

Site 36 Net A



Site 36 Net C



Site 36 Net B



Site 36 Net D



Site 36 Net E



Site 36 Net G



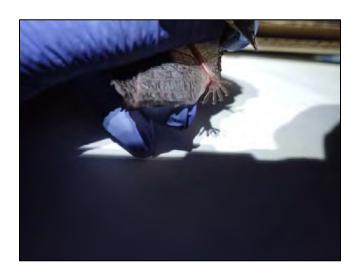
Site 36 Net F



APPENDIX C

Bat Capture Photographs

T&E batsMYSE 172.188_ODNR23551_Site26_24July





MYSE 172.587 _ODNR23552_Site26_26July





MYSO 172.779 _ODNR23553_Site26_26July





MYSE 172.030_ODNR23361_Site18_26July





 $MYSE\,172.137_ODNR23360_Site18_26July$





 $MYSE\,172.205_ODNR17178_Site13_26July$



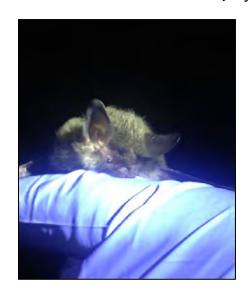


MYSE ODNR17179_Site13_26July





 $MYSE_ODNR17344_Site12_28July$



 $MYSE_ODNR23362_Site18_28July$



MYSE_ODNR17168_Site20_28July





$MYSE_ODNR17345_Site15_31July$





MYSE 172.450_ODNR17166_Site33_31July





Non T&E bats



Lasiurus cinerus



Eptesicus fuscus



Lasiurus borealis



Perimyotis subflavus



APPENDIX D

Roost Tree Data Sheets

Band # ODWE 23551

age of

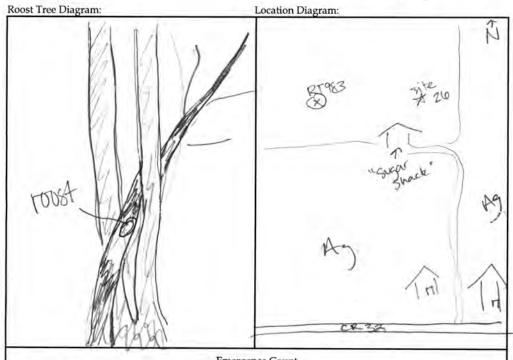
eservers: (1)	Netrel
Habitat	Netrel
Habitat	Veren
)	
Edge	Open
nopy Cover at Roc	ost
Intermediate	Closed
	-
Basal Area	
Snags	All Trees
20	0
1 00	
Roost Location	
Cavity	Crevice
ERENCE / †	CIRCLE
*Condition	
Live	Live-Damage
**% Bark Cover	
Moderate = >	Low =
10-<25%	< 10%
***Tree Ranking	
TARE AMERICAN	
	*Condition Live **% Bark Cover Moderate = >



	042
Roost Tree #_	10/

Bat Species/Sex/Frequency: WYSE/F/188

Band # ODNR 23551



			Bat Day	S	
No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	7/25	188	ODNR	F	can see transm
2					
3					
4					
5					
6	1		= = = = = = = = = = = = = = = = = = = =		
7					
8		7	1		
9					
10					
11					
12					
13					
14					

			I Live		Т	ime		Focal		
No.	Date	Temp °F	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat exit #	Personnel/ Comments
1	7/25			1		2129	2129	2129	1	
2	7//31				W	2035	2035	_	1	Camera
3									-	
4										

		Cavity	or Crevice	Characteris	stics					
			Opening Measurements							
No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level				
1				-						
2		1								
3		1			-					

Comments:
Roost is on a fallen limb off of tree # 4 and leaning between
tree # 2+3



Roost	Tree	Data	Form	2014)	
LEGOSE	1100	Data	r Citti	(2017)	٠.

ounty _	En plot 16				Curt	011		0	y E	1 -				
at-Long/	UTM: N/E 4/	2185	1		State W/N_	16867		Zone Datum: NAD83 Observers: A. As more.						
Tree Tag		DBH	1	t ft or m	Condition*	% Bark	8 Bark Cover** Tree Available			Habitat				
#	Species	(cm)	Tree	Roost	Condition	Usable	Total	Ranking***	Roost/ Observation	Interior	Edge	Open		
394	Princes scrotons	37.1	351	35	SAGU	1	H	C	both of possil.	course				
	Aco succhan	20.3	60'	-	live	L	H	C	landata'		py Cover at Roo	st		
	Carya Sp.	39.4	75	-	1tuc	6	H	C		Open	Intermediate	Closed		
-	Unknown	47.8	70'	-	live	1	14	C	brest possale	root				
	Freynis gammo	56.9	80	-	Sneg	1	14	C			Basal Area			
	Acer sacchann	28.9	65	4	live .	1	14	(Live Trees	Snags	All Trees		
	Frexions enurse	443	80.		5150	14	H	C		60	100	120		
	fregaps snown	40	101		Shed	L	L	WC						
	Acer serclose	19.)	65'		live	L	14	C		R	loost Location			
o	Frence storen	455	71	1	Snag	4	1-1	4		Bark	Cavity	Crevice		
	Acer sucher	32	451		In	4	1+	C						
2	Aco sechan	59.5	10		JANG	L	1-1	U		↓ QUICK REFE	RENCE / †	CIRCLE		
3					1									
1											*Condition			
5										Snag	Live	Live-Damageo		
5										***				
7			+=							**	% Bark Cover			
3		= :1									Moderate = >	Low =		
										High = ≥ 25%	10-<25%	< 10%		
)														
			-			1		- 1		1	Tree Ranking			
										Canopy	Sub-Canopy	Understory		

Roost	Tree Dia	gram:			L	ocation D	iagram:										
				/	/	1	10051	11	1/	1				Bat Da	vs		
			/	//			1				No.	Date	Bat Freq.	Bat Band	Sex of Bat	Ob	servations
		Promo	1/	/			1	1-11	- 11		1	7/26	188	23551	F		
			1/4			1	11	111	1/5	Fores	2	7/27	18387	23551	F	188 8	hed trans
			Cont	entral			11	11/8			3	7/28		23551	-	< NON	transmit
				1800			30	111		D	4	1100	10.0	0.7771	-	0 1000	TI WILDING!
			'			-	-	1 - F	7		5					1	
									54	Shael	6						
					Ŷ			1		7 0	7						
								1)	8						
					+	-			7	200	9						
					- 1		٨			13	10						
		1				Ť.	191			600	11	1					
		- 17	11)	reld			11	12					1	
		1	/ N		- 1					11	13						
		1							-1		14						
					Emergeno	ce Count										- C	
	-			1			ime		Focal				Cavit	y or Crevice C	haracteris	atics	
	2.1	Temp	10.00 A	# of	7	Bats	Bats	Tagged	Bat	Personnel/							
lo.	Date	°F	Weather	Bats	Sunset	Start	End	Bat	exit#	Comments					Opening I	Measureme	nts
1	7/26	- 4		1,000		-			-	transmitter still in thre	No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level
2	7/28	78	clear	0	2054	~	-		0.7	tomern 1	1				1		

Commen	ts:

7/28



oca	ntv	Senera				State_	OH		Qua	ad Fires	ide			
at-	Long/	UTM: NYE_4	1.180	69		Wyn 82.	93027		Zone _	Datum	n: NA083 Obs	ervers: T.W	etrel, A	
r u	Tree Tag	Species	DBH	Heigh	t ft or m	Condition*	% Bark	Cover**	Tree	Available Roost/		Habitat		
1	#-		(cm)	Tree	Roost	Containon	Usable	Total	Ranking***	Observation	Interior	Edge	Open	
1	985	F. pennsylvanica	28.5	12	8	S	M	H	(bark				
		U, american	al	9		S	L	H	S	none	Cano	py Cover at Roos	t	
		U, american	38	10	_	S	M	1-1	2	barte	Open	Intermediate	Closed	
		U, american	187	10	_	2.	L	H	S	bourk				
		F. pennsylvania		14	_	S	1_	H	C	none		Basal Area		
		A. Saccharum		12		1	L	17	S	vone	Live Trees	Snags	All Trees	
		A . Saccharum		12	-	L	1	H	2	none	LID	70	110	
1		Piserotina	10 4	10	_	S	1	H	2	vone				
		Divigra	350	15	-	Ĭ	1	H	0	nene		Roost Location		
0		A, Sacchanim		U	-	5	1	H	1)	crevie	Bark	Cavity	Crevice	
	7.7	4.4	107.5	17	-	1	1	H	Č	bear lygre		Cavity	Cievice	
2		100.000	1011)					-11		10-00 19016	QUICK REFE	RENCE / 1	CIRCLE	
\top									-			2007, 27 40 3		
3												*Condition		
5												*Condition		
1											Snag	Live	Live-Damaged	
7											Tip.		= 1	
1												*% Bark Cover	To a	
3											High = ≥ 25%	Moderate = ≥ 10-<25%	Low = < 10%	
1													6.500	
1														
1											**	**Tree Ranking		
2			100								Canopy	Sub-Canopy	Understory	

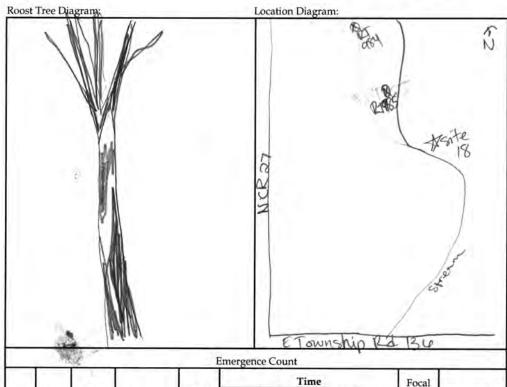
GOPPERHEAD

Copperhead Environmental Consulting Inc. P.O. Box 73, 11641 Richmond Rd. Paint Lick, KY 40461 (859) 925-9012

Signal no longer found of attenuator @ 21:50

Bat Species/Sex/Frequency: MYSE/F/137

Band # ODNR 23361



	_		Bat Day	S	
No.	Date	Bat Freq.	Bat Band	Sex of Bat	Observations
1	コングナ	137	23361	F	
2					
3					
4					
5					
6					
7					
8					
9			-		
10					
11					
12				1	
13	Jr. mca.			1	
14	6				

		1.		1 + A		T	ime		Focal	
No. Date	Date	Temp °F	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat exit #	Personnel/ Comments
1	XXX	72	cal releas	2	2054	2100	2150	2150	200	_
2	7-28	81	Clear	, 1	2055	21:12	21:12	NIA		A. McGar.
3	100			H	100					
4) = = Ξ		1 3						

		Cavity	or Crevice	Characteris	stics	•
				Opening I	Measureme	its
No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level
1_						
2						
3						

Comments:

* But was not tracked to this tree on 7/28/15



Bat Species/Sex/Frequency: MYSE/F/137 Band # ODNR 23361

	unty t-Long/	UTM: NYE 4	1.178	57		State_ W)N82	9280	2		ad Fresid Datum:		servers: BR.	elev/ F. Me
#	Tree Tag		DBH	1	t ft or m	Condition*	% Bark	Cover**	Tree	Available		Habitat	
"	#	Species	(cm)	Tree	Roost	Condition	Usable	Total	Ranking***	Roost/ Observation	Interior	Edge	Open
1	986	A. Sarcha-imm	16.6	15	13	5	M	M	5	Canty Crevice			
2	-	A . Saccharimm	13.4	25	-	L	1	H	5	139-5		opy Cover at Roo	st
3	-	A Sachonima	19.1	35	-	L	2	H	5	NONE	Open	Intermediate	Closed
4	2	A. Sacharinam	62.7	50	-	LO	M	Н	C	Bark Crevice			
5	_	A sacchapinum	35.3	45	_	5	M	H	6	Bark		Basal Area	
6	-	A. saccharinum	36.9	55	_	L	L	H	C	NONO	Live Trees	Snags	All Trees
7	-	A. saccharimm	27,7	65	-	L	2	H	C	NENE	200	40	240
8	0	A soccharimm	35.7	17	-	LD	L	M	5	Crevice			
9	-	P. deltoides	89.2	60	4	1	L	H	C	Crevice	1	Roost Location	
10	-	P. dettoides	85.9	65	_	L	L	14	C	NONE	Bark	Cavity	Crevice
1	1	A. sachariran	28.6	50	-	L	4	H	C	word			
12		Asachastnam	29.3	45	=	2	L	H	(Nore	QUICK REFE	ERENCE / †	CIRCLE
3	988	A Sachairan	36.3	50	-	LD	4	H	C	Crovice/Bu-4			
4	-	A. saccharina	40.4	14	× 1	5	L	M	и	cverice		*Condition	
5	~	A. sacharinum	29.3	50		L	L	H	C	NONE	Snag	Live	Live-Damag
6	~	A, sacharinam	37.6	60	-	LD	M	H	6	Bark			
7	-	A. sacchariran	29.6	45	-	2	m	H	2	Bark	-	*% Bark Cover	
8	~	A sacchariran	34.7	20	-	S.	L	M	5	crevice	PT 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Moderate = >	Low =
9	~	A. saccharipm m	34.4	45	-	L	4	H	C	Nore	High = ≥ 25%	10-<25%	< 10%
0	-	A saccharima	26.1	35		1	4	Н	5	None			
1	-	A Sarcharlen	31.8	50	~	L	L	H	C	NONE		**Tree Ranking	
2	~	A-sachninn	43.9	55	-	L	L	H	6	NONE	Canopy	Sub-Canopy	Understory
10	factor En	A - Sauhariwen	to identif	fy trees w	ithin the p	lot, centered on	the roost tre	ee.	C	NONE			
01	PERHE	A. P. Sachar A		62.1		10	m	H	5	Barricherice	13	Copperhead Enviro P.O. Box 73, 11641 Paint Lick, KY 40	Richmond Rd

Roost Tree Diagram:	Location Diagram:
Holor	Guspean
DA	
	2+ 986 R4838
Bar	e wood
Barthe - Ell	Forest
	STring
	1// 501051///
1 1 1	Emergence Count

			Bat Day	s	
No.	Date	Bat Freq.	Bat Band	Sex of Bat	Observations
1	7-28	137	23311	F	
2			1000		
3					
4					
5					
6					
7					
8					
9					
10	10.0				
11					
12	= =)			
13					
14					

						Т	ime		Focal	
No.	Date	Temp °F	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat exit#	Personnel/ Comments
1	7-28	81	Clear	1	2053	2110	2110	2110	1	
2	7-31	76	Clear	0	20:49	NIA	N/A	NIA	N/A	C. 13/6yd
3										
4										

_		Cavity	or Crevice	Characteris	tics	
				Opening l	Measureme	nts
No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level
1						
2						
3						

Com	ments:	1	
*	tree	observed	8

8:45-9:25



Paint Lick, KY 40461 (859) 925-9012

	Taranta	UTM: N/E_	11 17	61.5	Á	State_ W/N - 8	207	1015	Qua	ad F.	: NADRZ Obse	ruore: A Da	Lule M
	Tree Tag		DBH		ft or m			Cover**	Tree	Available	. Tarry S Observed	Habitat	110/12.71
	#	Species	(cm)	Tree	Roost	Condition*	Usable	Total	Ranking***	Roost/ Observation	Interior	Edge	Open
	988	A. Saccharine	36.3	50	20	40	2	H	C	Barrif Crevice			
		A saccharum	22.6	20	-	LD	1	H	5	Crevice	Cano	py Cover at Roos	st
		A. saccharina	423	40	+	LD	4	H	6	Crevice	Open	Intermediate	Closed
		A. Saccharinan	43.0	55	-	L	1	H	(NONE			
		A. sacharum	61.4	30	_	LD	m	m	S	Bair/ crerice		Basal Area	
	986	A . Sacharipum	16.6	15	13	5	19	m	5	therefrants trever	Live Trees	Snags	All Trees
		A sacharinum	27.7	66	-	4	2	14	C	None	230	20	220
		A godavirum	62.1	40	-	LO	n	14	6	Crease			
		A sacharimum	36.9	35	-	L	4	H	C	Nore	R	oost Location	
)		A. sacharina	35,7	15	-	LD	L	M	5	cravice	Bark	Cavity	Crevice
i		1. Sacharim	28.6	50	-	L	4	H	C	NONC			
2		A Sarcharian	29.0	30	-	LD	L	14	5	Crovice	↓ QUICK REFE	RENCE / †	CIRCLE
3		A. Saccharinum	40.4	10	~	5	1	M	u	Crevice			
4		A - Sachariren	37.2	60	-	L	-	H	(Nove		*Condition	
5		A, Sacharimum	29.6	40	-	L	L	H	C	NOVE	Snag	Live	Live-Damage
9		A. Sadracirum	37.6	50	-	L	L	1+	C	Back			
7		A. Saccharion	26.7	45	~	LD	L	H	C	Crevice	**	% Bark Cover	
3		A . Sacraring	30.2	30	-	L.	L	H	5	Back	High = ≥ 25%	Moderate = ≥	Low =
9	-	A sachar, Nun	133,1	15	_	40	m	M	5	Barry Crevice	Tright - 225 m	10-<25%	< 10%
)		A Secchariana	34.7	30	-	L	1	H	5	None			
		A. rubran	25.8	40	1-	L.	L	H	C	NONE	**	Tree Ranking	
2	- 1	A saccharina	30.6	40	-	L	L	14	C	none	Canopy	Sub-Canopy	Understory

NONE

Roost	Tree Dia	gram:			L	ocation D	iagram:										
			1 +00	Vra zer	10		5	04600	N					Bat Da	ys		
			1							/	No.	Date	Bat Freq.	Bat Band	Sex of Bat	Ob	servations
			1 E	Heart V	her	/	1	0	0	A.W.	1	7/29	137	2336	F		
			M					Q+ 986	21	410	2	7	4.		1-5	-	
1			17			/					3						
			130	TI		1			/		4				-		
			1 Bo	neve	5 /						5				-	-	
1			145	Non							7						
D.			(A)					01051	/		8				1	,	
			11				1	0/05	-/	/ /	9						
			VI								10						
1			1/2				-	Stren	_		-11	1===				1,	
			(2)			7	/ /			77	12						
1			(2)				/	Forts	1	17.	13						
-	_		14			1 1				7 %	14						
					Emergen								La S				
		Temp		# of		Bats	ime Bats	Tagged	Focal Bat	Personnel/			Cavit	y or Crevice (Characteris	tics	
No.	Date	°F	Weather	Bats	Sunset	Start	End	Bat	exit#	Comments	1 - 1				Opening N	Measureme	nts
1	7-29	81	light rain	2	8:53	8:56	8:58	-		Heil	No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level
2	7-30	80	clear	0	8:50	MÁ	N/A	1/4	NIA	C. Bloyd	1						
3											2		7 1 15				
4									9.000		3		1				

Comments:

day or 7/30, the observed that night por emergence.



Ro	ost Tree Da	ita Form (2014)		Ва	at Species/Se	ex/Frequency:	NSE/	F/ 03	30	Band# 2	NR 3360	Page _	of
	ost Tree	# 984 NW 05	Pro	oject No	o./Projec	t Name _ 니	1200	/	Emer	son Cer	eek Date Fir	st Found 🥭	275119
Co	unty_ t-Long/	UTM: NYE 4	1.181	75	(State _ WN_82.0	13174		Qua	ad Fivesi	Le NATOSOBS	ervers:	Netrel A
#	Tree Tag #	Species	DBH (cm)	Heigh Tree	t ft orm	Condition*	% Bark Usable	Cover**	Tree Ranking***	Available Roost/ Observation	Interior	Habitat	Open
	984	F. peniasylvan	- 4	12	7	5	H	H	C	park			
3		A. Sacharum A. Saccharum		13	_	10	7 1	H	8	crevice bark crevice		py Cover at Ro	
4		A. Saccharum		15	-	D		H	C	bark	Open	Intermediate	Closed
5		Covata	540	16	_	E	L	H	C	parte		Basal Area	
7		Asacchanin V. americana	11 0	13		LD	W	14	5	everice.	Live Trees	Snags	All Trees
8	1 11	V. american	8.5	6	_	L	L	H	V	none	40	20	14
9		V. amori cara	13.4	9	-		6	1	0	none	R	oost Location	
10				CMI							Bark	Cavity	Crevice
12											QUICK REFE	RENCE / †	CIRCLE
13													
14												*Condition	17
15 16											Snag	Live	Live-Damaged
17												Section 1	

##% Bark Cover

High = ≥ 25% | Moderate = ≥ | Low = | < 10%

Canopy Sub-Canopy Understory

A 10 factor English prism is used to identify trees within the plot, centered on the roost tree.



18

19

20 21

lav	ye by	met	M	18			11	71/2						Bat Day	5		
	C			ď.	*		11				No.	Date	Bat Freq.	Bat Band	Sex of Bat	Ob	servations
		3-	5/11	10	,			(1	7/27	030	23360	F	on 17 1	nat seen
	1	,	118	(9)	12.			1		- 1	2	7/24	030		F		
			land !	0-	XIL			1 1			3						
4		. 1	1 DOG E		4.			1			4					1	
1.	0		AL N					11			5						
-1.5	The st	4	to M					11			6					-	
30	12.	1						7	- br	KK	7						
/	0	Ver	Tal Hal					1	•	100	8						
		6.	MATTER					1			10					1	
		N	Man AM					11			11						
		- 10	MINIM		- 1		Y				12						
		A	MIXIN/				1				13					41.	
		-71	MAKEN AN A /	-	Emergen	a Count	- 1				14						
	. ,				Emergen		ime		Focal				Cavity	or Crevice C	haracteris	tics	
No.	Date	Temp °F	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat \ exit #	Personnel/ Comments					Opening N	/leasureme	nts
1	27	72	Sunny/clean	(d)	2054	2123	2123	2123	51	AT	No.	Nature	Aspect	Width	Control of	Ground	H ₂ O Lev
2	28	81	-	1	2055					RKR	1			7.00000	23.0		725 001
3		11.11							15. (2						
				- 35	1.						3		1	- 1			



Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/F/030

Band # ODNR 23360

Page of

0	unty_	UTM: NYE 4	1 12-1-	200	- 4	State_	OH	22		ad Firesid		20	110.
at	-Longy	UIM: NYE 4	1. 181			W)N8	T		Zone_	Datum:_	Obs	ervers: BRe	aley K. Ma
#	Tree Tag	Species	DBH		t ft or m	Condition*		Cover**	Tree Ranking***	Available Roost/		Habitat	
			(cm)	Tree	Roost		Usable	Total		Observation	Interior	Edge	Open
	987	A, sacchavina	56.3	40	25	5	M	M	C	Bart	£		
		A. saccharima	54.1	15	-	5		m	u	Crevice	Cano	opy Cover at Roos	t
		A saccharina	38.2	45	-	LD	L	H	C	Bark	Open	Intermediate	Closed
		A sucharinum	57,5	50	-	L	L	H	C	NONE			
	1111	A. Saccharinam	37.9	30	ĵ	LD	L	H	C	crevice		Basal Area	
	-1-1	A Saccharian	37.6	45	-5	L	4	Н	(NONE	Live Trees	Snags	All Trees
		A sacchariman	31.8	30	1	L	1	1+	C	NONE	60	30	90
		A. Sucharima	52.5	50	1	1	4	M	6	Nove			
		A. Sacchariana	47.7	20	ī	5	M	M	5	Bark		Roost Location	
)				4							Bark	Cavity	Crevice
											T.		
!											QUICK REFE	RENCE / T	CIRCLE
3													
1												*Condition	
1											Snag	Live	Live-Damage
			-										
,						11					1	% Bark Cover	
3											High = ≥ 25%	Moderate = ≥	Low =
,			-								- ingit - <u>- 2</u> 0.0	10-<25%	< 10%
)	7-41												
												*Tree Ranking	
2											Canopy	Sub-Canopy	2000

Roost	Tree Dia	gram:			- 1	ocation D	iagram:	1	1	1							
	1	7_	12101		1	11	1	11	1 1	1				Bat Day	s		
		100	- 1301end	1		11	11	1	1	1,	No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Ob	servations
		1)	1/6	Ø	_	1	1	1	1	1	1	7-29	030	23360	F		
		1	V			1	05	7	1	111	2	7-30	030	23340	F		_
	Butel a		13KY			110	1/		1	No.	3	7-31	030	23360	F		
	24.70					1,1	1	Swarp	1	18	4	8-1	030	23360	F		
	Ar		111			1	Y	gares	1	/ /	5	8-2	030	23360	F		
		1	111			1				1. 4	6		,				
		t	111		1	11	1	5/	25	11	7						
			11		1	/	Y	()	1	8						
		-				1	V	R+ C) [11	9						
		1			1	1	1	14	X	11	10						
		1			- 1	1		1	1	111	11						
						1	\	1	1,	111	12						
					1	1	1	/	1	111	13						
			1			1	-	1	1	111	14						
					Emergene	e Count											
						Т	ime		Focal	V			Cavit	y or Crevice C	haracteris	stics	
No.	Date	Temp °F	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat exit#	Personnel/ Comments					Opening l	Measureme	nts
	7-29	80	PTIS Cldy	3	20:51	20:59	21:21	21:21	3	A. Meleregor	No.	Nature	Aspect	Width	Height	Ground	H₂O Lev
1	1			3	20:50	21:01	21:14	21:14	3	R. M. Soreson	1	1.7.4		1			
_	7-30	80	Clear	-/-			-										
2	-	76	Clear	5	20:49	21:02	21:12	21:12	5	12. Milerener	2						
1 2 3 4	7-30			5		21:02	21:12	21:12	5	C. Bloyd	3						



Comments:

Bat Species/Sex/Frequency: NYSE/F/587

Band# ODN RA3552

Page ____ of __ 2___

RainStorm

Roost Tree #	369	_ Project No./Project Name _	412	_/_F	merson 1	ree	-	Date First Found	7/28	13
Location	5110 20							The second second		

County State 0H Quad 10851 Quad Lat-Long/UTM: N/E 41.21838 W/N 82.96845 Zone Datum: N

Zone ___ Datum: NAD83 Observers: J. Stora

	Tree Tag		DBH	Heigh	t Dorm		% Bark	Cover**	Tree	Available
#	#	Species	(cm)	Tree	Roost	Condition*	Usable	Total	Ranking***	Roost/ Observation
1	369	Fraziones pennsylvai	400	12	9	5	M	L	u	Cracks +
2		Ftaxaus pennsylvai	45.1	50.	_	5	L	L	C	Cracks +
3	45	Francis penneglo		50	-	5	M	H	6	Bark
4	1= 1	from the femore various	48.0	60	I	- 5	14	H	C	Bark
5	100	Pine Sp	37.3	40	-	5	L	14	C	Burk Gresses
6		bak sp.	60.2	20	-	2	L	H	u	cracks creviers
7	395	cherry	37.8	80	Yes	5	17	1+	6	Roost tree
8		SucarMayre	19.8	85	1	L	14	14	C	*
9		Sugarmaple	34,4	100	Ŋ		L	1	C	
10	5 m	Sugarmaple	8.2	20	/	L	L	14	50	
11	4 = 1	Sugar maple	143	80	/			it	C	
12		Sugar maple	13,2	60	/	U'	L	X	C	
13		Sugarnage	323	(00)	/	V		14	C	
14	17	Sugarmaple	15.5	80	1	l	L	11	50	
15		Sugar maple	6.2	40	/	12"	L	1+	u	
16		Sugarmaple	4.1	12		L	L	1+	u	
17		Sugarmanle	9.0	25	1	L.	L	4	50	
18	5.4.1	1	4761		0.711	HEX.				
19						1				
20										
21										
22					1 21					

-	Habitat	
Interior	Edge	Open

opy Cover at Roost	
Intermediate	Closed
	Intermediate

	Basal Area	
Live Trees	Snags	All Trees
100	120	170

Ro	ost Location	
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

	*Conditi	on	
Snag	Liv	/e	Live-Damaged

•	*% Bark Cover	
High = ≥ 25%	Moderate = ≥ 10-<25%	Low = < 10%

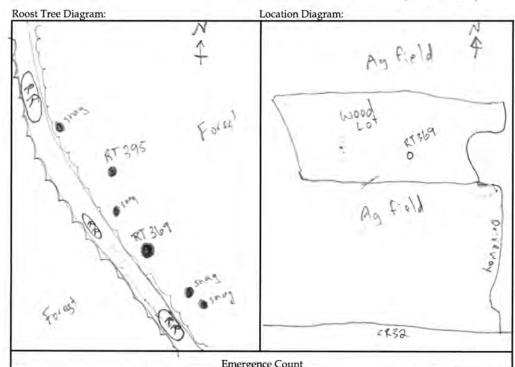
		***Tree Ranking	
d.	Canopy	Sub-Canopy	Understory

A 10 factor English prism is used to identify trees within the plot, centered on the roost tree.



Copperhead Environmental Consulting Inc. P.O. Box 73, 11641 Richmond Rd. Paint Lick, KY 40461 (859) 925-9012 Bat Species/Sex/Frequency: MYSE/F/587

Band # ODNR 23552



			Bat Day	s	
No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	7/28	589	23552	F	
2					
3					
4		7-4-1			
5					
6		1		- 1	
7					
8					
9					
10	-				
11		/			
12					
13		I BOA			
14					

				100		T	ime		Focal	
No.	Date	Temp °F	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat exit#	Personnel/ Comments
1	7/28	78	den	0	2054		-	-		CAMPEN
2				0						
3										
4										

		Cavity	or Crevice	Characteris	stics				
			Opening Measurements						
No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level			
1									
2									
3									

	1		
	₩.		
C			_

Comments:

Stippengelm 20

Bat Species/Sex/Frequency: MYSE/F/387 Band# 23552

Paint Lick, KY 40461 (859) 925-9012

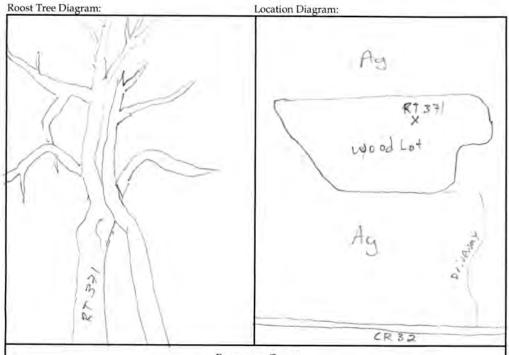
Project No./Project Name 412.02 / Emersia Caul Roost Tree # _ 37 Date First Found _ 7 Location In woodlot site 200 is in OH Quad Fireside Spacea County State W/N-82.96 834 Datum: NAP83 Observers: J. Storm 18 Smith Lat-Long/UTM: N/E 41, 21 Zone Height for m Available % Bark Cover** # Tree Tag DBH Tree Habitat Species Condition* Roost/ Ranking*** (cm) Tree Roost Usable Total Observation Interior Edge Open Back 60 30 Orn hobbles training Bark 5 65 Canopy Cover at Roost Coost tee frasin ws PINNSWAME Open Intermediate Closed cracks 20 rieu ces 30 monivera de livip NOVLE 5 Basal Area may mans NP WD 6 Live Trees Snags All Trees MOON WANTE DU NO MEAN MAN'S MOULE 8 DOISHWOOD Mone Roost Location 14 MON2 Mary Dream 10 Cavity Crevice 14 JUGOW MANIE non 11 00 JOUICK REFERENCE / 1 CIRCLE 0 MCCHAN OUT 110ht 12 beech 13 NOnone La acumasti 14 *Condition Stippingelm MOVE 15 Snag Live Live-Damaged Sugarinosle MON 16 1S 0 ligrou elm None 17 **% Bark Cover NDME 18 sucar maple Moderate = > Low = High = > 25% 10-<25% < 10% Garli walnut COL nove 19 UD NOVIE 20 Super mank (10) none SURCEY BAMOLE 21 ***Tree Ranking Non Stroop + elm Canopy Sub-Canopy Understory A 10 factor English prism is used to identify trees within the plot, centered on the roost tree. Copperhead Environmental Consulting Inc. P.O. Box 73, 11641 Richmond Rd.

	7-1	
Roost Tree #_	2+1	

Bat Species/Sex/Frequency:

587

Band# ODNR 23553



			Bat Day	s	
No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2t July	587	23552	F	
2	30 July	597	23552	F	
3	-L				
4	15			-	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14		- 1			

	1.11			1.20		T	ime		Focal	
No.	Date	Temp °F	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat exit #	Personnel/ Comments
1	7/29	79°	orticast	3	2051	2058	2115	2058	1	A. DP
2	7/30			5	2050	2049	2102	2100	-	J. Barry
3										
4			3							

		Cavity	or Crevice	Characteris	tics					
			Opening Measurements							
No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level				
1										
2										
3										

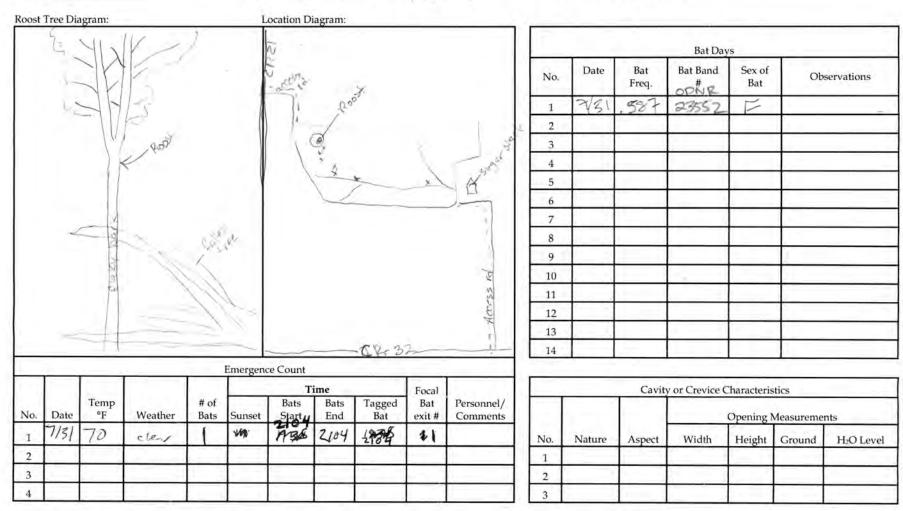
Comments:	

Buts emerged from where the two trees touch



Bat Species/Sex/Frequency: MISE/F/. 587 Band # 0 DNR 23552

Roost Tree # 372 Project No./Project Name 417.02 / Everyor nec Date First Found 7/31/15
Location Same wood to 2 371, 369 County Sereca State DV W/N-82,97147-Quad Fire side Zone ___ Datum: NAD83 Observers: Roll of the Cory Staye Lat-Long/UTM: N/E 41.21920 Available Height ft or m % Bark Cover** # Tree Tag DBH Tree Habitat Species Condition* Roost/ Ranking*** (cm) Tree Roost Usable Total Observation Interior Edge Open Shadrall 322 Shay partow 754 50\$ 00 Canopy IVE IDD 50 LiVP-Succes maple 54b-1 100 none Canopy Cover at Roost 0 Sugar map. 14.5 50 Live MENY 3 Leb 5UD Open Intermediate Closed 5012 Sugar map. Live MADINE 500 100 100 100 5 Ash Snaa graca COMODIV WHE Basal Area Sugarinante 50 SVP 0 MANY Live Trees Snags All Trees Sugaringo 412 Live 175/3 20D VIONE 110 Dan anach SMAG 1.07 COMPANIO DE aig marke 1.700 12.0 9 MOVE MACOL Roost Location 1777 Mane Ma many Live Substan 10 Bark Cavity Crevice CXCVILE Agh Guage 120 canopy Swac 11 **QUICK REFERENCE / ↑ CIRCLE** 1-14-8 VOD 540 NOVE 12 sugar masia backswood? Live 13 100 Canopy MONE 1.14 100 Suc made 20 12 hone 14 *Condition DYV# LICVIA Gua Magle 114 2 15 Live Snag Live-Damaged 10.5 Live 547 MONY 16 Shan bar Eurice 100 Crim vione 100 Live 17 **% Bark Cover PARKEN 100 nay wood INE 100 MANOR 18 Moderate = > Low = High = > 25% Fod 10-<25% < 10% GUCAY MOUNT 506 1110 NOW P. 19 all AM SNAC Sub-20 Snaa Live 100 MONE Im Book 100 21 PONNE DE ***Tree Ranking MOVIE Canopy Sub-Canopy Understory A 10 factor English prism is used to identify trees within the plot, centered on the roost tree. 115 (3) son suage from emeral ash Copperhead Environmental Consulting Inc. P.O. Box 73, 11641 Richmond Rd. COPPERHEAD Paint Lick, KY 40461 (859) 925-9012 SWV LANC Lagne Sugar onaple 10.5 40 -



Recent free fall creates Corpy and a root free and provides enter exprisore from



Roost Tree Data Form (2014)	Roost	Tree	Data	Form	(2014)
-----------------------------	-------	------	------	------	--------

Bat Species/Sex/Frequency MYSE/F/.587 Band # DNR 23552

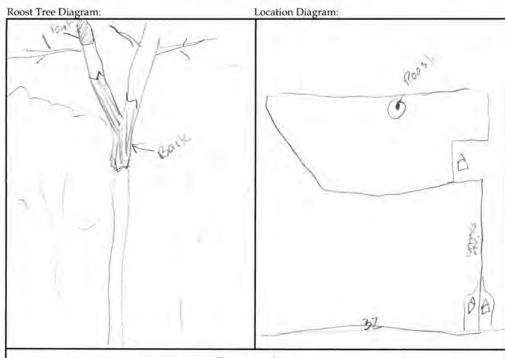
Project No./Project Name 417.01 / Emarson Clark Da

Loc	cation_	Source with	dol	0.5	369,3	21 372						St. Curia	u l
Co	unty	UTM: N/E 4	1.219	60	- /	State_ WZN - 87	014	.0.	Qua	ad Fires	:NAD83 Obs		L CLEVEN
	Tree Tag		DBH		nt ft or m	CBUCIN	1 3 3 3 3	Cover**	Tree	Available	:10100 > Obs	Habitat	W 0 101111
#	#	Species	(cm)	Tree	Roost	Condition*	Usable	Total	Ranking***	Roost/ Observation	Interior	Edge	Open
1	373	Ash Swarz	47.2	80	40	S	H	L	0	Ves			
2		Backwood	5612	110	1	L	L	H	C		Cano	py Cover at Roo	st
3		Sugarmople	33	80	/	L	6	14	C		Open	Intermediate	Closed
4		Sugarmople	14.5	50	-		L	17	50				
5		Sycamorite	3.0	15	/	L	レ	H	и			Basal Area	
6		Bocch	9.1	12	~		L	H	U		Live Trees	Snags	All Trees
7		Sycamorphe	18.4	76	1	L	L	14	50		160	10	170
8		Sucarmosta	512	12	-	L	6	1+	И				
9		Surarmaple	28.1	75	-		1	H	0		F	Roost Location	
10		Sugarmobile	5,3	15	~	L	L	14	N		Bark	Cavity	Crevice
11		Sygamaple	5.0	10	-	L	V	H	U	1			
12		Sugarmoble	214	60		V	~	H	50		↓ QUICK REFE	RENCE / †	CIRCLE
13		Sugarmore	5.1	15	/	V	-	1+	И	====			
14		Sucarmaple	8.1	75	-		L	17	V			*Condition	
15	-	Belch	80,1	90			L	17	C		Snag	Live	Live-Damaged
16		Sugarmane	10.5	40	1	1	し	17	U.				
17		beech	23,8	60		1	1	1+	C		-	% Bark Cover	
18		1127 W. H.E.		.11							TV:-1> 25%	Moderate = >	Low =
19							11 = 1				High = ≥ 25%	10-<25%	< 10%
20			10.00				1						
21											**	*Tree Ranking	
22			l'agai	771							Canopy	Sub-Canopy	Understory
A 10	factor En	glish prism is used	to identif	fy trees v	vithin the p	lot, centered on	the roost tr	ee.			-		



Bat Species/Sex/Frequency: MYSE/F/,587

Band # 00NR 23552



			Bat Day	s	
No.	Date	Bat Freq.	Bat Band	Sex of Bat	Observations
1	8/1	587	23552	F	Con Branco
2	8/2	582	23552	K	Qan & Brand
3					7
4				- 10	
5					
6					
7		-			
8					
9					
10					
11		= -			
12		1			
13	===				
14					

						Ti	ime		Focal	
No.	Date	Temp °F	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat exit#	Personnel/ Comments
1	8	21°C	C/86.1		8:58	-10	9,10		1	fan
2	8/2	THE	clear	1	8:59	902	901	1	A.	FOUR
3										
4	0.1									100

-		Cavity	or Crevice	Characteris	stics		
No.	Nature	Aspect	Opening Measurements				
			Width	Height	Ground	H₂O Level	
1							
2							
3							

Comments:

Ash snag hear edge of justilliot and large road int. Little back remaining, but emerge from



ie i pro smire

Page Found Vers:	Oper
Cover at Roos Intermediate	Oper
Intermediate asal Area	Close
Intermediate asal Area	Close
asal Area 🖊	1/A
I January I	1 1 2 2 2
I January I	1 1 2 2 2
Snags	All Tre
st Location ^	NIA
Cavity	Crevio
ENCE / †	CIRCLE
Condition	
Live	Live-Dam
Bark Cover	
No.	Low:
10-<25%	< 10%
	Moderate = ≥

COPPERHEAD

Copperhead Environmental Consulting Inc. P.O. Box 73, 11641 Richmond Rd. Paint Lick, KY 40461 (859) 925-9012

	11	
Roost Tree #_	NIA	

Bat Species/Sex/Frequency: M 1/5

Band# ODWR 17178

Roost	Tree Dia	agram:			1	ocation D											
							90	foron &	2-13 -1.13	8-2-A				Bat Day	s		
									0	9,4	No.	Date	Bat Freq.	Bat Band	Sex of Bat	Ob	servations
						who !					1	8-1	205	17178	F		
	1/1					8-1-4			(8	?	2	8-2	205	17178	F		
1	N/1	7				0	1		1	ppior male	3						
						1	// 5	8		LMI ATTOK	4						
					- 11	Y		8	18-1=	41.178988	5	7,000		-		1_	
						1	in.	2	-	41. 178968	6	11-3					
						1	2	7	1000	41,1798937	7						
						1		/	2.7.	-82,88824	8	101					
						Zail !		1			9	1					
						Sper					10						
											11	12		1			
							1				12	9					
					- 4						13					1	
									1		14						
					Emergeno	e Count			1						-		
					I		ime		Engal				Cavit	y or Crevice C	haractoric	stian	
	15.24	Temp		# of		Bats	Bats	Tagged	Focal Bat	Personnel/			Cavit	y of Cievice C	naracteri	sucs	
No.	Date	°F	Weather	Bats	Sunset	Start	End	Bat	exit#	Comments					Opening !	Measureme	nts
1											No.	Nature	Aspect	Width	Height	Ground	H ₂ O Leve
2										1	1						
3											2			/			

Comments:

GPS COORDINATES &-1-A = 41,17860/-82.88918, 242° Back &-1-B 41,17904/-82.88630, 332° Back

9-2-A = 41,7906/-82.88748, 660 Back 8-2-B = 41,17907/-52,88832,340 Back



Roost	Tree	Data	Form	(2014)
HOUDE		Little		(-0)

Bat Species/Sex/Frequency: MYSE F/170, 205

00NR Band# 17178

age of

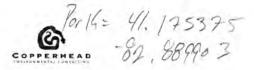
Roo	st Tree	# 170 Decien wood	Pro	oject No	o./Projec	t Name	1120	02/ 1	MENTON	(/	Date Fi	rst Found 27	4 July 15
Loca	ation	Seneca	100	WIO	res 15	State	04	251100	Out	ad Firesia	la -		
Lat-	Long/l	UTM: N/E_9	1.178	92		W/N_92. 8	9089		Zone _	Datum	:14083 Obs	ervers:	hefter !
	ree Tag	Species	DBH		t ft of m	Condition*	% Bark	Cover**	Tree	Available Roost/		Habitat	
	#	Species	(cm)	Tree	Roost	Continuen	Usable	Total	Ranking***	Observation	Interior	Edge	Open
1	140	From 5/1	40.5	25	20	5100	10	90	Canapy	Barle	r		
2		U, granitana	6.7	3	_	live	0	100	126		Cano	py Cover at Roo	st
3		Fraxines 5%	45.8	23	_	5nag	30	70	Canoly	Bark	Open	Intermediate	Closed
4		Fraxion S/	54	20	_	Spag	30	30	Canry	Bark			
5								-	/			Basal Area	
6											Live Trees	Snags	All Trees
7									1		.10	30	40
8									2.4	4			
9							1				1	Roost Location	
10											Bark,	Cavity	Crevice
11	1												
2											 QUICK REFE	RENCE / †	CIRCLE
13								1					
14												*Condition	
15									1		Snag	Live	Live-Damage
16									11		1		
17									78-1			*% Bark Cover	
18									F 12 1		High = ≥ 25%	Moderate = ≥	Low =
9											111611 - 22710	10-<25%	< 10%
20													
21											**	*Tree Ranking	
22		glish prism is usec		-	4	1					Canopy	Sub-Canopy	Understory

COPPERHEAD

Copperhead Environmental Consulting Inc. P.O. Box 73, 11641 Richmond Rd. Paint Lick, KY 40461 (859) 925-9012

Roost	Tree #	140	2	13	Bat Spe	cies/Sex/Fr	requency:	MYSE/	E/1.	92.205	Band	OD # 171	NR 78				
Roost	Tree Dia	ngram;	1/x	5	A	ocation D	iagram:							Bat Da	vs		
			11	1		w	_		1	wood	No.	Date	Bat Freq.	Bat Band	Sex of Bat	Ob	servations
4	16			1	2				-	0	1	2750ly	192,205	17178	F		
1	1/			100	*				CHAK	1/	2		172.206	17178	F		
	1,	1		LF	restible			1000	Cin) \	3	-1					
	1	1		11 .	141/2		(Vo Acust	~ /	4	4						
	1	1.7					,	John A	/	Noka	5					1	
		11					-	-1-44	25		6						
		19					1	,	(X) 14	BOAVI	7						
		1	\				Whi		1	Marz	8						
		1	1			V			11	1	9						
)	11.7						1	-A	10						
			1.1						1	all	11					1	
			37		- 1				1	11	12						
			11		- 1				1	11/	13	100			1		
			N.F. Y						1	11	14						
					Emergene	ce Count					_						
		200					ime		Focal	7.00	3		Cavit	y or Crevice C	Characteris	stics	
No.	Date	Temp °F	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat exit #	Personnel/ Comments					Opening l	Measureme	nts
1	27	20°c	Clear	2	2055	2109	2113	2113	2		No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level
2	28	68.5		2	2053	21:11	21:20	71:20	2		1						
3	-=	50-					1		11 =		2						,Y4
1 1 5 1											3						

Comments:	when	field	wead lot edge	to 41.	17889	-82.89136	Harm	turn	due	East	to free
GEING CAU	16					/		-	-		
- Tast	e Ad F	logging	Mills food	EMERJANCE	Spet						



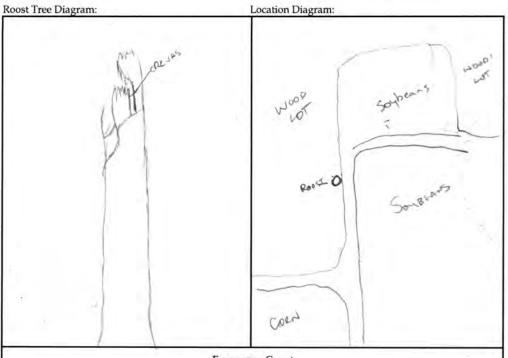
Roost Tree # 314

00	cation_	# 314 Eastor	Pro	oject No	./Projec	t Name	710,0	1_E	MERSON CR	EEX.	Date Fi	rst Found	7-30-15
Co	unty S	ENCLA				State_			Qua	ad Fires	de		
Lat	-Long/	UTM: N/E_4	1.1790	0		W/N 8:	2.8878	'n	Zone <u>-</u>	Datum:_	NAD83 Obs	servers: MTM	1, ELS
#	Tree Tag	Species	DBH	Height	ft or m	Condition*	% Bark	Cover**	Tree	Available Roost/		Habitat	
	#	Special	(cm)	Tree	Roost	Condition	Usable	Total	Ranking***	Observation	Interior	Edge	Open
1	314	Oucreus Sp.	91	60'		SNAC	Luu	HIEH	C				
2		Ulgus sp	10"	12'		LIVE	Low	Hiers	Sub-C		Cano	opy Cover at Roo	st
3		Ulaus Sp	7"	10'		LIVE	Lod	4.64	unsia		Open	Intermediate	Closed
4		Whias Sp	23°	40'		LIVE	Lou	141616	Sun C				Ciosed
5		Acer rubrus	19.5"	35'		LIVE	Love	Holl	Ca			Basal Area	
6		Carga ovala	36 "	55		L1V6 -	HeH	High	C	100	Live Trees	Snags	All Trees
7		Carya nyale	31"	55		Live	HIGH	HIGH	C	V	70	10	80
8	1	Carya ovata	9"	12		LIVE	Low	H1612	BHOOR				1 00
9											I	Roost Location	
10	-										Bark	Cavity	Crevice
1								1 == 1		VI = 4			
2			1111				-=1				QUICK REFE	RENCE / †	CIRCLE
3	11		4										
4			11 2 11									*Condition	
5							1				Snag	Live	Live-Damaged
6				1									
7				T I							**	% Bark Cover	
8											63.5.22	Moderate = >	Low =
9	= 7				_=_						High = ≥ 25%	10-<25%	< 10%
0				13									
1											**	*Tree Ranking	
2		glish prism is used		1.3							Canopy	Sub-Canopy	Understory

Roost Tree # 314

Bat Species/Sex/Frequency: MYSE /F /205

DDNR Band # 17178



			Bat Day	s	
No.	Date	Bat Freq.	Bat Band	Sex of Bat	Observations
1	7.30	205	17178	F	Y
2	7.31	205	17178	F	
3					
4					
5		4 - 4			
6					
7	F = 7				
8					
9					
10	-				
11	2 == 1				
12					
13					
14	-				

	1			100		Ti	me		Focal	
No.	Date	Temp °F	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat exit#	Personnel/ Comments
1	7/30/15	81	Clear	3	8:49	8:47	9:44	9:44		TAB
2		TE.								
3	0.00									
4										

				Opening !	Measureme	nts
No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level
1		14 - 31				
2	- T V					
3	3					

Comments:

at time: 8:35pm; Frequency End Time ! la: H pm

tree to the right, not Northern

1111



9:10) possibly sain but

4.44 - Northern Emerged - No ping on Reclever

8-1-15 OFF Parcel

N 41, 17 904 W 82, 88830 - 332'

N 41. 17860 W 82. 88918 -242

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Likely Tree location

N 41.178988 W/ 47 828251

Cou at-	nty Long/	# 396 WOOD 1 ot SENECA UTM:(N)E 4	1,18	123		State W/N 82	014	02	Qua	ad Fire	5,00 n: N	14083 Obs	servers: B. R.	enley (c.)
	ree Tag		DBH (cm)	Heigh	ft or m	Condition*	% Bark	Cover**	Tree Ranking***	Available Roost/			Habitat	
1 7			31	Tree 35	Roost	5	Usable /	Total	Karking	Observation 2	L	Interior	Edge	Open
+	790	Frazinas Sy.	-	40	20	5	1	11		Bark Bark	Г	Cana	opy Cover at Roos	
1	_	Fraximus sp	26.5	40	-	~	M	H	1	Bark	1	Open	Intermediate	Closed
1		Fraxions Sp	215	35		5	1-	1+	1	Ba-V	L	Орен	memediate	Closed
	-		62.5	60	_	1-	L	14	-	JOH	Γ		Basal Area	
	1	Juglens Migra		75	~	1	2	+	6	NONE		Live Trees	Snags	All Trees
	_	Francisco sp	39	55	-	.5	M	M	C	Bark		30	(00)	90
	_	Fraximus of	16	17	-	5	L	H	5	None.	• [
	-	Ulnus vubra	17	20	-	1	4	H	5	NONE			Roost Location	
)		1000000										Bark	Cavity	Crevice
				11			1 = 1				-			- 10
1												QUICK REFE	ERENCE / †	CIRCLE
1														
+													*Condition	
+												Snag	Live	Live-Damage
+											_			
-												7	*% Bark Cover	
												High = ≥ 25%	Moderate = ≥ 10-<25%	Low = < 10%
			1 - 1		1 1 11						_			
												**	*Tree Ranking	
1			7 10	11 . []	100			-		1		Canopy	Sub-Canopy	Understory

A 10 factor English prism is used to identify trees within the plot, centered on the roost tree.



Roost Tree Diagram:	Location Diagram:									
	N.CR 27						Bat Day	s		
Ano woo	130.90		2000	No.	Date	Bat Freq.	Bat Band	Sex of Bat	Ob	servations
		/	(00	1	8-1	450	17166	F		
Mr. 189	1			2	8-2	450	17/106	F		
The state of the s	a l		16/207	3						
A A A High			3	4						
			3	5				1	/	
1324	334	,	-	6						
	1 0 et 39	6		7						
		- 1		8						
	1 Page	-).	9					1	
+ Bre wo	· 1 (1 2)	5		10						
		4-	2	- 11						
)		- 1	12						
				13					-	
				14		_			<u> </u>	
	Emergence Count					0. 11		60.77	A	
Temp # of	Time Bats Bats Tagged	Focal Bat	Personnel/		-	Cavit	y or Crevice C	haracteris	tics	
No. Date °F Weather Bats	Sunset Start End Bat	exit#	Comments					Opening N	Measureme	nts
1 9-1 75 Cleur 1	2046 21:27 21:27 21:27	1	B. Remov	No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level

2

Comments:

snass are deal ash trees, evidence of Emerald Ash bores

+ Livery, 15 boi talk was one - type red by or Big brown)



927

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t	₹	
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9	Ý	

Co	unty_	UTM: N/E 4	2000	ы		State_ W/N_ 8み。	011		Qua	ad Fires	de 11/2 m	7.7	I
	Tree Tag		DBH	_	t Norm			Cover**	Zone _	Available	: NAD830bs	Habitat	orm
#	#	Species	(cm)	Tree	Roost	Condition*	Usable	Total	Ranking***	Roost/ Observation	Interior	Edge	Open
1	370	Pennsylvania	58,7	60	710	5	M	L	-				
2		Fraxians people sylvenia	46.2	20	-	5	L	H	SC	Cracks &	Cano	opy Cover at Roo	st
3		Beech ?	42.3	18	-	5	L	H	SC	Barle	Open	Intermediate	Closed
4		oaksp	70	30	~	5	L	H	6	cracks			
5	70.1	unknown	44	40	Les.	S	L	L	C	cracks crevices		Basal Area	
6		Praxings Vanica	112.3	25	4-0	5	L	H	SC	revices	Live Trees	Snags	All Trees
7		Sugarrage	17.1	50	/	L	L-	1+	50		130	60	190
8	H - E	Sucar may be	18.46	50	~		1	1+	50				
9		Sugar morale	4.3	15	-	Ĺ	L	1+	u		_ I	Roost Location	
0		Sugarmaple	12.9	40	/	L	1	1+	50	-	Bark	Cavity	Crevice
1		Sacquinogle	69	30	1	L	-	1+	4				
2		Sugarmapla	11.6	40	_	-	1	11	SC		 QUICK REFE	RENCE / ↑	CIRCLE
3	4	marmagle	14.4	40	~	V	V	1+	50				
4		Sugarmaple	11.8	30	-	6	1	14	36			*Condition	
5		21m	58.3	100	-		L	1	C		Snag	Live	Live-Damag
6		Sugarmaple	160	35	1	_ レ	1	11	E				
7		Sugar maple	1012	60	/	C	L	11	50			*% Bark Cover	
8		Sugar maple	11.6	(00	1	4	C	1+	E		High = ≥ 25%	Moderate = ≥	Low =
19		magiv maple	149	75			L	1+	9		111gh - 2.576	10-<25%	< 10%
20			1				1 - = 1		-				

© COPPERHEAD

A 10 factor English prism is used to identify trees within the plot, centered on the roost tree.

Copperhead Environmental Consulting Inc P.O. Box 73, 11641 Richmond Rd. Paint Lick, KY 40461 (859) 925-9012

Understory

***Tree Ranking

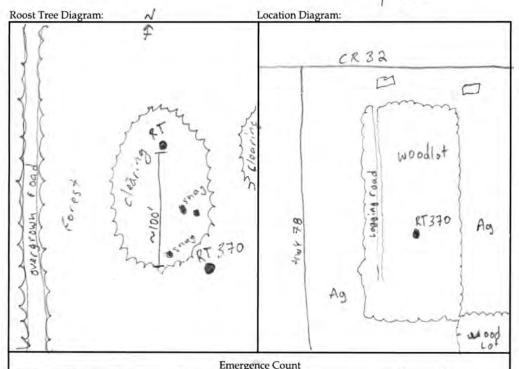
Sub-Canopy

Canopy

	フィー
Roost Tree #	370

Bat Species/Sex/Frequency: MSO/P/778

Band # ODNR 23553



			Bat Day	s	
No.	Date	Bat Freq.	Bat Band	Sex of Bat	Observations
1	7/28	779	23553	F	
2					
3					
4				k	
5					
6					
7					
8					
9					
10	26.3				
11	1, = 1				
12					
13	X				
14					

	2015					Ti	ime		Focal	
No.	Date	Temp °F	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat exit #	Personnel/ Comments
1	7/28	79°	clear/not	1	2054	2100	2100	2100	1	
2	7/30	800	Gear	٥		-	-	-	-	
3										
4										

				Opening Measurements								
No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level						
1												
2												
3												

Video->

RT370 15 approximately lodge south of RT368



Bat Species/Sex/Frequency MVS 0/F/779 Band # ODNR 23553

ца	t-Longy	UTM: NYE-41	,009	11	(State_ ŴyN_83.	4130	8	Zone	Datum:	NAD830bs	ervers:	earmal		
	Tree Tag Species DBH Height ft or m Condition					Ĭ	% Bark Cover**			Available	Habitat				
#	#	Species	(cm)	Tree	Roost	Condition*	Usable	Total	Tree Ranking***	Roost/ Observation	Interior	Edge	Open		
1	368	Unk.	52.7	70	25	Snig	110	Los/o	0	Squaking					
2		heer spechage	60.3	50	-	Snaa	6	H	5c		Cano	py Cover at Roo	st		
3		FREY PILL CHOPE	29.7	50	ve .	Spen	1	14	50		Open	Intermediate	Closed		
4	= = =	Acor sacclar	66.7	20	/	51811	L	1	45	spholo !			7-1-1		
5			-							-mint		Basal Area			
6											Live Trees	Snags	All Trees		
7											0	40	40		
8															
9)									1	Roost Location			
10											Bark	Cavity	Crevice		
11	-	11						1							
12										1	↓ QUICK REFE	RENCE / †	CIRCLE		
13											1				
14					+							*Condition			
15											Snag	Live	Live-Damageo		
16	1 ==														
17								-			*	*% Bark Cover			
18] = = = = 1		High = ≥ 25%	Moderate = ≥	Low =		
19											Ingn - ≥ 23 %	10-<25%	< 10%		
20															
21											**	*Tree Ranking			
22				4.1							Canopy	Sub-Canopy	Understory		

Roost Tree l	Diagram			1	ocation D	Diagram:				_						
	V	XIV	211	12		B	T368						Bat Day	/S		
	1		//			()				No.	Date	Bat Freq.	Bat Band #	Sex of Bat	ОЬ	servations
		11/	1		1					1	767	779	73553	F		
		1	1.1		11					2	7/29	,779	23553	F		
		111			- 73					3	7/31	.779	23553	F		
		1//		- 0	-	Tools		1		4	8/1	,779	23553	I	Ran	Brander
							-		-	5	8/2	1770	73.49	6	Raw	1 Brans
		1/1						7	/	6			- 3			
		1. 1						- //	-	7						
11000 1	10	1111			Col	1			- 1	8						
14000	arthi	11			101	1		"1	1	9					A	
	elit-							1	1 11	10						
550		1111		- 1					1	11	-				/ -	
		1///		1						12						
		11/1			-1	V.	lors			13						
] []				10	7.00			14						
				Emergen	ce Count											
					1	ime		Focal				Cavit	y or Crevice C	haracteris	tics	
No. Dat	_	Weather	# of Bats	Sunset	Bats Start	Bats End	Tagged Bat	Bat exit#	Personnel/ Comments					Opening l	Measureme	nts
1 7/1	7 7:	clear	4	1054	2109	7211	2109	1		No.	Nature	Aspect	Width	Height	Ground	H ₂ O Level
2 7/2	8 78	Clear	1	2054	2104	2104	-			1						
3 7/2	9 82		12	2053	2013	2110	2453			2						
4 7/3	170	Clear.	5	20	20:56	21.31	20.56	1		3						
Comment	s; 230C	Clear	2		20:56	20:50	8 57	2	Brandon Smill	son of						
Mouse	De l	call out	y John	0 30		40F1	- P	Pen d	down to							
Courado.	000	12 / 18	wal.	(96 SL	30		~	4 4	r showed	Level	s conce	7704	-			

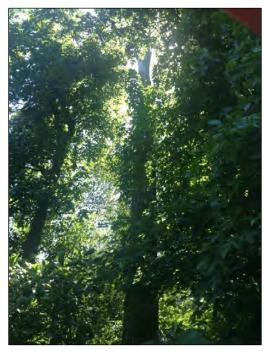


APPENDIX E

Roost Tree Photographs



RT 140



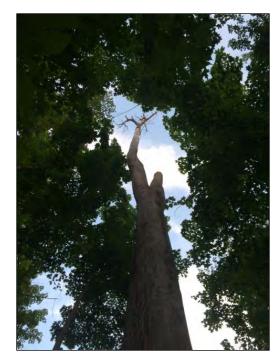
RT 314



RT 368



RT 369



RT 370



RT 371



RT 372



RT 373



RT 395



RT 396



RT 983



RT 984



RT 985



RT 986



RT 987



RT 988



Summer 2016 Bat Survey for the Proposed Republic Wind Project, Seneca and Sandusky Counties, Ohio

USFWS #16-037

Completed by:

Theresa Wetzel, Christopher McNees, and Chris Leftwich

1 November 2016

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COPPERHEAD ENVIRONMENTAL CONSULTING

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APPENDICES

Appendix A: Mist-Net Data Sheets Appendix B: Mist-Net Site Photographs Appendix C: Bat Capture Photographs

PROJECT BACKGROUND

In 2015, Copperhead Environmental Consulting, Inc. (Copperhead) completed a bat mist-net and telemetry survey for the Republic Wind Project (Project) in Seneca and Sandusky counties, Ohio. Since completion of the 2015 survey, the Project boundary changed to include an additional area (~7,882 acres) along the northern and western edges of the original Project. Therefore, Copperhead completed a mist-net survey of the expansion area, referred to as the 2016 assessment area (Figure 1). The goals of this survey were to document bat species diversity and abundance within the assessment area, and inform understanding of roosting habitat, foraging range, and spatial distribution of federally listed Indiana bats (*Myotis sodalis*) and northern long-eared bats (*Myotis septentrionalis*), and state listed Rafinesque's big-eared bats (*Corynorhinus rafinesquii*) and eastern small-footed bats (*Myotis leibeii*), if captured.

METHODOLOGY

Level of Effort/Site Selection

Mist-net surveys were implemented in accordance with guidelines outlined in the 2016 Range-wide Indiana Bat Summer Survey Guidelines (USFWS 2016), 2009 Ohio Department of Natural Resources On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio (ODNR 2009), and the most recent Ohio Division of Wildlife Guidance for Bat Permitted Biologist (ODNR-DOW 2015). A study plan was submitted to the USFWS and the ODNR on 6 July 2016 and concurrence was received on 6 July (USFWS) and 17 July (ODNR).

The level of effort outlined in the study plan was based on the estimated amount of forested habitat within the 2016 assessment area (~540 acres) resulting in 5 mist-net sites surveyed from 19 July through 22 July 2016.

Locations of mist-net sites were chosen based on the best available habitat present within parcels where landowner access was granted, and deemed most likely to yield Indiana and northern long-eared bat captures.

Mist-Net Surveys

Mist-nets were set-up to maximize coverage of flight paths used by bats along suitable travel corridors, foraging areas, or drinking areas. Placement of mist-nets was based on the extent of canopy cover, presence of an open flyway, and forest conditions near the site. Actual location and orientation of each net was determined in the field by permitted biologists and mapped with ArcGIS (v. 10.3.1 ESRI, Redlands, CA).

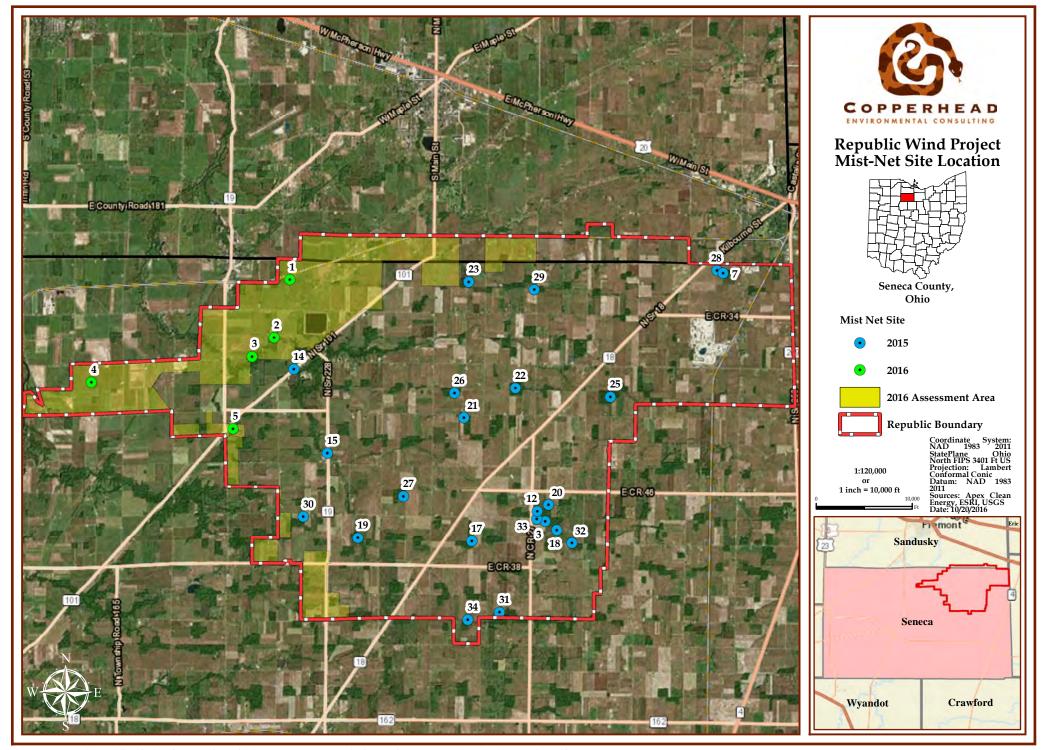


Figure 1. Proposed Republic Wind Project overview with bat assessment area and mist-net sites, Seneca and Sandusky Counties, Ohio, 2016.

COPPERHEAD ENVIRONMENTAL CONSULTING

Nine net nights of effort were completed at each site over two non-consecutive nights, with at least one mist-net set being a high net (three mist-nets stacked to create one set that was ~7.5 m tall) each night. Low visibility, high-quality, nylon nets, 4 to 12 meters in length (depending upon the width of the corridor) were used for each net set. Nets were deployed at sunset each night, left open for at least five hours, and checked every 10 minutes.

Disturbance near the nets was kept to a minimum. Weather data, including temperature, wind speed, and cloud cover, were recorded for each site on an hourly basis to ensure compliance with the mist-netting guidelines (e.g., temperature during survey > 50°F).

Bats were live-caught in mist-nets and released unharmed near the point of capture. For each individual captured, the following biological and morphometric data were recorded: species, sex, age class, reproductive condition, mass, and forearm length. In addition, the height and the specific net set of capture were recorded for each bat. Processing of bats was completed within 30 minutes from the time the bat was removed from the net.

Radio-Telemetry & Emergence Counts

If captured, Indiana, northern long-eared, Rafinesque's big-eared, and eastern small-footed bats were to be radio-tagged in order to locate day roosts, conduct emergence counts, and to estimate foraging range. Radio-telemetry and emergence counts were not conducted because no target species were captured during this survey.

White-Nose Syndrome Protocol

In an effort to minimize the transmission of White-Nose Syndrome (WNS) between captured bats, all netting and field activities followed the "National White-Nose Syndrome Decontamination Protocol - Version 04.12.2016", established by USFWS. All netting equipment was sanitized in > 55°C (>131°F) water for 20 minutes prior to arrival and after each survey night. Individual bats were kept in unused paper bags while awaiting processing. Disposable latex gloves were worn over sanitized handling gloves and changed following the handling of each bat. All non-disposable equipment, e.g., PESOLA® scales, rulers, calipers, etc., coming into contact with bats were sanitized immediately with isopropyl alcohol disinfecting wipes following the handling of each bat. Bats were evaluated for potential WNS infection through wing scoring following Reichard and Kunz (2009).

RESULTS AND DISCUSSION

Mist-Net Survey

Mist-net surveys were conducted at five sites from 19 – 22 July 2016 (Table 1, Figure 1). A total of 78 bats of three species were captured over 45 net nights. No Indiana or northern long-eared bats were captured (Table 2). Big brown bats (*Eptesicus fuscus*) comprised 85 percent of total captures (n=66), and eastern red bats (*Lasiurus borealis*) comprised 13 percent of total captures (n=10). 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.

Weather conditions during the surveys were within the parameters outlined in the USFWS survey guidance, including no rain or heavy winds and temperatures above 10°C (50°F) during the entire five-hour survey period. No deviations from the survey methodology occurred during the course of the field survey. Captured bats were examined for any sign of WNS by using the Reichard Wing-Damage Index (WDI). No major traumas (i.e., WDI > 1) were observed on captured bats.

Table 1. Mist-net site locations, Republic Wind Project, Ohio, 2016.

Site No.	Latitude	Longitude	Site Location	
1	41.25035	-83.02975	trail through woodlot and ephemeral wetland	
2	41.23370	-83.03558	wood lot and stream of 180	
3	41.22830	-83.04389	large riparian forest along beaver creek	
4	41.22067	-83.10469	wood lot off TR0164	
5	41.20766	-83.05096	wide corridors leading to ag fields	

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

	Adult Male Adult Female Juvenile									
Species	NR*	S	P	L	PL	NR	Female	Male	Escaped	Total
Eptesicus fuscus	5	11	0	2	13	0	12	21	2	66
Lasiurus borealis	1	4	0	0	2	1	1	1	0	10
Lasiurus cinereus	0	0	0	0	1	0	0	0	1	2

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



CONCLUSIONS

No federally or state listed species were captured during this survey. The lack of Indiana and northern long-eared bat captures suggests that these species are not using this portion of the project area during the summer maternity season, or the species are present in such low densities that current survey techniques failed to detect them.



LITERATURE CITED

- Ohio Division of Natural Resources (ODNR). 2009. On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio: An Addendum to the Ohio Department of Natural Resource's Voluntary Cooperative Agreement.
- Ohio Division of Natural Resources Division of Wildlife (ODNR-DOW). 2015. Ohio Division of Wildlife and USFWS (OH Field Office) Guidance for Bat Permitted Biologist.
- Reichard, J. D. and T. H. Kunz. 2009. White-nose syndrome inflicts lasting injuries to the wings of little brown myotis (*Myotis lucifugus*). Acta Chiropterologica, 11(2) 457-464.
- United States Fish and Wildlife Service (USFWS). 2016. Range-wide Indiana Bat Summer Survey Guidelines.



APPENDIX A

Mist-Net Data Sheets

Site N Site L Count Lat/L	o ocation_ ty on ; UTM	trail	Project Hand	State_	ame_2 o /+ xb/N	B3.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	200	Zone_	ne Dowr	Hand 080 Datum	2093	Date	rs C. Let	The ich	S.A.	0	HEAD
#	Time	Species	Age		Repr.		FA (mm)		Height (m)	WDI	G/H/B/T	Band# Type	Freq.	Moon Phas		FU4		Vax / Wane
1	2215	EPFU	弄	m	NR	140	44	A	7	0-P			_			Rise		Set
2	2300	EPFU	1+	m	NR	17.0	44	A	7	0	-		-	Sun		061	7	2000
3		EPFU	I	m	NR	16.75	45	A	1.5	0				Moon		220		0806
4			1			1		- /					-	-				
5														Time	Temp (F)	Sky	Wind	No. Bats
7							-				-	-	-	2100	77	unk	-	_
8	-								-				-	2200		nk	0	1
9			-	7		-	1				-		-	2300	71	- nK	0	
10							-					-		0000	70	unce	0	1
11						-	-			-				0100			0	0
12	V1								7				-	0200	70		0	0
13															1	0.00		
14									-									
15			1				1											
16														3 5		Sky Code		
17														0	Clear			
18													1000	1	Few Cloud	ds		
19													11 3	2	Partly Clo	udy		
20						1								3	Cloudy or	overcast		
21														4	Fog or sm	oke		
22														5	Drizzle or	light rain		
23							1							6	Heavy rai	n - thunder	storm	
24																		
25	-4															ıfort Wind	Scale	
26	1.0												4 6 3	0	Calm: <1			
27			1											1	Light air:			
28									1					2		ze: 4-6 mp		
29							1						123	3		eze: 7-10 n	-	
30	1.86													4	Moderate	breeze: 11-	16 mph	
borea (MY) (MY)	alis (LABC AU); Myot 6O); Nycti	viations: Coryn)); Lasiurus cine tis grisescens (M ceius humeralis tions: Male: M;	reus (LAG YGR); M (NYHU);	CI); Lasi yotis leib Perimy	urus sem oii (MYLI otis subf	inolus (L. E); Myotis lavus (PE	ASE); Lasi s lucifugus SU); Tada	onycteri (MYLU rida bra	s noctivaga); Myotis s siliensis (T	ans (LAN eptentrio ABR)	O); Myotis nalis (MYS	austroripariu	15	Please Re P.O. Box ((859) 925-	73, Paint	Lick, KY,	40461.	p. 1

Mist !	Netting D	ata Form																				
Site N	10. Site	1		Project	t No./N	Jame		/_						Date	7-22-16				-			
Site L	ocation																	0				
Coun	ty	2 25			State_			Time Up	2100	ZTin	ne Dowi	0200							76			
Lat/L	on; UTN	1: N/E	_		_	$_{\rm W/N_{\rm }}$				Zone		n_0200 Datum_		Observe	rs E. Sr	nith		0055	HEAD			
	1						_							A.	Ashmore B. Lough COPPERHEAD							
#	Time	Specie		Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.	Moon Phas				Vax / Wane			
1	22:40	E fus	Cas	3	M	N	14	45	E	.5	0						Rise		Set			
2	13:40	E. Fus	cus	A	M	N	18	46	4	7	0				Sun		20:58					
3	0050	E, FLG	cus	A	10	N	17	48	A	6	0				Moon		22:		0910			
4	00:50	E. Fus	scus	7	M	N	14	46	A	6	0								4 :0-			
5	0200	E. fus	cus	A	M	5	17	46	A	4.5	Õ				mr.	T (T)	CI		1.00			
6					1		1	TO WE			THE STATE OF				Time	Temp (F)	Sky	Wind	No. Bats			
7															2100	87	0	1	-			
8															2200	84	0	1	0			
9															2300	81	0	1	1			
10															0000	80	0	1	1			
11					100										0100	79	1	2	Z			
12															0200	78		2				
13																			T TO T			
14																1						
15																						
16																Sky Code						
17															0	Clear						
18															1	Few Cloud	ls					
19															2	Partly Clo	udy					
20	2				2										3	Cloudy or	overcast					
21			_												4	Fog or smo						
22															5	Drizzle or	light rain					
23			_												6	Heavy rain	ı - thunde	r storm				
24			-																			
25																	fort Wind	l Scale				
26		-	\rightarrow		4									2 = 1	0	Calm: <1 n						
27			_		1 - 1									1	1	Light air: 1						
28															2	Light breez						
29															3	Gentle bree						
30		**			1					100			1.79.4	-	4	Moderate l	oreeze: 11	-16 mph				
Acou	stic Surv	ey: Unit	type			Unit #		Date		Start tim	7.		Stop time		F81 -							
								Date		Start tim			Stop time		Please Re							
TA7 1	become de la							Date	2.5	Start tim	ie		Stop time		P.O. Box		lick, KY	, 40461.				
vveat.	herproof	ing						Coordin	ates					- 1	(859) 925-	9012						
Com	nents:																		p. 2			

Mist Net Site Habitat Sheet Site No. / Project No.//	Name 3	513, Re	public				Date	07-4	16
Lat/Lon; UTM: DE 41. 25035 Q/N 83. 02975	Zone_		Observers	C. Lof	huich	. A.	Asha	ve !	
Datum: NAD83 County Scarcy State Of Quad	Frem	ont East			4.35	1			
	Length				Domin	nant Veg	etation		_
Net (m)	(m)	Dates	1. A. SE	rcharm		4. 4.			
1/ml A 7.8	12	20:	2.C. UV	rta		5. F.	grande	Folig	
dry wetland B 5.2	6	26:	3. A. ru	brun		6.00	100/197	m	
C 5.2	6	201	-						
D 5.2	8	20:	77-1-1-1			Set by H		-	
E 5.2	7	26.	Habitat	A	В	С	D	E	F
	-		River Stream						
(18 B) Bear W			Pond						
Site Photogr	raphs /		Corridor			V	1-	1	
Camera:	EL		Cave			~	1	1	
Photo Log:_	1		Mine						
09	//		Forest	1/				1	
	/		Gap					J. and	
			Other						
				6 9	X				
Indiana Bat Habitat Characterization (Choose appropriate score for each									
Roost habitat: 1. Poor: No or few snags >= 5" DBH with sloughing bark 2. Moderate: Snags with sloughing bark or other roost features present 5 3. Optimal: Snags with sloughing bark or other roost features present >1 Water Resources: 1. Poor: bat drinking resources not present at the site 2. Moderate: Ephemeral or intermittent streams or ponded areas present openings or canopy gaps allow bats easy access to the resource. 3. Optimal: Streams or ponds (including road ruts) present that appear to available. Forest Structure: (if hardwoods are absent or nearly absent or if stand is 1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. U. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inc may be present but rare.	5-15 inch 15 inch D 2. t but too o o offer da s monocu Understo	DBH within 100 BH within 1000 cluttered to allow rinking resource ulture, area autor ory growth clutte	0 feet of forest feet of foreste w many bats to throughout the matically qual ared and restri	ted areas. d areas. o drink eache majorit ifies as a 1 cts flying,	sily or simu y of the sun : poor). /foraging	nmer. Fly	ways to	resources	
3. Optimal: Mature forest. Diverse age classes of trees present. Trees > 1 gaps that facilitate bat foraging. Land Cover: 1. Poor: Square kilometer surrounding site predominantly 2. Marginal: Trees present in the form of small woodlots and wooded fe 3. Optimal: Area is largely forested. Wooded stands are connected to ot Total Habitat Score (Should be between 4 & 12)	un-fores	sted. Few matur s. Little connecti	e trees presen ion to adjacen	t not conn t forested n, fence ro	ected to oth	er areas c	of trees.	all openir	igs and
Comments:			P.O. Box 73,		- KV 1016			5	
			859-925-901		N, N I , 4040.		COPF	ERH	EAD
			037-723-701	4				THE REAL PROPERTY.	

Site N	0. 2		Project	No./N	lame	513	/_	REPU	3410				Date_7	-20-16		+	-	
Site Lo	ocation_	W000 10	Cins T	Char	OFF 1	59		0							_		12	7
Count	ty_GEN	eea 1: N/E_41.	7327	State_	MILIAT	- 27	Time Up	4.0	OTin	ne Down	2:00	NTAZ	01	M	4476		10	7
Lat/ L	on; UTN	1: N/E	200		_W/N_	03	.03555		Zone_	_	Datum_	MHYD	Observe	rs /11/	MUG	- c o	PPE	RHEA
			1	170					F-2 22:				Freq.			1641	EDHMENTA	CONTRACTOR
#	Time	Species	Age	Sex	Repr.	(g)	FA (mm)	1177	Height (m)	WDI	G/H/B/T	Band# Type	rieq.	Moon Phas	e /00 %		V	Wax / War
	9:10	LABO	A	F	PL	11.5	42	P	4	0	-	-	-	/		Rise		Set
	9:40	EPFU	A	F	PL	16	44	E	2	1	-	-		Sun		6:16		2100
	9.40		J	M	NR	14	42	E	5	0	~	7	-	Moon		09	24	0700
	9:40	EPFU	A	M	5	16	46	E	5	0	1	4	-					8
5	9.45	EPFU	A	M	5	16	47	D	55	0	-	1	4	Time	Temp (F)	Sky	Wind	No. Bats
6	10:30	EPFU	1	F	NR	16.5	43	A	1	0	1	1	-	Time	Temp (r)	Эку	VVIIICI	No. Dats
	10:30	EPFU	A	F	PL	20	48	D	3	0	-	-	-	9:00	82°	0	0	5
8	10:40	EPFU	7	W	NR	14	45	D	7	0	-	-	-	10:00	75	D	0	3
9	11.05	EPFU	A	M	S	16.5	42	D		0	-	-	-	11:00	73	0	0	3
10	11:15	EPPU	A	F	PL	18.5	45	E	5.5	0	_	10	-	12:00	72	0	0	2
11	11:00	EPFU	A	F	PL	20	49	B	6	0		-	_	1:00	72	0	0	-
12	11:40	LACI	1.7		- 9	1 15 1		E	5.5		ESCAPE							
	12:05		A	F	DL	12	43	D	0.5	0	-	-	1.0	1				
14		EPFU	A	m	5	17.5	48	D	7		-	-	-		-10 = 0			
15						- /								()	•			7
16											1-1					Sky Code	4)	
17				1 1										0	Clear		- 1	
18	0			-										1	Few Cloud	ls		
19	F			-			100				15.00			2	Partly Clo	udy		
20				12.4					0.00					3	Cloudy or	overcast		
21	1	7				112								4	Fog or smo			
22				1 = 0			1 /							5	Drizzle or	light rain		
23														6	Heavy rain	- thunde	r storm	
24							(12.5							
25											V = = =				Beau	fort Wind	Scale	
26			1											0	Calm: <1 r	nph		
27			1	1)					1	Light air: 1	-3 mph		
28				11-										2	Light bree:	ze: 4-6 mp	h	
29														3	Gentle bre			
30				-				Acres 1			X20 4		2	4	Moderate	breeze: 11	-16 mph	

Mist Netting Data Form Site No. 2 Project No./Name_ 513 /_ REPUBLIC Date 7-22-16 Site Location WOOD LOT AND CREEK OFF 1950 County SENECA State OH Time Up 8:55 Time Down 6\58 W/N -83.03558 Lat/Lon; UTM: N/E 41.2337 Zone ___ Datum NRVSS Observers MTM M56 Freq. Mass Height Band# FA (mm) Time Species Sex Repr. Net WDI G/H/B/T Moon Phase Age Wax / Wane (g) (m) Type_ 9:40 EPFU PL E _ Rise Set 9:40 5 EPFU M 45 E A 0 Sun 6:17 1038 5 9:40 EPFU 15.5 D Moon 0910 1240 NR 10:00 EPFU E 0 47 160 LABO 5 10:00 40 D D Temp (F) Sky Wind No. Bats EPFU 46 10:50 NR 13.5 D 5 M 0 15 .5 44 9:00 12:20 EPFU 5 M NR D 0 0 3 ECRPTURE FPFU 3 M MR 15 44 D 6 82 3 12:3 0 0.0 0 0 FPFU 45 1:50 J NR 14 D 0 82 0 1100 0 0 10 NR 10 40 1150 LADO 31 10 Z 12:00 0 0 11 79 E 1:00 0 0 12 D 78 0 2:00 13 14 15 16 Sky Code 17 0 Clear 18 1 Few Clouds 19 2 Partly Cloudy 20 3 Cloudy or overcast 21 4 Fog or smoke 22 5 Drizzle or light rain 23 Heavy rain - thunder storm 24 25 **Beaufort Wind Scale** 26 0 Calm: <1 mph 27 1 Light air: 1-3 mph 28 2 Light breeze: 4-6 mph 29 3 Gentle breeze: 7-10 mph 30 Moderate breeze: 11-16 mph Acoustic Survey: Unit type_ Stop time Unit# Date Start time Please Return to: Date Start time____ Stop time P.O. Box 73, Paint Lick, KY, 40461. Date Start time Stop time Weatherproofing_____ Coordinates (859) 925-9012 Comments: p. 2

	et Site Habitat Sheet Site No			ect No./I	Vame	513	/ REP	ublic				Date_7	120/16	
Lat/Lon	UTM: N/E 41.2337 W/N	- 83.0355			Zone_			Observers_	MTM	, MJG				
Datum:_	NADES County SENECA	State_	OH	Quad_	WATSON									
Site Diag	gram: 180	1N		Height	Length	11				Domin	nant Veg	getation		
	100	- 1	Net	(m)	(m)	Da	ates	1. MAPLE			4			
		-	Α	9	6	7/20	7/22	2. SHCAMO			_5			
)	В	6	6	7/20	7/22	3, Comocua	(Deb)		6			
		1	C	9	10	7/20								
	ME WE	A	D	7.8	9	7/20	7/12				Set by H			
	200	1 /	E	6	9	7/20	7/22	Habitat	Α	В	C	D	E	F
	1 1 1/	Con	F		-	-		River		1 = 3			1 - 3 - 4	
		11						Stream				1	/	
		METE						Pond		17	-			
		7		Photogr	aphs			Corridor	1	/	/		-	
				era:			_	Cave			7	- 1		
	NETD GE		Phot	to Log:_			-	Mine						_
-30	WE ST		-	_				Forest					10.00	
	11	9	-				-	Gap						
2			7-	-				Other						
			-				_							
	Bat Habitat Characterization (Choos	NETE						1						
3	Roost habitat: 1. Poor: No or few snags 2. Moderate: Snags with sloughing bark 3. Optimal: Snags with sloughing bark o Water Resources: 1. Poor: bat drinking 2. Moderate: Ephemeral or intermittent s openings or canopy gaps allow bats easy 3. Optimal: Streams or ponds (including available. Forest Structure: (if hardwoods are absell. Poor: Habitat even aged and young. To 2. Moderate: some diversity in age of tremay be present but rare.	or other roost feat rother roost feat resources not pr treams or ponde access to the res road ruts) present or nearly absorces smaller that	atures prures present a ded areas cource. Int that a cent or if n 5 inch	present 5 resent >1 t the site s present appear to stand is a DBH. U	-15 inch I 5 inch Dl but too c o offer dr monocu Understo	DBH with BH with cluttered rinking r Iture, are ry growt	thin 1000 in 1000 f to allow esource ea auton th clutter	eet of forest eet of forested many bats to throughout th natically qual- red and restri	ed areas. I areas. o drink ea ne majorit ifies as a 1 cts flying,	sily or simu y of the sur : poor). /foraging	nmer. Fl	yways to	resource	
Z	 3. Optimal: Mature forest. Diverse age of gaps that facilitate bat foraging. Land Cover: 1. Poor: Square kilometers 2. Marginal: Trees present in the form of 3. Optimal: Area is largely forested. Wo 	urrounding site small woodlots	predor	ninantly ooded fe	un-fores	ted. Fev	v mature	trees presen	t not conn	ected to oth	ner areas	of trees.		ngs an
9 7	Total Habitat Score (Should be between 4		2011110					Please retur		Amira		4	3	
V W 10 1		- /								L TOY IDE	4		\subseteq	
Comme	nts:							P.O. Box 73,		K, KY. 4046	I	COP	PERH	EA
								859-925-901	2			PARIFFR	SENTED CH	HAMATTA

Site N Site Lo Count	oocation_	Data Form arge ripari CC & M: No E 41. 2	Project	No./Nest a State	lame_s	Beau	Time Up	cell 205	Tin	ne Dowr	020	1	Date_/	9 5014	16	S	heet	of
Lat/L	on ; UTN	M: (N) E 5/1. 2	2830	,	M)N_	Fact 5	94389)			Datum∠			A. A.	shmar	C.O.	PPEF	RHEAD
#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.	Moon Phase	e %	100	V	Vax / Wane
1	2145	EPFU	A	F	PL.	18.75	46	E	2.5	0			-	7		Rise	*	Set
2	2150	EPFU	A	m	NR	15.0	46	0	2.0	0	-			Sun		0616	,	2100
3	1060	EPFU	A	m	NR	145	45	E	2.0	0				Moon		212	y	0703
4	2215	EPFU	20	m	NR	14.95	45	H	3.5	0	1			10				
5	2215	EPFU	JV	F	NK	15.5	44	L	4.0	0	- 3			Time	Temp (F)	Sky	Wind	No. Bats
6	2015	EPFU	F	5C.	APK	ED	-	E	-				-	Time	1	JKy	Willia	IVO. Data
7		EPFU	E	SCA	PEL	\sim		D	6.0				-	2100	72	unle	0	1
8	2320	LABO	A	m	NR	11,75	44	E	0.5	0			- 1	2200	72	unl	0	3
9	2340	EPFU	A	F	1	20.0	48	D	7.5	0	-		-	2300	70	UNIL	1	5
10			5											0000	68	unll	/	2
11														8100	66	unk	1	0
12	-													0200	66	UNK	1	D
13															-350			-75
14										100								
15					1													
16													10-			Sky Code		
17														0	Clear			
18														1	Few Cloud			
19														2	Partly Clo			
20		7 - 7	1				11 . 1			1 100				3	Cloudy or			
21													1 = 1	4	Fog or sm			
22											15			5	Drizzle or			
23														6	Heavy rai	n - thunde	r storm	
24															D.	C XAT	C1-	
25									2 1							afort Wind	Scale	
26														0	Calm: <1 1			
27														1	Light air:			
28													/1	2	Light bree Gentle bre			-
29					-								-	3			•	
30														4	Moderate	breeze: 11-	To mpn	· ·
(MYA	alis (LABC AU); Myo SO); Nycti	eviations: Coryn D); Lasiurus cine tis grisescens (M iceius humeralis ations: Male: M;	reus (LAC YGR); M (NYHU);	CI); Lasi yotis leil ; Perimy	urus sem bii (MYLI votis subf	inolus (L E); Myoti lavus (PF	ASE); Lasi s lucifugus SU); Tada	onycter s (MYLU rida bra	is noctivaga J); Myotis s ssiliensis (T	ans (LAN septentric ABR)	IO); Myotis onalis (MYS	austroripariu	ıs	Please Ret P.O. Box 7 (859) 925-	3, Paint	Lick, KY	, 40461.	p. 1

Site I	No. 5:1	e 3	Project	t No./N	Name	513	/_						Date_	7-21-16					
one i	ocation_			Ctoto			Tr. 11			_							(2)	3	
at/l	on · LITA	M: N/E		State_	TAT / NT	_	Time Up	2160	7 Tin	ne Dow	0200		01				The state of the s		
at/	Jon , C II	A. N/E			_W/N_	-			_Zone		Datum_		Observe	B. Low	14	- c c	PPER	RHEA	
				1	1		1		1		-		I .	3. Low	e	(NV)	EUNMENTAL	CONSULTIN	
#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)		Height (m)	WDI	G/H/B/T	Band# Type	Freq.	Moon Phas	e 100 %	100 % Wax / 1			
1		EPFU	JUV	M	W	17	43	E	3	0	-					Rise		Set	
2	10:50	EPPU	A	M	2	16.5	44	A	2,5	0				Sun		06:15		400	
3					J. i.		200							Moon		720	33	0804	
4														A					
5														Time	Temp (F)	Sky	Wind	No. Bats	
7			1		-							-		2/200	-00	0	1		
8		-			-				-					22:00	78	0	1	_	
9			7										-				2	1	
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14						-				-				-					
15									-			-			-				
16		h -	-										-			Sky Code			
17												-	-	0	Clear	ony cour			
18											-			1	Few Cloud	le			
19			-						-					2	Partly Clo	-			
20	11 - 1												1	3	Cloudy or				
21			1		1				-					4	Fog or smo		-		
22	1 - 1		1				7							5	Drizzle or				
23														6	Heavy rain				
24														-	1				
25			1	1			F - = 1								Beau	fort Wind	i Scale		
26							1						•	0	Calm: <1 r	nph			
27													V	1	Light air: 1				
28					1				7					2	Light bree		h		
29								-	1					3	Gentle bre				
30	LEZT				t en			1 = 1	Lanca					4	Moderate 1				
cou	stic Surv	ey: Unit typ	e		Unit #		Date		Start tim	ne		Stop time_							
							Date		Start tim			Stop time_		Please Re	turn to:		777		
							Date		Start tim			Stop time_		P.O. Box ?		ick, KY	, 40461.		
Veat	herproo	fing					Coordin	ates_				3. 55.7		(859) 925-					
	nents:																	p. 2	

	et Site Habitat Sheet Site No.	Project No./1	Name 513	Republic				Date /	9 506	16
Lat/Lon	; UTM: (N)E 41.22830 WN 83.0438		Zone /	Observers	Cite	Fruid			-	
	VAD83 County Senera State	OH Quad	Natson	***********		shmo				
Site Dia	gram;		Length Joh		11.11	Domi	nant Veg	etation		
	N18 11 11 11	Net (m)	(m) Dat	tes 1. A. rub	14	-	4. 3.			
N	0/10/	A 5.2	6 19	2.A. san	hear		5.	700		
0)		B 5,2	6 19	3. Carya	50.		6			
	no la	C 5.2	12 19		1	1				
0	12000	D 7.8	9 19			Net :	Set by Ha	abitat		
	(NOT	E 5.2	9 19	Habitat	A	В	C	D	E	F
8.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	F		River		11 1111				
13	and the state of the			Stream				X	X	
1	(E) Leady of Valo	/		Pond		Part a	1	- S.		
19-	- G ()	Site Photogr	aphs	Corridor	X	X	X	- 41		
	9	Camera:	a	Cave			4		-	
4	11 //	Photo Log:_	. 7	Mine						
1-	trail 9 trail	y	K	Forest						
	To the state of th	1		Gap						
				Other						
1	Emested			- 0						
Indiana	0	1	Y 100 (1	2.72.5						
Titulalia	Bat Habitat Characterization (Choose appropriate	score for each	nabitat characte	eristic)	Education					
0	<u>Roost habitat</u> : 1. Poor : No or few snags >= 5" DBH wit 2. Moderate : Snags with sloughing bark or other roost fe	n slougning bark	or other usable ro	in 1000 fact of farest	crevices, e	etc)				
0	3. Optimal: Snags with sloughing bark or other roost fea	tures present >1	5 inch DBH within	1000 feet of forested	l areas					
3	Water Resources: 1. Poor: bat drinking resources not p	resent at the site.	Juich Dorr Widin	1 TOOD ICCI OF TOTCSICC	curcus.					
	2. Moderate: Ephemeral or intermittent streams or pond	ed areas present	but too cluttered t	o allow many bats to	drink eas	ily or simu	ıltaneousl	v. No co	orridors,	
14	openings or canopy gaps allow bats easy access to the re	source.								
1 - 5 5	3. Optimal: Streams or ponds (including road ruts) prese	ent that appear to	offer drinking res	source throughout th	e majority	of the sur	nmer. Fly	ways to	resources	sare
2	available.		The second of the							
2	Forest Structure: (if hardwoods are absent or nearly abs									
	 Poor: Habitat even aged and young. Trees smaller that Moderate: some diversity in age of trees in the stand. 						Trace	rroa for t	han 15" T)RLI
	may be present but rare.	rices 5 to 15 me.	nes present. Onde	istory clutter domini	ant but no	tuoiquito	us. Trees	greater	nan 15 1	, DII
	3. Optimal: Mature forest. Diverse age classes of trees p	resent. Trees > 1	5 inch DBH freque	ent. Varying tree hei	ght and tr	eefalls allo	w for freq	uent sm	all openi	ngs and
2	gaps that facilitate bat foraging.				Ģ.		D. C. 101			O
2	Land Cover: 1. Poor: Square kilometer surrounding site	predominantly	un-forested. Few	mature trees present	not conne	cted to oth	ner areas o	f trees.		
	2. Marginal: Trees present in the form of small woodlot									
100	3. Optimal: Area is largely forested. Wooded stands are	e connected to of	her wooded stand	s via wooded stream	, fence rov	v, or other	wooded o	orridor.		
11 2	Cotal Habitat Score (Should be between 4 & 12)			Please retur	n to:			4	2	
Comme				P.O. Box 73,		KV 4046	1	. 1		•
Comme	into-			859-925-9013		, K1. 4040		COP	PERH	EAD
				859-925-901	,			# 44 h 4 m 14	distribution of the	A ST F L F and DR

e No	4_		Project	No./N	ame	513	_/ R	EPUBL	10				Date_7	-19-16			Sheet	
e Lo	cation	WOOD LOT 6	F TR	016	0.11			^ -			191.0						(2)	
unty	SENE	2000 LOT 6	07.0	State_	OH		Time Up	8:5	Tir	ne Dowr	2.00	Mos			1.53		W	7.
t/Lo	n;UIM:	N/E_41.	LLO	01	_W/N_	- 6	5,1046	4	Zone	-	Datum_I	MANOS	Observe	rs MTM	MJ6	- co	PPEF	HEAD
-						100000	_		1		_		I -			8 H 4+	*****	COMPOSITION
#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.	Moon Phas	e 100 %		v	Vax / Wan
1						10										Rise		Set
2	- :		12.041					1	1					Sun		0015		2100
3														Moon		20	41	0600
4							1											
6		1	10	1	(1							Time	Temp (F)	Sky	Wind	No. Bats
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5)												
6					1		1						F			Sky Code		
7			-											0	Clear			
8									-					1	Few Cloud	is		
9														2	Partly Clo			
0			200											3	Cloudy or			
1				TO,										4	Fog or sm			
2			-		-		-	-						5	Drizzle or			
3			19 111											6	Heavy rain	n - thunde	r storm	
4																C . T.T.	10.1	
5																fort Wind	1 Scale	
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7						-	-							1	Light air:			
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9														3	Gentle bre Moderate			
										_				4	Moderate	breeze: 11	-10 mpn	

Mist Netting Data Form Site No. 4 Project No./Name 5/3 /_ Site Location Worker of TROIGY REPUBLIC Date 7-21-16 State Of Time Up 8:58 Time Down 2:00 County SELECA Lat/Lon; UTM: N/E 41.22067 W/N -83.10469 Zone Datum NAD83 Observers MTM, MGG Height Band# Mass FA (mm) G/H/B/T Time Species Age Sex Repr. Net WDI Moon Phase Wax / Wane (g) (m) Type_ 44 10,40 EPFU 4.5 0 M S 17 B _ Rise Set KAPTLINE 12:30 EPFU 44 Sun M S 0 17 A 6,5 6:17 2058 3 Moon 2703 4080 4 5 Time Temp (F) Sky Wind No. Bats 6 9:00 740 0 8 10:00 77 0 9 75 0 11:00 0 10 73 12:00 11 0 1100 0 12 2:00 13 14 15 16 Sky Code 17 Clear 0 18 1 Few Clouds 19 2 Partly Cloudy 20 Cloudy or overcast 21 Fog or smoke 22 5 Drizzle or light rain 23 Heavy rain - thunder storm 24 **Beaufort Wind Scale** 25 26 Calm: <1 mph 0 27 Light air: 1-3 mph 1 Light breeze: 4-6 mph 28 2 29 Gentle breeze: 7-10 mph 3 Moderate breeze: 11-16 mph Acoustic Survey: Unit type_____ Unit# Date Start time Stop time_ Start time_____ Stop time_ Please Return to: Date P.O. Box 73, Paint Lick, KY, 40461. Stop time_ Date Start time (859) 925-9012 Weatherproofing Coordinates Comments: p. 2

Lat/Lon : U	TM: N/E_ 4	1.22067	W/N - 83.104		ect No./N	Zone -		Observers	TODO ME	Danier		Date 7		
Datum:		County_S&		ate OH	Ouad	WATER	٨	0.0001.1010_	MTM		MJ			_
Site Diagra	am:					Length				Domin	ant Veg	etation		
	14	- 111	SOY BUAN	Net		(m)	Dates	1. MAPLE			4. RE0			
SOYZEM	4	7.1		A	7.8	9	7/19 € 7/21	2. AMBRICA	e ELIX		5			
		-	7	В	10	6	7/19 8 7/21	3.5 HAGE	er Here	4	6			
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				D	4	6	7/19 8 7/21	LX L		Net S	Set by H	abitat		
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MET !		LV		VET C	W. L. W.		The Car	Stream						(i
		1				0.0		Pond		1			1	
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100		119		-				1 - 1						
11 0		111	(6)			1 1 20 1	A Kontagory AVA							
			n (Choose appropri few snags >= 5" DBH							Vete				
			hing bark or other roo							eic)				
			ing bark or other roos											
			t drinking resources n											
			ermittent streams or p				luttered to allow	many bats to	o drink eas	sily or simu	ltaneous	ly. No co	rridors,	
op	penings or can	py gaps allow	bats easy access to th	e resource.										
		ams or ponds (including road ruts) p	resent that	appear to	o offer di	inking resource	throughout th	ne majorit	y of the sun	nmer. Fly	ways to	resource	s are
-	vailable.													
			ds are absent or nearly											
			young. Trees smaller age of trees in the star								ic Troop	greater t	ban 15" I	ORLI
	nay be present		age of trees in the star	id. Trees	10 15 110	nes prese	ent. Onderstory	ciudei doniii	iani but n	or abiquitor	as. Trees	greater t	nan 15 1	JULI
			erse age classes of tre	es present.	Trees > 1	15 inch D	BH frequent. Va	rying tree he	ight and to	reefalls allo	w for free	quent sm	all openi	ngs ar
	aps that facilita			1				2 0	a.			*12-72-22-4		
2 L	and Cover: 1.	Poor: Square l	kilometer surrounding	site predo	minantly	un-fores	ted. Few mature	trees presen	t not conn	ected to oth	ner areas	of trees.		
2.	. Marginal: Tr	ees present in t	the form of small wood	ilots and w	vooded fe	ence rows	. Little connecti	on to adjacen	t forested	areas.		- 75 -		
3.	Optimal: Are	a is largely for	ested. Wooded stand	s are conne	ected to of	ther woo	ded stands via w	ooded stream	n, fence ro	w, or other	wooded	corridor.	9	
7 Tot	tal Habitat Sco	re (Should be	between 4 & 12)					Please retu	rn to			- 4	2	
								P.O. Box 73,		VV ADAG	1		5	•
Comments	5.									K, KI, 4040	1	COPI	PERH	EA
								859-925-901	2			****		- COLON

oun	v Se N	vide con	ndor	State	()H	to ag	Time Un	210	O_Tir	ne Dowi	020	- 67	Date		016		Sheet /	of
at/L	on ; UTN	M: N/E	. 20	100	_W/N_	-85	.0509	10	Zone		Datum_\(\triangle)	IAPSS	Observe	rs G + Jan	05 H 1	PBCK CO	PPE	RHEAD
#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.	Moon Phase	e 100%		1	Wax / Wan
1	2130	EPFU	A	M	5	150	47.0	A	4.0	0		-	_			Rise		Set
2	2145	LABO	A	M	S	3.0	42.0	F	6.5	0	-	-		Sun		06015	2	2101
3	2145	EPFU	0	M	NR	11.25	43.0	Α	4.0	0	-	_	-	Moon		704	11	06003
4	2130	EPFU	0	E	NB	13.5	50.0	C	4.0	0	1	-	-					
5	2130	EPFU.	0	14	IVK	9.25	44.0	Č	4.0	0-P				Time	Temp (F)	Sky	Wind	No. Bats
6	2200	EPTU	A	F	PL	17.5	47.0	B	30	0-P		- /		Time	remp (r)	JRy	TT III C	TVO. Data
7	2225	EPFU	U	M	NR	17.0	44.0	A	5.0	0		- 11	-	2100	69	0	2	5
8	2240	EPFU	J	W	NR	13.25	44.0	B	1.5	0	-			2200	69	0	2	5
9	2725	EPTU	1	M	NR	13.25	45.0	A	5.0	0	-	-		2300	66	0	1	6
0	2225	EPFU	0	M	NR	150	46.0	A	5.0	0	_		-	0000	63	0	1	2
1	2305	EPFU	J	M	NR	17.0	47.0	A	5.0	0			-	0.00	62	0	1	1
2	2315	EPFU	J	F	NR	16.25	549.0	B	1.0	0	-	1-	-	0200	60	0	1	
3	2345	LABO	J	M	NK	8.5	39.0	A	4.0	0-F	_	_			10			
4	2345	FPF()	A	F	PL	21.75	46.0	A	5.0	0				11				
5	2345	EPFU	A	F	PL.	22.25	.47.0	D	3.0	0	-	-	-					
6	2350	EPFU	A	F	PL	20.5	47.0	D	4.0	0	-					Sky Code		
7	0030	LECTU	U	F	NR	14.25	47.0	C	5.0	0	_	_	_	0	Clear			
8	0045	LABO	A	M	S	11.25	39,0	C	1.0	0	-		-	1	Few Cloud	ls		
9	0125	EPFU	A	F	L	7.5	45.0	6	2.5	0		-	-	2	Partly Clo	udy		
0	2340	ERFU	A	F	PL	19.25	47.0	E	0.1	0	-		-	3	Cloudy or	overcast		
1							1							4	Fog or sme	oke		
2				11 14										5	Drizzle or	light rain		
3					200									6	Heavy rain	n - thunde	r storm	
4																		
5																fort Wind	l Scale	
6														0	Calm: <1 r			
7				TIT										1	Light air: 1			
8	1													2	Light bree			
9							1		2					3	Gentle bre			
0)					(P								4	Moderate	breeze: 11	-16 mph	
rea	lis (LABC	viations: Coryn)); Lasiurus cine tis grisescens (M ceius humeralis	reus (LAC YGR); M	CI); Lasi yotis leil	urus sem bii (MYLI	inolus (L E); Myoti	ASE); Las s lucifugu	ionycter s (MYLU	is noctivag J); Myotis	ans (LAN septentric	IO); Myotis	austroripariu	15	Please Re P.O. Box 7 (859) 925-	73, Paint l	Lick, KY	, 40461.	

* Possible broken ulna before capture,

Site 1	Vo.	Data Form	Projec	No./N	Jame 5	13.01	18	ouh1	. c				Date 2	1 3.14	2016			77.
Site I	ocation	Nide coor	idors	lead	ing t	0 00	Fields	2000					Date_&	, Jary o	.07.0	_	10	
Cour	ty Seno	eca		State	OH		Time Up	210	O Tir	ne Dowi	0200						IC	25
at/l	Lon; UTN	Nide coor eca M: NyE_41.	2076	6	$_{W/N}$	-83.	05096		Zone		Datum_	NAD 83	Observe	rs G. Jar	105, M.	Gooden		•
															,	CC	PPEF	HEA
#	Time	Species	Ama	Sex	Para	Mass	EA ()	Mar	Height	TATIOT	Carma	Band#	Freq.	Moon Phas	05.			
n	Time	Species	Age	Sex	Repr.	(g)	FA (mm)	Net	(m)	WDI	G/H/B/T	Type		Moon Phas	e 70 %		V	Vax / War
1	2130	EPFU	J	F	NR	11.5	46.5	B	3,0	0	-	-	-			Rise		Set
2	2145	EPFU	J	F	NR	11.0	46.0	A	4.0	0	-	1	-	Sun		06	17	2100
3	2150	LABO	A	F	NR	14.25	44.0	E	2.0	0	Ĺ	1	-	Moon		220	24	0806
4	2200	EPFU	J	M	NR	13.75	44.0	A	3.5	0	-	1	-					
5	2200	EPFU	J	F	NR	14.75	45.0	A	3.0	0	1	-		Time	Town (E)	Cl	TATE A	NI- Date
6	2200	EPFU	J	F	NR	12.25	45.0	B	4.0	0-P	-	-	-1.	Time	Temp (F)	Sky	Wind	No. Bats
7	2230	EPFU	4	M	S	17.00	43.0	E	1.5	0	-	-	-	2100	76	3	0	3
8	2230	EPFU	A	F	PL	17.50	48.0	(2.0	0	_	-	-	2200	70	2	0	6
9		EPFU	A	F	PL	20.50	47.0	A	1,5	a	-	-	-	2300	68	1	2	3
10	2310	EPFU	T	F	NR		43.0	B	40	OP	-	-	-	0000	71	3	1	1
11	2320	EPFU	7	M	NR	15.25		C	3.0	0		1-		0100	70	2	1	6
12	2340	LABO	A	M	5	9.5	38.0	C	3.0	0	-	-	-	0200	69	2	1	1
13	0050	LACI	IA	F	PL	30.25	57.0	E	0.5	0	-	_	_					
14	0220	EPFU	A	F	L	21.75		A	4.5	0	-	_						
15									1		1 6 9							
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17				T.E.										0	Clear			
18					4 7 7									1	Few Cloud	ls		
19														2	Partly Clou	udy		+
20														3	Cloudy or	overcast		
21				1							1			4	Fog or smo			
22					1			1	7					5	Drizzle or			
23					1									6	Heavy rain	- thunde	er storm	
24									1					-				
25							1 - 7				1				Beau	fort Wind	d Scale	
26					7						1			0	Calm: <1 n	nph		
27	1		7	7		1			1					1	Light air: 1	-3 mph		
28		411		7	7									2	Light breez	ze: 4-6 mp	h	
29				7	7						1			3	Gentle bree			16
30	200		1 - 5 - 7	8	1				100		1-1		l'Esti	4	Moderate l			
cou	stic Surv	vey: Unit typ	e		Unit #		Date_		Start tin	ne		Stop time					•	
		, , , , , ,					Date		Start tin			Stop time		Please Re	turn to:	977		
							Date		Start tin			Stop time		P.O. Box 2		ick, KY	, 40461.	7
eat	herproo	fing			-		Coordin	ates	ACTUAL TE				7-11	(859) 925-				
	ments:	-					21.3	20.20						1				p. 2

Lat/Lon; UTM: N/E 46.20766	W/N = 8		ect No./I	Zone	140	01 /	· lan	A IV	Do low	Date	9 July	20.0
Datum: NAVS County S	enera	State H	Quad	Watso	uh.	Observers_	5-10-M	22116	DESTRIC	- 6	- (-	_
Site Diagram:	1/2	State		Length	26.1			Domi	nant Ve	rotation		
		Ne		(m)	Dates	1. Prunos	Sent			lands		
		A	5.7	17	7/19 7/21	2. Morris			5.	Layres	AGH SI	
101		В	5.2	12	7/19 7/21	3. Acev			6.			
SR 10		C	5.7	(0	7/19 -/21							
2.1	11180	() / D	7.9	9	7/19			Net S	Set by H	labitat		
ag field	(nd	E	2,6	1.1	7/19. 7/21	Habitat	A	В	Ć	D	E	F
19 E	10	F	11.0			River						
05	1 17	71	1000			Stream					V	
	911	60				Pond	-					
	(Wood 5)	Site	Photogr	aphs		Corridor	/	V	V	V		
777	1-		nera: Fu	git Im		Cave		1-0-0-0				
1571 1	2	Pho	to Log:_			Mine						
Twoods / 12	2					Forest					-	
/ Noon / MIN	\ n	field -				Gap			-	4		
wood	7	C.34				Other						
ag field	1	-										
Indiana Bat Habitat Characteriza Roost habitat: 1. Poor: No	or few snags >= 5"	DBH with sloug	hing bark	or other	usable roost fe	atures (cracks,	crevices,	etc)				
Roost habitat: 1. Poor: No 2. Moderate: Snags with slou 3. Optimal: Snags with slou Water Resources: 1. Poor: 2. Moderate: Ephemeral or i openings or canopy gaps all 3. Optimal: Streams or pond available. Forest Structure: (if hardwe 1. Poor: Habitat even aged a 2. Moderate: some diversity may be present but rare. 3. Optimal: Mature forest. I gaps that facilitate bat forag Land Cover: 1. Poor: Square	or few snags >= 5" ughing bark or othe ghing bark or othe bat drinking resou ntermittent stream ow bats easy access Is (including road i cods are absent or i and young. Trees si in age of trees in the Diverse age classes ing. The kilometer surrou	DBH with sloug er roost features p roost features p rces not present a s or ponded area s to the resource. ruts) present that nearly absent or i maller than 5 inci- he stand. Trees 5 of trees present.	hing bark present 51: resent >1: at the site. s present appear to f stand is h DBH. U to 15 incl Trees > 1	c or other in the control of the con	usable roost fe BH within 100 H within 1000 uttered to allow nking resource ture, area autor y growth clutte nt. Understory H frequent. V	atures (cracks, 00 feet of forested feet of forested w many bats to throughout the matically qualifiered and restrict clutter dominifarying tree heiter	ed areas. I areas. I drink eas The majority	sily or sime y of the sur : poor). 'foraging of ubiquitor reefalls allo	nmer. Fly us. Trees	yways to greater t quent sm	resource han 15″ l	овн
Roost habitat: 1. Poor: No 2. Moderate: Snags with slou 3. Optimal: Snags with slou Water Resources: 1. Poor: 2. Moderate: Ephemeral or i openings or canopy gaps all 3. Optimal: Streams or pond available. Forest Structure: (if hardwe 1. Poor: Habitat even aged a 2. Moderate: some diversity may be present but rare. 3. Optimal: Mature forest. I gaps that facilitate bat forag Land Cover: 1. Poor: Squar 2. Marginal: Trees present i 3. Optimal: Area is largely	or few snags >= 5" ughing bark or othe ghing bark or othe bat drinking resou intermittent stream ow bats easy access is (including road in cods are absent or in cods are absent or in ind young. Trees in in age of trees in the Diverse age classes ing. The kilometer surrou in the form of small forested. Wooded	DBH with sloug er roost features p roost features p rces not present a s or ponded area s to the resource. ruts) present that nearly absent or i maller than 5 inci- he stand. Trees 5 of trees present. Inding site predoil woodlots and w stands are conne	hing bark present 51: resent >1: at the site. s present appear to f stand is h DBH. U to 15 incl Trees > 1 minantly rooded fer	c or other in the property of	usable roost fe BH within 100 H within 1000 uttered to allow thing resource ture, area autor y growth clutte nt. Understory H frequent. V ed. Few matur Little connect	atures (cracks, 20 feet of foreste feet of forested with many bats to throughout the matically qualifiered and restrict clutter dominifiers arying tree here trees present to adjacent wooded stream	ed areas. I areas. I drink eas The majority	sily or sime y of the sur poor). foraging of ubiquitor reefalls allo ected to oth areas.	nmer. Fly us. Trees ow for free her areas	yways to greater t quent sm of trees.	resource han 15″ l all openi	овн
Roost habitat: 1. Poor: No 2. Moderate: Snags with slou 3. Optimal: Snags with slou Water Resources: 1. Poor: 2. Moderate: Ephemeral or i openings or canopy gaps all 3. Optimal: Streams or pond available. Forest Structure: (if hardwe 1. Poor: Habitat even aged a 2. Moderate: some diversity may be present but rare. 3. Optimal: Mature forest. I gaps that facilitate bat forag Land Cover: 1. Poor: Squar 2. Marginal: Trees present i	or few snags >= 5" ughing bark or othe ghing bark or othe bat drinking resou intermittent stream ow bats easy access is (including road in cods are absent or in cods are absent or in ind young. Trees in in age of trees in the Diverse age classes ing. The kilometer surrou in the form of small forested. Wooded	DBH with sloug er roost features p roost features p rces not present a s or ponded area s to the resource. ruts) present that nearly absent or i maller than 5 inci- he stand. Trees 5 of trees present. Inding site predoil woodlots and w stands are conne	hing bark present 51: resent >1: at the site. s present appear to f stand is h DBH. U to 15 incl Trees > 1 minantly rooded fer	c or other in the property of	usable roost fe BH within 100 H within 1000 uttered to allow thing resource ture, area autor y growth clutte nt. Understory H frequent. V ed. Few matur Little connect	atures (cracks, 00 feet of forested feet of forested w many bats to throughout the matically qualified and restrict clutter dominifarying tree heit feet trees presentation to adjacent	ed areas. d areas. d areas. d areas. d drink eas ne majority ifies as a 1 cts flying/ nant but no ight and the t not conne forested a n, fence roo	sily or sime y of the sur poor). foraging of ubiquitor reefalls allo ected to other areas. w, or other	nmer. Fly us. Trees ow for free her areas wooded	yways to greater t quent sm of trees.	resource han 15″ l all openi	овн



APPENDIX B

Mist-Net Site Photographs



Site 1 Net A



Site 1 Net C



Site 1 Net E



Site 1 Net B



Site 1 Net D







Site 2 Net A Site 2 Net B Site 2 Net C





Site 2 Net D Site 2 Net E



Site 3 Net A



Site 3 Net C



Site 3 Net E



Site 3 Net B



Site 3 Net D







Site 4 Net A Site 4 Net B Site 4 Net C





Site 4 Net D Site 4 Net E







Site 5 Net A Site 5 Net B Site 5 Net C





Site 5 Net D Site 5 Net E



APPENDIX C

Bat Capture Photographs

Representative photos bat species captured



Lasiurus cinerus



Eptesicus fuscus



Lasiurus borealis



Summer 2015 and 2016 Bat Surveys for the Proposed Emerson West Wind Project, Seneca County, Ohio

USFWS No. 16-014



Completed by:

Theresa Wetzel, Piper Roby, Chris McNees, and Chris Leftwich

12 April 2017

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PROJECT BACKGROUND

Copperhead Environmental Consulting, Inc. (Copperhead) conducted a bat mist-net and telemetry survey for the proposed Emerson West Wind Project (Project) in Seneca County in 2015 and 2016 (Figure 1). Sites surveyed in 2015 were originally surveyed as part of another project (USFWS No. 15-045), but due to changes in project boundaries now fall within the Emerson West Wind Project. The goals of this survey were to document bat species diversity and abundance within the Project boundary, and inform understanding of roosting habitat, foraging range, and spatial distribution of federally listed Indiana bats (*Myotis sodalis*) and northern long-eared bats (*Myotis septentrionalis*), and state listed Rafinesque's big-eared bats (*Corynorhinus rafinesquii*) and eastern small-footed bats (*Myotis leibii*), if captured. Both 2015 and 2016 survey efforts are included in this report.

METHODOLOGY

Level of Effort/Site Selection

Mist-net surveys were implemented in accordance with guidelines outlined in the 2015 and 2016 Range-wide Indiana Bat Summer Survey Guidelines (USFWS 2015, 2016), 2009 Ohio Department of Natural Resources (ODNR) On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio (ODNR 2009), and the most recent Ohio Division of Wildlife Guidance for Bat Permitted Biologist (ODNR-DOW 2015). The 2015 study plan was submitted to USWFS and ODNR on 7 July 2015; concurrence was received on 13 July 2015 (USFWS) and 22 July 2015 (ODNR). The 2016 study plan was submitted to USFWS and ODNR on 25 May 2016 and concurrence was received on 27 May 2016 (USFWS) and 3 June 2016 (ODNR).

The level of effort outlined in the study plan was based on the estimated amount of forested habitat within the Study Area (~5,133 ac) resulting in 42 mist-net sites (Figure 2). Thirteen of the sites were surveyed in July 2015 and 29 sites were surveyed in July 2016. Locations of mist-net sites were chosen based on the best available habitat present within parcels where landowner access was granted, and deemed most likely to yield Indiana and northern long-eared bat captures.

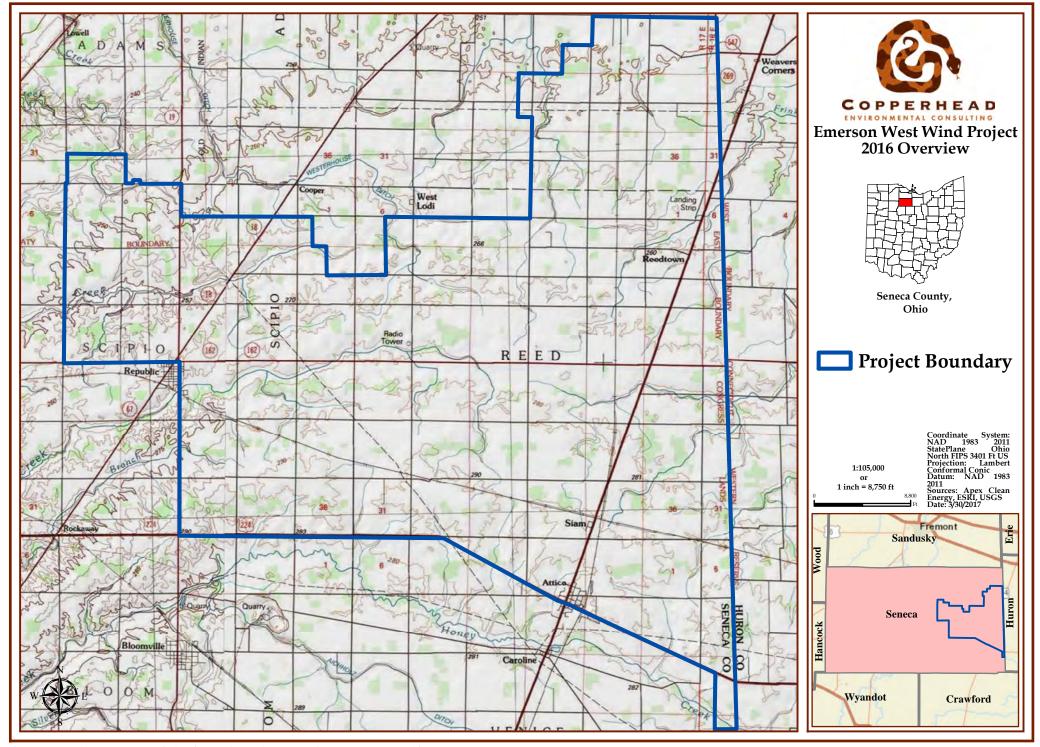


Figure 1. Proposed Emerson West Wind Project and bat study area overview, Seneca County, Ohio, 2016

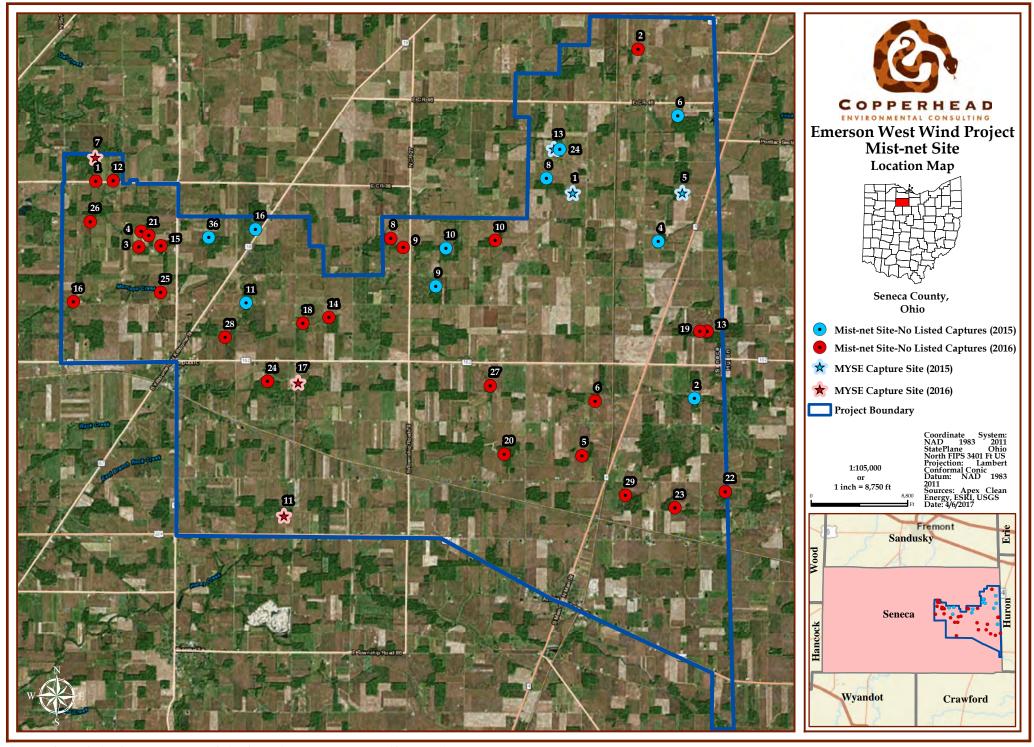


Figure 2. Mist-net site locations, Emerson West Wind Project study area, Seneca County, Ohio, 2015 and 2016.



Mist-Net Surveys

Mist-nets were set-up to maximize coverage of flight paths used by bats along suitable travel corridors, foraging areas, or drinking areas. Placement of mist-nets was based on the extent of canopy cover, presence of an open flyway, and forest conditions near the site. Actual location and orientation of each net was determined in the field by permitted biologists and mapped with ArcGIS (v. 10.3.1 ESRI, Redlands, CA).

Each mist-net site consisted of three to four double high net sets (two nets stacked; 5.2 m tall) and one high net set (three mist-nets stacked; 7.5 m tall). Mist-net sites were surveyed for two nonconsecutive nights (due to an access issue, site 3 in 2015 was surveyed for only one night).

Low visibility, high-quality, nylon nets, 4 to 12 meters (\sim 13 - 42 ft.) in length (depending upon the width of the corridor) were used for each net set. Nets were deployed at sunset each night, left open for at least five hours, and checked every 10 minutes. Disturbance near the nets was kept to a minimum between checks. Weather data, including temperature, wind speed, and cloud cover, were recorded for each site on an hourly basis to ensure compliance with the mist-netting guidelines (e.g., temperature during survey > 50°F).

Bats were live-caught in mist-nets and released unharmed near the point of capture. Biological and morphometric data, i.e., species, sex, age class, reproductive condition, mass, and forearm length were recorded on data sheets for each bat captured. In addition, the height and the specific net set of each bat capture was recorded. Processing of bats was completed within 30 minutes from the time the bat was removed from the net. All captured northern long-eared bats were banded utilizing ODNR, Division of Wildlife (DOW) bands as required by ODNR and OH USFWS.

White-Nose Syndrome Protocol

In an effort to minimize the transmission of White-Nose Syndrome (WNS) between captured bats, all netting and field activities followed the most up-to-date guidelines established by USFWS. All hard, non-porous netting equipment was sanitized with a Lysol® IC solution [2015] or Isopropyl alcohol wipes (70%) [2016] prior to arrival at the project site and after each survey night; all other equipment was submersed in hot water (140°F) for a minimum of 20 minutes. Disposable latex gloves were worn over sanitized handling gloves and changed following the handling of each bat. All non-disposable equipment, e.g., PESOLA® scales, rulers, calipers, etc., coming into contact with bats was sanitized immediately following the handling of each bat. Bats were



evaluated for potential WNS infection through wing scoring following the Wing-Damage Index (Reichard and Kunz 2009).

Radio Telemetry

Radio Transmitter Attachment

Captured northern long-eared bats were radio-tagged to locate diurnal roosts and to collect foraging data. Radio transmitters (Holohil Systems Ltd. LB-2X, frequency 172 kHz, 0.30 g and Lotek PicoPip Ag337, 172 kHz, <0.32g) were tested before being attached between the scapulae of the bat with Permatype, a nontoxic surgical adhesive that degrades over time allowing the transmitter to fall off the bat. Each transmitter had a unique frequency, which was used to identify individual bats during radio-tracking.

Diurnal Radio Telemetry & Emergence Counts

Model TRX-1000S (Wildlife Materials Inc., Carbondale, Illinois, USA) tracking receivers and 172-3 FB 3- and 5-element Yagi directional antennas were used to track radiotagged bats to day roosts. Once located, each roost tree was photographed and coordinates were obtained using a handheld GPS unit. In addition, a variable radius plot was established around each roost tree using a 10-factor English prism (Cruise Master Prisms, Inc.) to determine stand characteristics and basal density. Data recorded for each tree within the plot included species, diameter at breast height (dbh), tree height, roost height, canopy cover, and bark condition. Roost tree locations were mapped with ArcGIS (v. 10.3.1 ESRI, Redlands, CA).

Emergence counts were conducted on each roost tree located during telemetry efforts. The number of roost trees monitored on a given evening was determined by availability of personnel and access to roost trees, with priority given to roost trees that were occupied by a radio-tagged bat. Emergence counts were conducted by a biologist and/or recorded with a night vision video camera allowing emergence counts to be conducted on several trees concurrently each night. Observers arrived at roosts before sunset and positioned themselves so that the roost was backlit by the evening sky and remained at the roost until darkness inhibited further counts. Video cameras were positioned at a roost tree before sunset and retrieved after emergence was finished for the night. Videos were watched the next day by biologists and the number of bats emerging was counted. Emergence data were recorded on roost tree data sheets.



Foraging Telemetry

Foraging telemetry was conducted using a Cessna Sky Hawk 172 fitted with aircraft strut mount assemblies (Advanced Telemetry Systems Inc., [ATS] 1997, Isanti, MN) with two 172-3FB 4-element ATS Yagi directional antennas (ATS model #13886). The use of fixed-winged aircraft to collect foraging data allowed for the collection of data on multiple bats each night, and the ability to move long distances between multiple foraging areas in one night. The aerial crew consisted of a pilot and a navigator/copilot. The pilot maintained an elevation of approximately 455 meters (1500 ft.) above ground level. The navigator monitored the transmitter signal through the receiver estimating bat location on mapping software (DeLorme Topo North America 9.0, Yarmouth, ME).

Two strategies were employed for determining a bat's location. For one method, the pilot flew the airplane in tight circles above the bat with the airplane positioned so the inside antenna was always pointed toward the bat. The other method utilized multiple crosses over the bat, listening to signal strength, switching antennas, and viewing the airplane's GPS location on the laptop. When enough information was gathered and the navigator felt confident with the bat's approximate location, a foraging point was plotted on the electronic map and labeled with a bat frequency and time. To estimate error associated with location data collected from the airplane, the aerial crew estimated locations of stationary bats in their roosts during the day (n=3) and compared them to the actual locations of those roosts as documented via ground telemetry. The aerial crew also estimated locations of test transmitters that were activated in the field and placed in a location unknown to the aerial crew (n=4). The mean error was 151.7±44.4 (SE) meters (range: 47.8.0 – 392.1 m).

Locations of foraging bats and capture locations were pooled and examined using fixed kernel density estimates and isopleth surface proportions conducted with Geospatial Modeling Environment version 0.7.4.0 Beyer, H.L (Spatial Ecology LLC 2015) and Statistical Software R version 3.2.2 (R Core Team 2016) to determine foraging area for each individual. The foraging areas were imported into ArcGIS to calculate the 50%, 75%, and 95% probability contour for each individual bat and for all bats combined. Foraging areas were defined based on the area of use within these probability contours. Most of the foraging area with outlier locations eliminated was defined by the 95% probability contours (majority foraging area), areas within the 75% probability contours were considered intermediate foraging usage areas, and 50% probability contours were considered core foraging areas. Probability contours were imported into ArcGIS for additional analysis using aerial photography, USGS spatial analysis, and GIS layers

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Summary: Affidavit Exhibit J Part 14 of 33 electronically filed by Teresa Orahood on behalf of Dylan F. Borchers