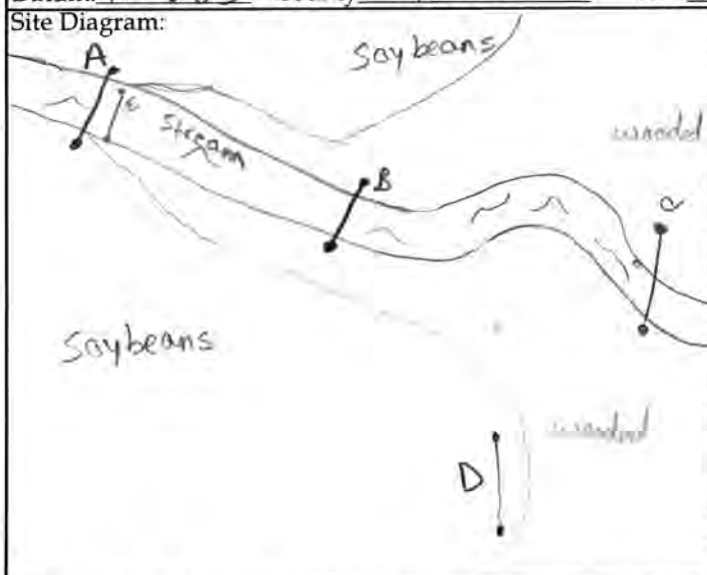
Comments:

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Net Site Habitat Sheet

Site No. 8Project No./Name 412 / EMERSON CREEKDate 7/26/15Lat/Lon; UTM: N/E 41.17072W/N -82.89307Zone 18Observers MTM, RRRDatum: NAD83 County SenecaState OH Quad Fireside

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	6	6	7-26
B	6	6	7-26 7-29
C	9	9	7-26 7-29
D	6	6	7-26 7-29
E	6	4m	7-29
F			

Site Photographs

Camera: _____

Photo Log: _____

Dominant Vegetation

1. RED OAK	4. BEECH
2. RED MAPLE	5. ELM
3. COTTON WOOD	6. _____

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream	✓	✓	✓			
Pond						
Corridor						
Cave						
Mine						
Forest				✓		
Gap						
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

3 **Roost habitat:** 1. Poor: No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)

2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.

3 3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.**Water Resources:** 1. Poor: bat drinking resources not present at the site.

2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.

3 3. Optimal: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.**Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).

1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging

2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.

3. Optimal: Mature forest. Diverse age classes of trees present. Trees >15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.2 **Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.

2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.

3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

11 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012



Mist Netting Data Form

Sheet of

Site No. 9 Project No./Name 412 / Emerald Creek Date 7-26-15
 Site Location Woodlot south of E township road 124
 County Seneca State OH Time Up 9:00 Time Down 2:00
 Lat/Lon; UTM: N1E 41.14356 WYN 82.92948 Zone Datum NAD83 Observers ES, TAB

COPPERHEAD
HERPETOLOGICAL - CHESTER, OH

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	9:20	EPFU	A	M	PD	15.5	44	D	5	0	—	—	—
2	11:00	EPFU	S	F	NR	15	45	D	5	0	—	—	—
3	12:30	LABO	A	F	PL	13	41	D	3	0	—	—	—
4													
5													
6													
7													
8													
9													
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27													
28													
29													
30													

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Moon Phase	%	Wax / Wane
	Rise	Set
Sun	0621	2058
Moon	1638	0246

Time	Temp (F)	Sky	Wind	No. Bats
9:00	75	3	1	1
10:00	72	3	1	0
11:00	70	3	0	1
12:00	67	3	0	1
1:00	66	2	0	0
2:00	64	2	0	0

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Netting Data Form

Site No. #9 Project No./Name 412 / Emerson Creek Date 7/28/2015
 Site Location Woodlot south of E Township Road 124
 County Seneca State OH Time Up 9:00 PM Time Down 2:00 AM
 Lat/Lon; UTM: N/E 41.4756 W/N 82.92948 Zone 18 Datum NAD83 Observers ES, TAB



COPPERHEAD

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	9:00	LABO	Escape					A	4		—	—	—
2	9:10	LABO	A	F	PL	13	40	A	3	0	—	—	—
3	9:20	LABO	J	F	NR	9	38	A	3	0	—	—	—
4	9:50	EPFU	A	M	TD	17.5	48	D	2	0	—	—	—
5	10:00	EPFU	A	F	PL	20.5	49	D	5.5	0	—	—	—
6	10:00	EPFU	A	M	TD	15	46	D	3.5	0	—	—	—
7	10:45	EPFU	A	F	PL	20	48	D	5	0	—	—	—
8	11:30	EPFU	J	F	NR	14	45	D	4	0	—	—	—
9	11:30	EPFU	J	M	NR	13	44	D	1.5	0	—	—	—
10	12:50	EPFU	Escaped					D	4		—	—	—
11	12:50	LABO	J	F	NR	9.5	39	D	3	0	—	—	—
12													
13													
14													
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28													
29													
30													

Moon Phase % Wax / Wane

	Rise	Set
Sun	0623	8:55
Moon	1827	0356

Time	Temp (F)	Sky	Wind	No. Bats
9:00	79	1	1	4
10:00	77	1	1	3
11:00	75	2	1	2
12:00	73	1	1	2
1:00	72	1	1	0
2:00	70	1	1	0

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____
 Date _____ Start time _____ Stop time _____
 Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

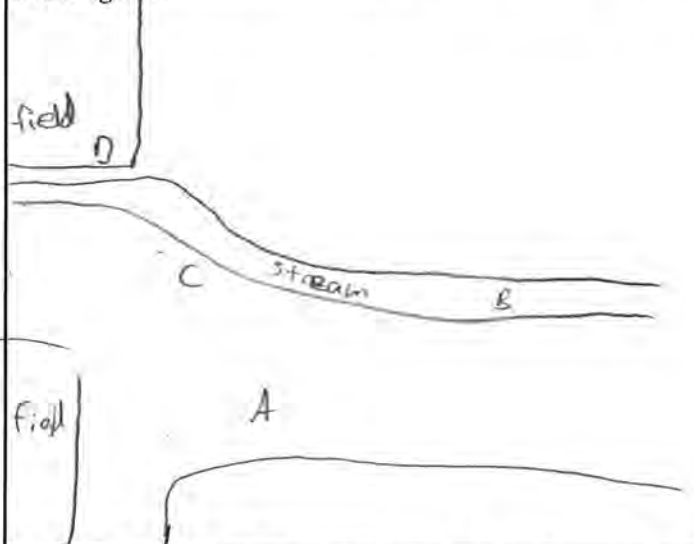
Comments: _____

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Net Site Habitat Sheet

Site No. 9Project No./Name 412 / Emerson CreekDate 7/26/157/28/15Lat/Lon: UTM: N/E 41, 14356 W/N 8292948Zone —Observers ESmithDatum: NAD83County SenecaState OHQuad Fire Side

Site Diagram:



Net	Height (m)	Length (m)	Dates
A		9	
B		6	
C		6	
D		12	
E			
F			

Site Photographs
 Camera: _____
 Photo Log: _____

Dominant Vegetation			
1. <u>Red maple</u>	4. <u>Red oak</u>		
2. <u>Shag bark</u>	5. _____		
3. <u>Elm</u>	6. _____		

Net Set by Habitat						
Habitat	A	B	C	D	E	F
River						
Stream		X				
Pond						
Corridor			X	X		
Cave						
Mine						
Forest	X					
Gap						
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

- 2 **Roost habitat:** 1. **Poor:** No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
 2. **Moderate:** Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
 3. **Optimal:** Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.
- 2 **Water Resources:** 1. **Poor:** bat drinking resources not present at the site.
 2. **Moderate:** Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
 3. **Optimal:** Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.
- 1 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
 1. **Poor:** Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
 2. **Moderate:** some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
 3. **Optimal:** Mature forest. Diverse age classes of trees present. Trees >15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.
- 1 **Land Cover:** 1. **Poor:** Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
 2. **Marginal:** Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
 3. **Optimal:** Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

6 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012



Mist Netting Data Form

Sheet 1 of 2

Site No. 10 Project No./Name 4/2.01 / Emerson Creek Date 7/25/15
 Site Location Forest gap; logging road; pond in forest
 County Seneca State OH Time Up 9:00 Time Down 2:00 am
 Lat/Lon; UTM: N/E 41.15312 W/N 82.92622 Zone 18 Datum NAD83 Observers J. Storm, J. Klinger

COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	9:20	EPFU	JV	M	NR	11	46	A	3.0	0	na	na	na
2	9:26	EPFU	JV	M	NR	11.25	45	A	5.0	0	na	na	na
3	10:00	LABO	JV	M	NR	6.5	39	D	0.5	0	na	na	na
4	10:00	EPFU	JV	M	NR	8.75	41	A	3.0	0	na	na	na
5	10:00	EPFU	JV	M	NR	13.00	44	A	3.0	0	na	na	-
6	10:00	EPFU	A	F	PL	17.75	47	A	3.0	0	na	na	-
7	10:00	EPFU	A	F	PL	20.5	49	A	5.0	0	na	-	-
8	10:00	EPFU	JV	M	NR	14.5	46	A	6.0	0	na	-	-
9	10:00	EPFU	A	F	PL	16.75	48	A	5.0	0	na	-	-
10	10:40	LABO	JV	F	NR	8.0	41	A	2.0	0	-	-	-
11	10:40	EPFU	A	M	S	16.0	44	A	7.0	0	-	-	-
12	10:40	EPFU	A	M	S	16.5	45	A	6.0	0	-	-	-
13	10:40	EPFU	A	F	PL	20.0	47	A	4.0	0	-	-	-
14	11:15	EPFU	JV	F	NR	13.0	46	A	3.0	0	-	-	-
15	11:50	EPFU	A	M	S	19.5	45	A	3.0	0	-	-	-
16	11:50	EPFU	JV	M	NR	14.0	49	A	3.0	0	-	-	-
17	11:50	EPFU	A	F	PL	20.25	48	A	5.5	0	-	-	-
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

Moon Phase	%	Wax / Wane
	68.1	
	Rise	Set
Sun	6:20 am	8:57 pm
Moon	3:34 pm	1:26 am

Time	Temp (F)	Sky	Wind	No. Bats
9:00	73.0	1	2	2
10:00	70.5	0	1	11
11:00	69.8	1	1	4
12:00	69.4	1	1	0
1:00	70.3	1	0	0
2:00	70.1	1	3	1

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

p. 1

Species Abbreviations: *Corynorhinus rafinesquii* (CORA); *Corynorhinus t. virginianus* (COVI); *Eptesicus fuscus* (EPFU); *Lasiurus borealis* (LABO); *Lasiurus cinereus* (LACI); *Lasiurus seminolus* (LASE); *Lasionycteris noctivagans* (LANO); *Myotis austroriparius* (MYAU); *Myotis grisescens* (MYGR); *Myotis leibii* (MYLE); *Myotis lucifugus* (MYLU); *Myotis septentrionalis* (MYSE); *Myotis sodalis* (MYSO); *Nycticeius humeralis* (NYHU); *Perimyotis subflavus* (PESU); *Tadarida brasiliensis* (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Mist Netting Data Form

Site No. 10 Project No./Name 412.01 / Emerson Creek Date 7/30/15
 Site Location Forest gap; logging road; pond in forest
 County Seneca State OH Time Up 8:50 Time Down 1:50
 Lat/Lon ; UTM: N/E 41.15312 WYN -82.92621 Zone 18 Datum NAD83 Observers J. Storm, M. Newton

COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	9:05	LABO			Escaped from Net								
2	9:30	EPFU	JV	M	NR	11.75	47mm	A	6	0	—	—	—
3	9:30	EPFU	JV	F	NR	11	46mm	A	6	1	—	—	—
4	9:30	EPFU	A	F	PL	16	40mm	A	4	0	—	—	—
5	9:30	EPFU	A	M	TD	14.5	47mm	A	2	0	—	—	—
6	9:30	EPFU	JV	M	NR	10.25	44mm	A	2	0	—	—	—
7	9:50	EPFU	A	F	L	17	47mm	D	1.5	0	—	—	—
8	10:30	LABO	JV	F	NR	9	38mm	A	3.5	0	—	—	—
9	10:30	LACI	JV	M	NR	11.25	49mm	A	3	0	—	—	—
10	10:30	EPFU	JV	F	NR	16.5	48mm	A	4	0	—	—	—
11	10:30	EPFU	A	M	TD	16.25	45mm	A	2	0	—	—	—
12	10:40	LABO	JV	F	NR	9.25	39mm	A	2	0	—	—	—
13	10:40	EPFU	A	F	L	21	48mm	C	4.5	1	—	—	—
14	10:40	EPFU	JV	M	NR	8.25	39mm	A	3	0	—	—	—
15	11:15	EPFU	JV	F	NR	13.5	45mm	A	1	0	—	—	—
16	1:50	LABO	JV	F	NR	9.75	42mm	A	2	0	—	—	—
17													
18													
19													
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22													
23													
24													
25													
26													
27													
28													
29													
30													

Moon Phase	%	97.6	Wax / Wane
	Rise		Set
Sun	6:25 am		8:51 pm
Moon	8:10 pm		5:35 am

Time	Temp (F)	Sky	Wind	No. Bats
8:30 PM	74.1	0	3	14
9:00 PM	68.5	0	2	—
9:00	—	0	3	7
10:00	74.1	0	3	8
11:00	68.5	0	2	1
12:00	64.9	0	1	0
1:00	63.1	0	2	1
2:00	62.8	0	1	—

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____
 Date _____ Start time _____ Stop time _____
 Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

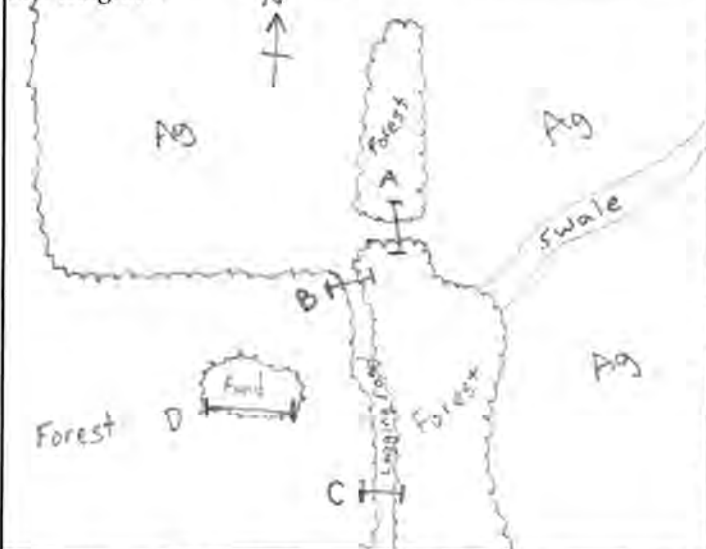
Comments:

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Net Site Habitat Sheet

Site No. 10Project No./Name 412, Emerson CreekDate 7/25/15Lat/Lon; UTM: N/E 41.15312 W/N -82.92621Zone 18Observers J. Starn, T. K. CooperDatum: NAD83 County Scheneca State OH Quad

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	7.8	9	7/25 + 7/30
B	5.2	6	7/25 + 7/30
C	5.2	6	7/25 + 7/30
D	5.2	6	7/25 + 7/30
E			
F			

Site Photographs
 Camera: _____
 Photo Log: _____

Dominant Vegetation					
1. Red Maple	4. Slippery Elm				
2. Red-barked Pine	5. Red-barked Swamp White oak				
3. Shagbark Hickory	6. Silver Maple				

Net Set by Habitat						
Habitat	A	B	C	D	E	F
River						
Stream						
Pond				X		
Corridor	X	X	X			
Cave						
Mine						
Forest						
Gap	X					
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

- 2 **Roost habitat:** 1. Poor: No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
 2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
 3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.
- 2 **Water Resources:** 1. Poor: bat drinking resources not present at the site.
 2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
 3. Optimal: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.
- 3 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
 1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
 2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
 3. Optimal: Mature forest. Diverse age classes of trees present. Trees >15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.
- 2 **Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
 2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
 3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

9 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012



Mist Netting Data Form

Sheet _____ of _____

Site No. 11 Project No./Name 412 / EMERSON CREEK Date 7-23-15
 Site Location CR 122
 County Seneca State OH Time Up 8:00 Time Down 2:20
 Lat/Lon; UTM: N/E 41.13920 W/N 82.99223 Zone 18 Datum NAD83 Observers MTM, RRR

COPPERHEAD
ENVIRONMENTAL SOLUTIONS

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	10:20	EPFU	A	F	L	18	46	2	7	0	—	—	—
2	1:10	EPFU	A	M	S	16.5	43	2	5	0	—	—	—
3													
4													
5													
6													
7													
8													
9													
10													
11													
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28													
29													
30													

Moon Phase <u>50 %</u> (Wax) Wane		
	Rise	Set
Sun	<u>0612</u>	<u>2052</u>
Moon	<u>1328</u>	<u>0045</u>

Time	Temp (F)	Sky	Wind	No. Bats
9:00	75	0	0	0
10:00	73	0	0	1
11:00	70	0	0	0
12:00	68	0	1	0
1:00	66	0	2	1
2:00	65	0	2	0

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Netting Data Form

Site No. 11 Project No./Name 412 / EMERSON CR Date 7/27/15
 Site Location CR 122
 County Seneca State OH Time Up 8:45 Time Down _____
 Lat/Lon ; UTM: N/E _____ W/N _____ Zone _____ Datum _____ Observers MTM, RRR

COPPERHEAD
ENVIRONMENTAL LABORATORIES

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	9:40	LABO	A	M	S	14	37	B	2	0	—	—	—
2	9:40	EPFU	J	F	NR	19	46	B	4	1	—	—	—
3	10:20	EPFU	A	M	S	22	51	B	4	0	—	—	—
4	11:30	EPFU	A	M	S	22.5	49	B	5	0	—	—	—
5													
6													
7													
8													
9													
10													
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12													
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23													
24													
25													
26													
27													
28													
29													
30													

Moon Phase SD % Wax / Wane

	Rise	Set
Sun	<u>0622</u>	<u>8:55</u>
Moon	<u>1731</u>	<u>0246</u>

Time	Temp (F)	Sky	Wind	No. Bats
9:00	76	1	1	2
10:00	75	1	1	1
11:00	73	1	1	1
12:00	72	1	1	0
1:00	71	0	1	0
2:00	68	0	1	0

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

Comments:

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Net Site Habitat Sheet

Site No. 11

Project No./Name 412 / EMERSON CREEK

Date 7-23-15

Lat/Lon ; UTM: N/E 41.13920

W/N 82.99223

Zone.

Observers MTM, RRR

Datum: _____ County Sebec

State OH Quad Fireside

Site Diagram;

Net	Height (m)	Length (m)	Dates
A	6	6	7/23/15 7-27
B	9	9	7/23/15 7-27
C	6	6	7/23/15 7-27
D	6	6	7/23/15 7-27

Dominant Vegetation	
1. COTTONWOOD	4. ELM
2. RED MAPLE	5. WALNUT
3. RED OAK	6.

E			
F			

Net Set by Habitat	
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
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84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Habitat	A	B	C	D	E	F
River						
Stream				✓		
Pond						
Corridor	✓	✓	✓			
Cave						
Mine						
Forest						
Gap						
Other						

Site Photographs

Camera: _____

Photo Log: _____

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

3 Roost habitat: 1. Poor: No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)

2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.

3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.

2 **Water Resources:** 1. Poor: bat drinking resources not present at the site.

2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.

3. **Optimal:** Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.

3 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).

1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging

2. **Moderate:** some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.

3. Optimal: Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.

2 **Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.

2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.

3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

10 **Total Habitat Score** (Should be between 4 & 12)

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012



COPPERHEAD

Mist Netting Data Form

Sheet 1 of 2

Site No. 13 Project No./Name 4/2,01 / Emerson Creek Date 7/26/15
 Site Location Woodlot logging road & stream
 County Seneca State OH Time Up 8:55 Time Down 1:55
 Lat/Lon; UTM: N/E 41.17809 W/N 82.89062 Zone 18 Datum NAD83 Observers J. Storm, J. Klingler



#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	130	MYSE	A	F	L	7.0	35	B	2	0	N B	ODNR 17179	17179
2	130	MYSE	A	F	L	7.5	36	B	3.5	0	B	17178	17178
3													
4													
5													
6													
7													
8													
9													
10													
11													
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27													
28													
29													
30													

Moon Phase	%	77.5	Wax	Wane
	Rise		Set	
Sun	6:21		8:56	
Moon	4:32 pm		2:46 am	

Time	Temp (F)	Sky	Wind	No. Bats
9:00	71.2	2	1	0
10:00	68.3	2	1	0
11:00	67.2	3	1	0
12:00	65.3	2	1	0
1:00	63.8	2	1	2
2:00	62.2	2	1	-

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

*ODNR 17179

Mist Netting Data Form

Site No. 13 Project No./Name 412 / Emerson Creek Date 7/28/15
 Site Location woodlot logging road & stream
 County Seneca State OH Time Up 8:55 Time Down 1:55
 Lat/Lon; UTM: N/E 41.17809 W/N 82.89062 Zone — Datum NAD83 Observers J. Storm, J. Winger

COPPERHEAD
HERPETOLOGICAL CONSULTANTS

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
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19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

No BATS

Moon Phase	% <u>92.8</u>	<u>Wax</u> / Wane
	Rise	Set
Sun	<u>6:23</u>	<u>8:54</u>
Moon	<u>6:27 pm</u>	<u>3:56 am</u>

Time	Temp (F)	Sky	Wind	No. Bats
9:00	<u>68.5</u>	<u>0</u>	<u>1</u>	<u>0</u>
10:00	<u>67.5</u>	<u>0</u>	<u>2</u>	<u>0</u>
11:00	<u>66.7</u>	<u>1</u>	<u>2</u>	<u>0</u>
12:00	<u>65.4</u>	<u>0</u>	<u>1</u>	<u>0</u>
1:00	<u>65.3</u>	<u>0</u>	<u>1</u>	<u>0</u>
2:00	<u>64.5</u>	<u>0</u>	<u>1</u>	<u>-</u>

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Coordinates _____

Weatherproofing _____

Comments: _____

Please Return to:

P.O. Box 73, Paint Lick, KY, 40461.

(859) 925-9012

Mist Net Site Habitat Sheet

Site No. 13Project No./Name 412 / Emerson CreekDate 7/26/15Lat/Lon; UTM: N/E 41, 17809W/N 82, 89062Zone —Observers J. Storm; J. KlingerDatum: NAD83County SenecaState OHQuad Fireside

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	6.2	10	7/26+7/28
B	4.8	9	7/26+7/28
C	5.2	6	7/26+7/28
D	5.2	10	7/26+7/28
E			
F			

Site Photographs

Camera: _____

Photo Log: _____

Dominant Vegetation

1. <u>Striped elm</u>	4. <u>Green ash</u>
2. <u>American elm</u>	5. <u> </u>
3. <u>Hackberry</u>	6. <u> </u>

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream				X		
Pond						
Corridor	X	X	X			
Cave						
Mine						
Forest						
Gap		X				
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

3 **Roost habitat:** 1. Poor: No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)

2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.

3 3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.**Water Resources:** 1. Poor: bat drinking resources not present at the site.

2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.

3 3. Optimal: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.**Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).

1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging

2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.

2 3. Optimal: Mature forest. Diverse age classes of trees present. Trees >15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.**Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.

2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.

11 3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.**Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

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859-925-9012

COPPERHEAD
ENVIRONMENTAL CONSULTANTS

Mist Netting Data Form

Sheet 1 of 2

Site No. 16 Project No./Name 412.01 / Emerson Creek Date 7-23-15
 Site Location Pond in wood lot West of CR-18 and South of East county Rd 24
 County Saline State OH Time Up 0900pm Time Down 0200am
 Lat/Lon: UTM: N/E 41.157652 W/N -82.989259 Zone Datum Observers B. Renley / R. McGee



#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	9:30	EPFU	Escaped	wh:la	lowering net	B	3	—	—	—	—	—	—
2	9:40	EPFU	A	F	PL	12.5	44	A	2	0	N/A	N/A	N/A
3	9:50	EPFU	A	F	PL	19.35	47	D	2	0	N/A	N/A	N/A
4	10:20	EPFU	J	M	NPL	9.75	43	A	5	0	N/A	N/A	N/A
5	10:40	EPFU	A	F	PL	19.0	47	A	6	1	N/A	N/A	N/A
6	11:00	EPFU	J	F	NPL	15.0	46	A	7	0	N/A	N/A	N/A
7	11:20	EPFU	A	F	PL	22.0	49	A	6	0	N/A	N/A	N/A
8													
9													
10													
11													
12													
13													
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25													
26													
27													
28													
29													
30													

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Moon Phase 49 % Wax / Wane

	Rise	Set
Sun	<u>6:12</u>	<u>20:52</u>
Moon	<u>13:28</u>	<u>00:45</u>

Time	Temp (F)	Sky	Wind	No. Bats
<u>0900</u>	<u>74</u>	<u>1</u>	<u>0</u>	<u>N/A</u>
<u>1000</u>	<u>68</u>	<u>0</u>	<u>0</u>	<u>3</u>
<u>1100</u>	<u>63</u>	<u>0</u>	<u>0</u>	<u>3</u>
<u>1200</u>	<u>60</u>	<u>0</u>	<u>0</u>	<u>1</u>
<u>0100</u>	<u>61</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>0200</u>	<u>61</u>	<u>0</u>	<u>0</u>	<u>0</u>

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Netting Data Form

Site No. 16 Project No./Name 412.01 / Emerson Creek Date 7-27-15
 Site Location Pond in wood lot west of CR18 + south of East County Rd 24
 County Seneca State OH Time Up 8:55 Time Down 01:55
 Lat/Lon ; UTM: N/E 41157652 W/N -82.989259 Zone — Datum NAD83 Observers B. Renley / R. McGee

COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	10:00	EPFU	A	F	PL	16.5	46	A	3	0	N/A	N/A	N/A
2	10:00	EPFU	A	M	NR	16.0	45	A	3	0	N/A	N/A	N/A
3	10:00	EPFU	A	F	PL	18.5	48	A	4	0	N/A	N/A	N/A
4	10:30	EPFU	J	M	NR	13.5	46	A	2.5	0	N/A	N/A	N/A
5	11:00	EPFU	J	M	NR	15.0	45	C	1.5	0	N/A	N/A	N/A
6	11:50	EPFU	A	M	NR	14.0	46	A	2	0	N/A	N/A	N/A
7	12:40	LABO	J	F	NR	9.0	41	C	1.5	0	N/A	N/A	N/A
8													
9													
10													
11													
12													
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27													
28													
29													
30													

Moon Phase	%	86	Wax / Wane
	Rise		Set
Sun	6:22 AM		8:55 PM
Moon	5:31 PM		2:46 AM

Time	Temp (F)	Sky	Wind	No. Bats
900	77	0	0	N/A
1000	74	1	0	0
1100	73	1	0	4
1200	71	0	0	2
100	70	0	0	1
200	69	0	0	

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

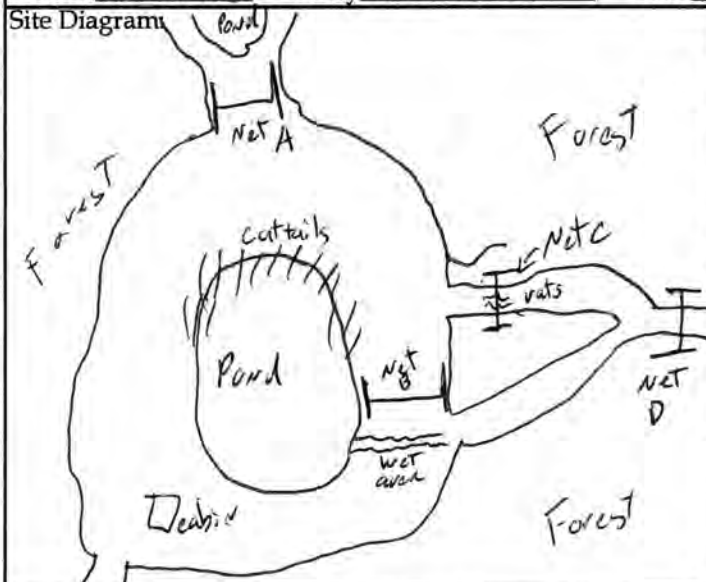
Comments:

Please Return to:
P.O. Box 73, Paint Lick, KY, 40461.
(859) 925-9012

Mist Net Site Habitat Sheet

Site No. 16Project No./Name 4/201 Emerson CreekDate 7-23-15Lat/Lon: UTM: (N)E 41.157652 (W)N -82.989259Zone Observers B. Renley / R. McGregorDatum: NAD83 County Seneca State OH Quad Fireside

Site Diagram



Net	Height (m)	Length (m)	Dates
A	7.8	9	7/23/15 + 7/27
B	5.2	12	7/23/15 + 7/27
C	5.2	6	7/23/15 + 7/27
D	5.2	6	7/23/15 + 7/27
E			
F			

Site Photographs

Camera: Photo Log: Downloaded to google drive site 16

Dominant Vegetation

1. Sugar maple	4. Red Oak
2. Shagbark Hickory	5. <u></u>
3. Oak - white	6. <u></u>

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream						
Pond		✓				
Corridor	✓		✓	✓		
Cave						
Mine						
Forest						
Gap						
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

3**Roost habitat:** 1. Poor: No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)

2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.

3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.3**Water Resources:** 1. Poor: bat drinking resources not present at the site.

2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.

3. Optimal: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.

3**Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).

1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging

2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.

3. Optimal: Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.2**Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.

2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.

3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

211**Total Habitat Score** (Should be between 4 & 12)Comments: Several shagbark hickories observed in woods surrounding Pond.

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012



Mist Netting Data Form

Sheet 1 of 2

Site No. 24 Project No./Name 412 / Emerson Creek Date 7/29/15
 Site Location Logging road through woodlot; Open water of emergent wetland
 County Seneca State OH Time Up 8:55 Time Down 1:55
 Lat/Lon; UTM: N/E 41.17804 W/N -82.88861 Zone — Datum NAD83 Observers J. Storm, M. Newton



#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	10:30	EPFU	JV	M	NR	10g	46mm	D	3	0	—	—	—
2	10:30	EPFU	JV	F	NR	12.25	46mm	D	5	0	—	—	—
3	11:10	EPFU	JV	M	NR	13.5	44mm	D	4	0	—	—	—
4	12:50	EPFU	JV	M	NR	15	48mm	D	1	0	—	—	—
5													
6													
7													
8													
9													
10													
11													
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23													
24													
25													
26													
27													
28													
29													
30													

Moon Phase	% <u>99.5</u>	<input checked="" type="checkbox"/> Wax / <input type="checkbox"/> Wane
	Rise	Set
Sun	<u>6:24 am</u>	<u>8:53 pm</u>
Moon	<u>8:07 pm</u>	<u>6:42 am</u>

Time	Temp (F)	Sky	Wind	No. Bats
9:00	78.0	3	1	0
10:00	75.9	2	1	2
11:00	74.1	1	2	1
12:00	73.2	0	3	1
2:00	69.7	1	2	—

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasiorycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Netting Data Form

Site No. 24 Project No./Name 412 / Emerson Creek Date 7/31/15
 Site Location Logging road through woodlot; open water of emergent wetland
 County Seneca State OH Time Up 8:50 Time Down 1:50
 Lat/Lon; UTM: N/E 41.17804 W/N 82.88861 Zone 18 Datum NAD83 Observers J. Storm, M. Newton

COPPERHEAD
PHYSIOLOGICAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	10:20	EPEU	A	M	SS	19	48mm	B	2.5	0	---	---	---
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
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28													
29													
30													

Moon Phase	% <u>99.6</u>	Wax / <u>Wane</u>
	Rise	Set
Sun	<u>6:25 am</u>	<u>8:51 pm</u>
Moon	<u>9:23 pm</u>	<u>9:10 am</u>

Time	Temp (F)	Sky	Wind	No. Bats
9:00	---	0	2	0
10:00	68.0	0	2	1
11:00	67.4	1	2	0
12:00	67.2	1	2	0
1:00	63.4	0	2	0
2:00	62.6	0	2	---

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

Comments:

Please Return to:
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 (859) 925-9012

Mist Net Site Habitat Sheet

Site No. 24

Project No./Name

412, Emerson Creek

Date

7/29/15

Lat/Lon; UTM: N/E

41.17804

W/N

-82.88861

Zone

Observers

J. Storm; M. NewtonDatum: NAD83

County

Seneca

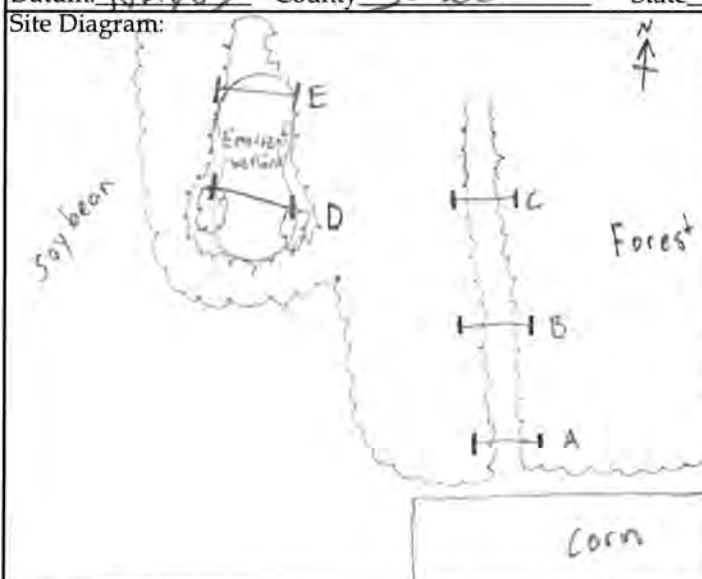
State

OH

Quad

Fireside

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	5.2	10	7/29 + 7/31
B	5.2	10	7/29 + 7/31
C	5.2	10	7/29
D	7.8	9	7/29 + 7/31
E	5.2	9	7/31
F			

Site Photographs

Camera:

Photo Log:

Dominant Vegetation

1. shellbark hickory	4. red maple
2. black cherry	5. red oak
3. shagbark elm	6. pin oak

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream						
Pond						
Corridor	X	X	X			
Cave						
Mine						
Forest						
Gap						
Other emergent wetland				X	X	

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

- 3 **Roost habitat:** 1. Poor: No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.
- 3 **Water Resources:** 1. Poor: bat drinking resources not present at the site.
2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
3. Optimal: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.
- 3 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
3. Optimal: Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.
- 2 **Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

11 **Total Habitat Score** (Should be between 4 & 12)

Comments:

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859-925-9012



COPPERHEAD

Mist Netting Data Form

Site No. 36 Project No./Name 412 / Emerson Creek Date 29-July-2015
 Site Location Woodlot South of County Rd. 24
 County Sevier State OH Time Up 2050 Time Down 0153
 Lat/Lon; UTM: N/E 41.15548 W/N 83.00470 Zone NA Datum NAD83 Observers P. Sewell



#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2150	EPFU	A	M	NR	17.5	44	B	2	0	—	—	—
2	0110	EPFU	A	M	NR	17.5	48	D	3	1	—	—	—
3													
4													
5													
6													
7													
8													
9													
10													
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Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

Comments:

Moon Phase 95 % Wax / Wane

	Rise	Set
Sun	<u>0623</u>	<u>2053</u>
Moon	<u>1916</u>	<u>0432</u>

Time	Temp (F)	Sky	Wind	No. Bats
<u>2100</u>	<u>82</u>	<u>3</u>	<u>0</u>	<u>1</u>
<u>2200</u>	<u>76</u>	<u>2</u>	<u>1</u>	<u>0</u>
<u>2300</u>	<u>74</u>	<u>2</u>	<u>0</u>	<u>0</u>
<u>0000</u>	<u>73</u>	<u>2</u>	<u>1</u>	<u>0</u>
<u>0100</u>	<u>72</u>	<u>2</u>	<u>2</u>	<u>1</u>
<u>0200</u>	<u>70</u>	<u>1</u>	<u>1</u>	<u>0</u>

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Please Return to:
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 (859) 925-9012

Mist Netting Data Form

Sheet 1 of 1

Site No. 36 Project No./Name 412 / Enoson Creek Date 7/31/15
 Site Location Wood lot South of Route 11.24
 County Scraper State OH Time Up 2045 Time Down 0155
 Lat/Lon: UTM: N/E 41.15548 W/N 83.00470 Zone — Datum NAD83 Observers F. Scull
A. Ashmoe

COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2130	EPFU	J	F	NR	12.25	46	F	5.5	0	—	—	—
2	2130	EPFU	J	M	NR	15	46	E	4	0	—	—	—
3	2130	EPFU	A	M	S	19.25	61	E	2	0	—	—	—
4	2145	EPFU	J	A	NR	14.5	49	E	—	0	—	—	—
5	2145	EPFU	J	F	NR	13.5	47	E	—	0	—	—	—
6	2145	EPFU	J	F	NR	15.0	49	—	—	0	—	—	—
7	2148	EPFU	A	F	PL	18.75	47	D	2	0	—	—	—
8	2151	EPFU	J	M	NR	13	47	F	5	1	—	—	—
9	2153	EPFU	J	M	NR	10.75	44	E	4	0	—	—	—
10	2155	EPFU	J	F	NR	14.5	45	F	5	0	—	—	—
11	2145	EPFU	A	F	PL	21.75	50	E	—	0	—	—	—
12	0110	LABO	J	F	NR	12.25	44	E	5	0	—	—	—
13													
14													
15													
16													
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28													
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30													

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Moon Phase <u>100</u> % <u>Wax / Wane</u>		
	Rise	Set
Sun	<u>0626</u>	<u>2050</u>
Moon	<u>2132</u>	<u>0754</u>

Time	Temp (F)	Sky	Wind	No. Bats
2100		3	0	8
2200		1	1	3
2300		1	0	0
0000	66	2	1	0
0100	65	2	1	1
0200	64	0	1	—

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Please Return to:
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 (859) 925-9012

Mist Netting Data Form

Sheet of

Site No. 1 Project No./Name 501 / Emerson West Date 11 July 2016
 Site Location Sugar Creek and adjacent ag. field north of CR39
 County Seneca State OH Time Up 2106 Time Down 0206
 Lat/Lon; UTM: N/E 41.16944 N/N 83.64229 Zone — Datum NAD83 Observers T. Culbertson, A. Hawkins

COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	21:44	EPFU	A	M	NR	14.5	44	D	5.5	0	Ø	Ø	Ø
2	22:53	EPFU	J	M	NR	13.25	45	E	3	0	Ø	Ø	Ø
3	00:31	EPFU	A	F	L	20.5	45	D	3.5	0	Ø	Ø	Ø
4	01:05	EPFU	J	F	NR	13.5	46	E	3	0	Ø	Ø	Ø
5	01:40	EPFU	J	M	NR	13.25	45	D	6.5	0	Ø	Ø	Ø
6													
7													
8													
9													
10													
11													
12													
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30													

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Moon Phase	% <u>40</u>	<u>Wax</u> / <u>Wane</u>
	Rise	Set
Sun	<u>0609</u>	<u>2106</u>
Moon	<u>1331</u>	<u>0059</u>

Time	Temp (F)	Sky	Wind	No. Bats
2106	73	0	0	1
2206	68	0	0	1
2306	66	0	0	0
0006	72	0	2	1
0106	72	0	2	2
0206	71	0	2	0

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Netting Data Form

Site No. 1 Project No./Name S01 / Emerson West Date 19 July 2016
 Site Location Sugar Creek and adjacent Ag. Field north of CR38
 County Seneca State OH Time Up 2100 Time Down 0200
 Lat/Lon ; UTM: NDE 41.16944 W/N 83.04229 Zone - Datum NAD83 Observers T. Culbertson, A. Hawkins

COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
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27													
28													
29													
30													

NO CAPTURES

Moon Phase % Full Wax / Wane

	Rise	Set
Sun	0616	2100
Moon	2042	0602

Time	Temp (F)	Sky	Wind	No. Bats
2100	72	1	2	0
2200	67	0	1	0
2300	67	0	2	0
0000	65	0	1	0
0100	62	0	0	0
0200	60	0	0	

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

Comments:

Please Return to:

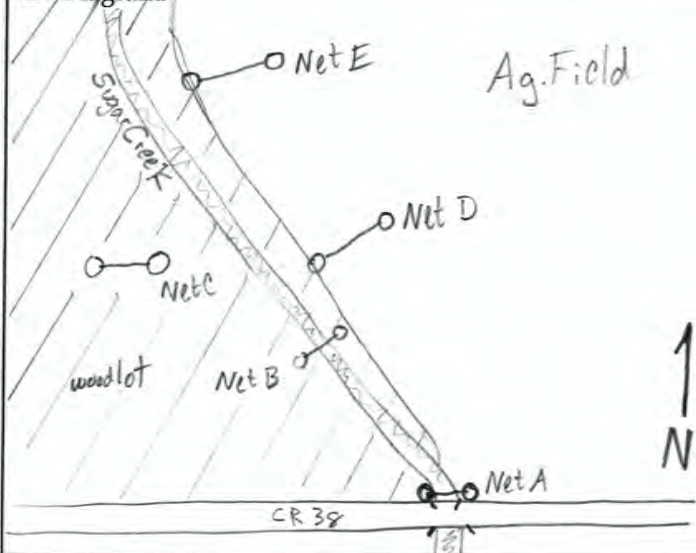
P.O. Box 73, Paint Lick, KY, 40461.

(859) 925-9012

Mist Net Site Habitat Sheet

Site No. 1Project No./Name 501 / Emerson WestDate 11 July 2016, 19 July 2016Lat/Lon; UTM: N 41.16944W 83.04229Zone -Observers T Culbertson, A HawkinsDatum: NAD83County SenecaState OHQuad Watson

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	2.6	4	7/11, 7/19
B	2.6	6	7/11, 7/19
C	5.2	9	7/11
D	7.2	9	7/11, 7/19
E	5.2	12	7/11, 7/19
F			

Site Photographs
 Camera: Red Pentax
 Photo Log: Net A. 1545
B. 1546
C. 1548
D. 1549
E. 1550

Dominant Vegetation

1. <u>Acer saccharum</u>	4. _____
2. <u>Acer negundo</u>	5. _____
3. <u>Juglans nigra</u>	6. _____

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream	X	X				
Pond						
Corridor						
Cave						
Mine						
Forest						
Gap			X			
Other				X Edge	X Edge	

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

- 1 **Roost habitat:** 1. Poor: No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
 2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
 3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.
- 3 **Water Resources:** 1. Poor: bat drinking resources not present at the site.
 2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
 3. Optimal: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.
- 2 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
 1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
 2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
 3. Optimal: Mature forest. Diverse age classes of trees present. Trees >15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.
- 2 **Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
 2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
 3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

8 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

P.O. Box 73, Paint Lick, KY. 40461

859-925-9012

COPPERHEAD
ENVIRONMENTAL CONSULTING

Mist Netting Data Form

Site No. 2 Project No./Name 501.01 / Emerson West Date 11 July 16
 Site Location Narrow woodlot between corn fields
 County Seneca State OH Time Up 2050 Time Down 0205
 Lat/Lon ; UTM: N/E 41.20319 W/N 82.86085 Zone 18 Datum NAD83 Observers C. LeFevich
A. Ashmore

COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2151	LABO	A	F	L	12.0	42	E	1.5	0	—	—	—
2	2335	EPFU	S	F	NR	17.5	48	E	5.0	0	—	—	—
3													
4													
5													
6													
7													
8													
9													
10													
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27													
28													
29													
30													

Moon Phase % 50 Wax D Wane

Rise Set

Sun 0608 2105Moon 1330 0047

Time	Temp (F)	Sky	Wind	No. Bats
2100	72	0	1	—
2200	64	0	0	1
2300	63	0	0	0
0000	63	0	0	1
0100	61	0	0	0
0200	61	0	0	0

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Coordinates _____

Weatherproofing _____

Comments: _____

Mist Netting Data Form

Sheet 1 of 1

Site No. 2 Project No./Name 501 1 Emerson West Date 16 July 16
 Site Location _____
 County Seneca State Ohio Time Up 2050 Time Down 0205
 Lat/Lon ; UTM: N/E 46.20319 W/N 82.86285 Zone 18 Datum NAD83 Observers C. Lettich
A. Ashmore

COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2305	LABO	J	M	NR	8.75	37	B	1.0	0	—	—	—
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
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27													
28													
29													
30													

Moon Phase	%	90	<input checked="" type="radio"/> Wax <input type="radio"/> Wane
	Rise		Set
Sun		0613	2102
Moon		1903	0418

Time	Temp (F)	Sky	Wind	No. Bats
2100	63	0	1	—
2200	60	0	1	0
2300	59	0	0	0
0000	59	3	0	1
0100	59	2	0	0
0200	59	2	0	0

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale	
0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

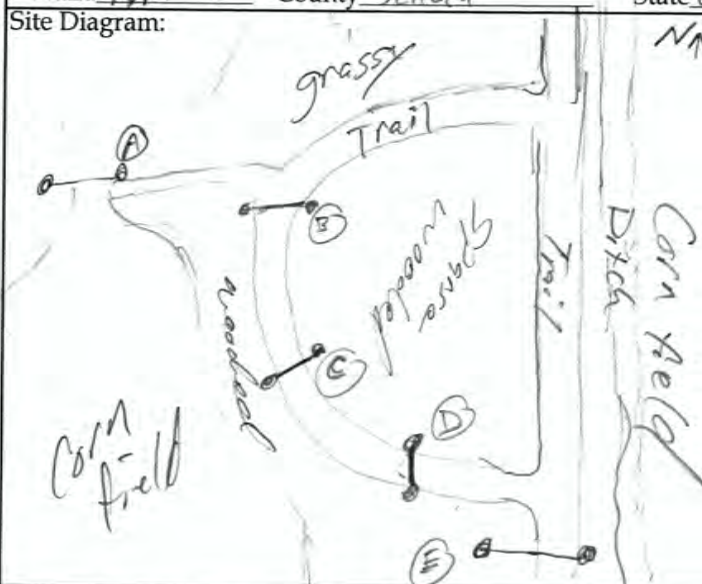
Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Mist Net Site Habitat Sheet

Site No. 2Project No./Name 506.01 Emerson WestDate 11 July 16Lat/Lon ; UTM: N/E 41.20319W/N 82.86285Zone 1Observers C. LeftwichDatum: NAD 83 County SenecaState OH Quad

Site Diagram:



Net	Height (m)	Length (m)	July Dates
A	2.6	4	10-16
B	5.2	6	11-16
C	5.2	4	11-16
D	5.2	6	11-16
E	7.8	9	11-16
F			

Site Photographs
 Camera: CL
 Photo Log: _____

Dominant Vegetation

1. <u>J. nigra</u>	4. <u>L. americana</u>
2. <u>S. nigra</u>	5. _____
3. <u>P. deltoidea</u>	6. _____

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream						
Pond						
Corridor	X	X	X	X	X	
Cave						
Mine						
Forest						
Gap						
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

- 1 **Roost habitat:** 1. Poor: No or few snags ≥ 5 " DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
 2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
 3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.
- 1 **Water Resources:** 1. Poor: bat drinking resources not present at the site.
 2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
 3. Optimal: Streams or ponds (including road cuts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.
- 1 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
 1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
 2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
 3. Optimal: Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.
- 2 **Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
 2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
 3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

5 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Agricultural ditch could provide water source when wet

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P.O. Box 73, Paint Lick, KY. 40461

859-925-9012

COPPERHEAD
ENVIRONMENTAL CONSULTING

Mist Netting Data Form

Site No. 3 Project No./Name 501 1 Emerson west Date 18-July-2016
 Site Location Small woodlot south of road
 County Seale State OH Time Up 2101 Time Down 0201
 Lat/Lon; UTM: N/E 41.15308 W/N -83.0278 Zone — Datum NAD83 Observers R Stinson
M Gooden



#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2215	LABO	A	M	SCR	11.0	39	B	1.5	0	—	—	—
2	2252	EPU	J	M	NR	15.75	48.5	A	4.0	0	—	—	—
3	2252	EPU	A	F	L	23.25	48	A	3.5	0	—	—	—
4	2252	EPU	J	F	NR	14.5	47.0	A	2.0	0	—	—	—
5	2308	LABO	J	M	NR	9.5	39	B	2.0	0	—	—	—
6	2332	EPU	A	M	SCR	17.75	45	B	4.0	0	—	—	—
7													
8													
9													
10													
11													
12													
13													
14													
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30													

Moon Phase 98% (Wax) / Wane

	Rise	Set
Sun	<u>0615</u>	<u>2101</u>
Moon	<u>1455</u>	<u>0506</u>

Time	Temp (F)	Sky	Wind	No. Bats
2101	<u>79</u>	<u>2</u>	<u>1</u>	<u>0</u>
2201	<u>74</u>	<u>3</u>	<u>0</u>	<u>4</u>
2301	<u>72</u>	<u>3</u>	<u>0</u>	<u>2</u>
0001	<u>69</u>	<u>0</u>	<u>0</u>	<u>0</u>
0101	<u>69</u>	<u>0</u>	<u>0</u>	
0201	<u>69</u>	<u>0</u>	<u>0</u>	

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Date _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

Comments:

Please Return to:
 P.O. Box 73, Paint Lick, KY, 40461.
 (859) 925-9012

Mist Netting Data Form

Sheet of

Site No. 3 Project No./Name 501 / Emerson west Date 12-July-2016
 Site Location small woodlot south of road
 County Seneca State OH Time Up 2106 Time Down 0206
 Lat/Lon ; UTM: N/E 41.15308 W/N -83.0278 Zone Datum NAD83 Observers R. Stinson
C. Jacobi

COPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2210	EDFU	A	M	NR	15.5	48	D	5.0	0	—	—	—
2	2210	LABO	A	F	L	14.0	43	D	1.5	0	—	—	—
3	2310	LABO	J	F	NR	8.75	41	B	1.0	0	—	—	—
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
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30													

Moon Phase 56 % Wax / Wane

	Rise	Set
Sun	<u>0610</u>	<u>2106</u>
Moon	<u>1428</u>	<u>0116</u>

Time	Temp (F)	Sky	Wind	No. Bats
<u>2106</u>	<u>81.0</u>	<u>1</u>	<u>2</u>	<u>0</u>
<u>2206</u>	<u>80.0</u>	<u>1</u>	<u>1</u>	<u>2</u>
<u>2306</u>	<u>78</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>0006</u>	<u>78</u>	<u>1</u>	<u>1</u>	<u>0</u>
<u>0106</u>	<u>76</u>	<u>2</u>	<u>2</u>	<u>0</u>
<u>0206</u>	<u>75</u>	<u>2</u>	<u>2</u>	<u> </u>

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Please Return to:
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 (859) 925-9012

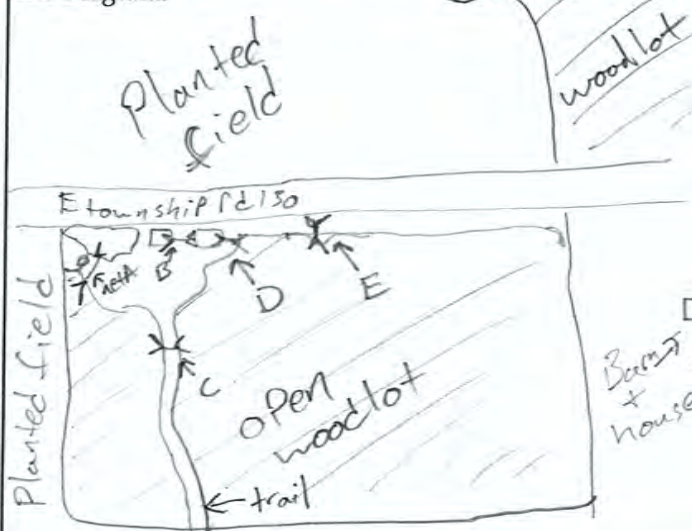
Mist Net Site Habitat Sheet

Site No. 3Project No./Name 501 / Emerson west

Date _____

Lat/Lon; UTM: N/E 41.15308 W/N -83.0278 Zone _____Observers R. StinsonDatum: _____ County Seneca State OH Quad WatsonC. Jacobi

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	7.0	9	7-12 7-18
B	5.2	6	7-12 7-18
C	5.2	4	7-12 7-18
D	5.2	6	7-12 7-18
E	5.2	6	7-12
F			

Site Photographs

Camera: Rob's Camera

Photo Log:

net A 100-0738B 100-0735C 100-0737D 100-0744E 100-0739-740

Dominant Vegetation

1. <u>A. rubra</u>	4. <u>A. acerharum</u>
2. <u>O. virginiana</u>	5. <u>T. americana</u>
3. <u>C. ovata</u>	6. _____

Net Set by Habitat

Habitat	A	B	C	D	E	F
River						
Stream						
Pond						
Corridor	✓	✓	✓	✓		
Cave						
Mine						
Forest	✓					
Gap						
Other						<u>wood lot edge</u>

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

- 1 **Roost habitat:** 1. Poor: No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
 2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
 3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.
- 1 **Water Resources:** 1. Poor: bat drinking resources not present at the site.
 2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
 3. Optimal: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.
- 2 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
 1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
 2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
 3. Optimal: Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.
- 2 **Land Cover:** 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
 2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
 3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

6 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

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COPPERHEAD
ENVIRONMENTAL CONSULTING

Mist Netting Data Form

Site No. 4 Project No./Name 501.01 / Emerson West Date 15 July 2016Site Location Open woodlot between ag fieldsCounty Seneca State OH Time Up 2103 Time Down 0203Lat/Lon; UTM: N/E 41.15697 W/N -83.02715 Zone 18 Datum NAD 83 Observers G. Janos, K. DeBeckCOPPERHEAD
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
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29													
30													

Moon Phase 80 %

Wax / Wane

	Rise	Set
Sun	<u>0612</u>	<u>2103</u>
Moon	<u>1715</u>	<u>0254</u>

Time	Temp (F)	Sky	Wind	No. Bats
<u>2100</u>	<u>74</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2200</u>	<u>72</u>	<u>0</u>	<u>1</u>	<u>0</u>
<u>2300</u>	<u>71</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>0000</u>	<u>69</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>0100</u>	<u>68</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>0200</u>	<u>67</u>	<u>0</u>	<u>0</u>	<u>0</u>

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Acoustic Survey: Unit type _____ Unit # _____ Start time _____ Stop time _____

Weatherproofing _____ Coordinates _____

Comments _____

Please Return to:

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(859) 925-9012

Mist Netting Data Form

Sheet 1 of 2Site No. 4 Project No./Name 501.01 / Emerson West Date 17 July 2016Site Location Open woodlot between ag fieldCounty Seneca State OH Time Up 2102 Time Down 0202Lat/Lon; UTM: N/E 41.15697 W/N -83.02715 Zone — Datum NAD 83 Observers G. Janos, K. M.

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2240	EPFU	A	F	L	21.5	51.0	A	3.5	0	—	—	—
2	0135	LABO	A	M	S	10.25	38.5	A	4.0	0	—	—	—
3													
4													
5													
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29													
30													

Moon Phase/100 % Wax / Wane

	Rise	Set
Sun	0613	2102
Moon	1903	0418

Time	Temp (F)	Sky	Wind	No. Bats
2100	79	1	0	0
2200	78	3	0	1
2300	78	3	0	0
0000	77	2	2	0
0100	77	2	2	1
0200	77	2	2	0

Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Fog or smoke
5	Drizzle or light rain
6	Heavy rain - thunder storm

Beaufort Wind Scale

0	Calm: <1 mph
1	Light air: 1-3 mph
2	Light breeze: 4-6 mph
3	Gentle breeze: 7-10 mph
4	Moderate breeze: 11-16 mph

Species Abbreviations: Corynorhinus rafinesquii (CORA); Corynorhinus t. virginianus (COVI); Eptesicus fuscus (EPFU); Lasiurus borealis (LABO); Lasiurus cinereus (LACI); Lasiurus seminolus (LASE); Lasionycteris noctivagans (LANO); Myotis austroriparius (MYAU); Myotis grisescens (MYGR); Myotis leibii (MYLE); Myotis lucifugus (MYLU); Myotis septentrionalis (MYSE); Myotis sodalis (MYSO); Nycticeius humeralis (NYHU); Perimyotis subflavus (PESU); Tadarida brasiliensis (TABR)

Other Abbreviations: Male: M; Female: F; Pregnant: P; Lactating: L; Post Lactating: PL; Scrotal: S; Non Repro: NR

Please Return to:
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2 of 2

Mist Net Site Habitat Sheet

Site No. 4

Project No./Name 501.01/ Emerson West

Date 15 July 2016

Lat/Lon; UTM: N/E 41.15697 W/N -83.02715

Zone —

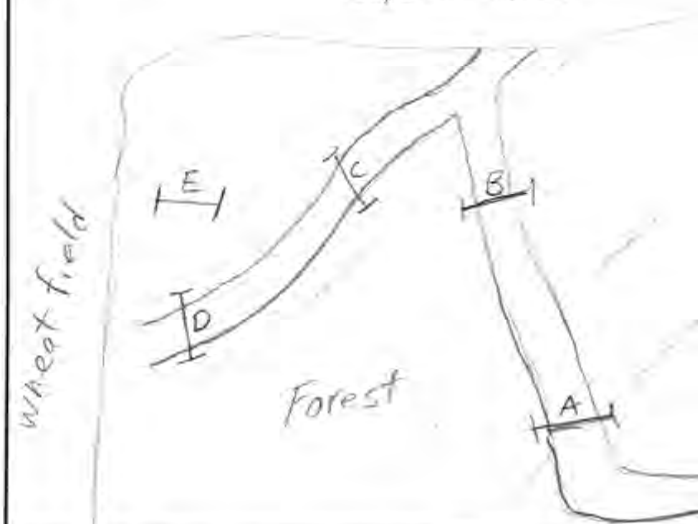
Observers G. Janos, K. DeBeck

Datum: NAD 83 County Seneca

State OH Quad Watson

Site Diagram:

Soybean Field



Net	Height (m)	Length (m)	Dates
A	5.2	6	7/15, 7/17
B	5.2	9	7/15, 7/17
C	5.2	6	7/15, 7/17
D	5.2	6	7/15
E	7.8	9	7/15, 7/17
F			

Site Photographs
 Camera: Gregg's phone
 Photo Log:

Dominant Vegetation	
1. <u>Fagus grandifolia</u>	4. <u></u>
2. <u>Acer saccharum</u>	5. <u></u>
3. <u>Corya ovata</u>	6. <u></u>

Net Set by Habitat						
Habitat	A	B	C	D	E	F
River						
Stream						
Pond						
Corridor	✓	✓	✓	✓		
Cave						
Mine						
Forest					✓	
Gap						
Other						

Indiana Bat Habitat Characterization (Choose appropriate score for each habitat characteristic)

- 2 **Roost habitat:** 1. **Poor:** No or few snags $\geq 5"$ DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
 2. **Moderate:** Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
 3. **Optimal:** Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.
- 1 **Water Resources:** 1. **Poor:** bat drinking resources not present at the site.
 2. **Moderate:** Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
 3. **Optimal:** Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.
- 2 **Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
 1. **Poor:** Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
 2. **Moderate:** some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
 3. **Optimal:** Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.
- 2 **Land Cover:** 1. **Poor:** Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
 2. **Marginal:** Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
 3. **Optimal:** Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

7 **Total Habitat Score** (Should be between 4 & 12)

Comments:

Please return to:

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859-925-9012



This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

12/26/2018 2:54:19 PM

in

Case No(s). 17-2295-EL-BGN

Summary: Application Exhibit J Part 15 of 33 electronically filed by Teresa Orahoud on behalf of Dylan F. Borchers