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# Indiana and Northern Long-eared Bat Acoustic and Mist-net Survey for the Proposed Rocky Forge Wind Project, Botetourt County, Virginia

Summary Report  
August 2015

Rocky Forge Wind, LLC

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## Project Background and Location

Copperhead Environmental Consulting, Inc. (Copperhead) was contracted by Rocky Forge Wind, LLC (ROC), an affiliate of Apex Clean Energy Management, LLC, to conduct a federally listed bat presence/probable absence surveys for the proposed Rocky Forge Wind Project (project), Botetourt County, Virginia (Figure 1). Study methodology followed Copperhead’s USFWS approved Study Plans (June 22, 2015 and August 6, 2015). Two study plans were approved based on the addition of lands in the western ridge portion of the project area mid-survey season, resulting in slightly different methodology used for western ridge than in the rest of the project area.

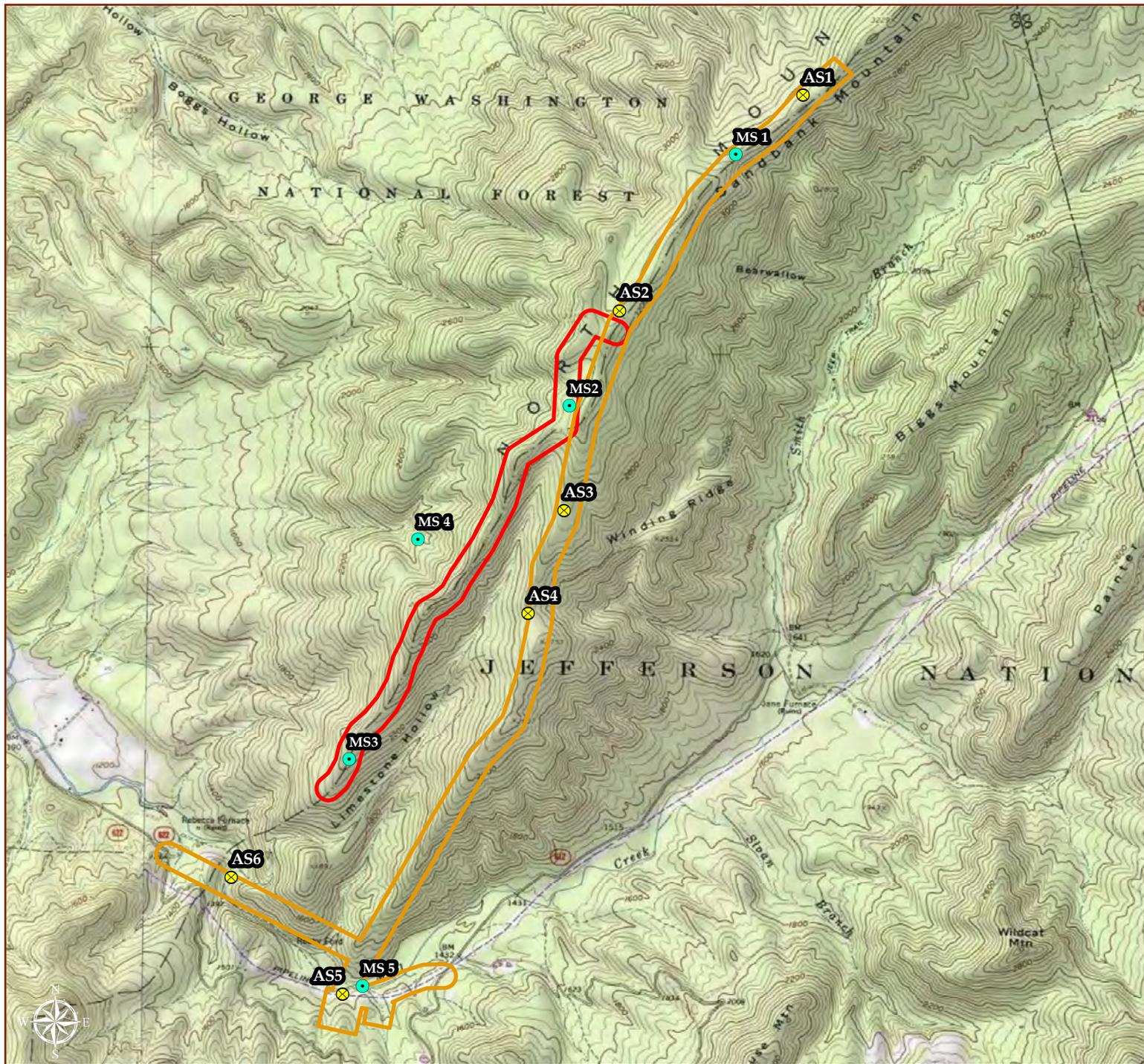
### Acoustic Survey

Per the methodology outlined in the USFWS approved Study Plan (22 June 2015), six acoustic sites were established throughout the project area (Table 1, Figure 1). Each site was monitored for two nights from sunset to sunrise, for a total of 12 detector nights. Acoustic site data sheets are in Appendix A and site photographs are in Appendix B.

Acoustic data were downloaded in the field and processed through the latest version of Bat Call ID East (BCID). All calls files indicated as potential federally listed bat species (site level MLE  $\leq$  0.05) based on software output were vetted manually through careful visual examination by a Copperhead biologist trained in acoustic bat identification. Manual vetting allowed recognition of obvious species identification errors (e.g., poor quality, fragmented call files) and provided more accurate characterization of the bat community present at the project. A second opinion was obtained from Ryan Allen of BCID for call files determined to be consistent with Indiana bats by Copperhead. Although neither Virginia big-eared bats (*Corynorhinus townsendii virginianus*) nor gray bats (*Myotis grisescens*) are expected to occur within the project area based on their known ranges, these species were considered in the analysis, in addition to Indiana bat (*Myotis sodalis*) and northern long-eared bat (*M. septentrionalis*), which are known to occur in the project region.

Table 1. Locations of acoustic survey sites, Rocky Forge Wind Project, 2015.

Site	Latitude	Longitude
AS1	37.72354	-79.7023
AS2	37.71091	-79.7155
AS3	37.69929	-79.7194
AS4	37.69327	-79.7219
AS5	37.67104	-79.7351
AS6	37.67775	-79.7433



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## Rocky Forge Wind Project

Mist-net and Acoustic Surveys



Botetourt County, Virginia

-  Acoustic Survey Site
-  Mist-net Site
-  Western Ridge
-  Original Assessment Area

1:36,000  
or  
1 inch = 3,000 ft

Coordinate System:  
NAD 1983 StatePlane  
Virginia South FIPS  
4502 Feet  
Projection: Lambert  
Conformal Conic  
Datum: North American  
1983  
Sources: USDA, ESRI,  
USGS

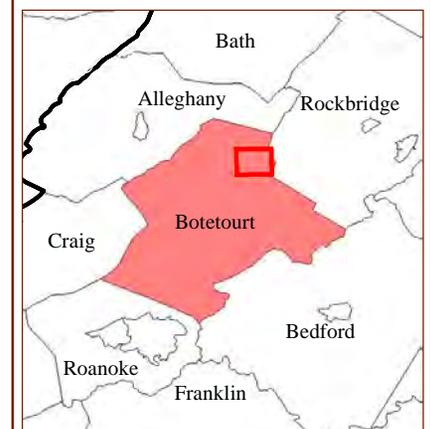


Figure 1. Mist-net and acoustic survey site locations for the Rocky Forge Wind Project, 2015.

BCID identified 79 call files as gray bat, 1 call file as a northern long-eared bat, and 13 call files as Indiana bat. Manual vetting determined that call files identified by BCID as gray bat calls were likely produced by eastern red bats (*Lasiurus borealis*). Similarly, manual vetting determined that the one call file identified by BCID as a northern long-eared bat was typical of that produced by an eastern red bat, and call files identified by BCID as Indiana bat were determined to be consistent with calls that may be produced by Indiana bat (n=5), little brown bat (*Myotis lucifugus*) (n=3), and eastern red bat (n=5). In addition, files identified by BCID as Indiana bat, gray bat, and northern long-eared bat were processed post hoc through Kaleidoscope Pro (v 3.1.1) in order to compare species identification results between the two programs (Table 2).

In summary, of the 1,498 call files collected over 12 detector nights, a total of 5 call files were identified as potential Indiana bat, and zero call files were identified as northern long-eared bat, gray bat, or Virginia big-eared bat.

Table 2. Manual vetting and Kaleidoscope Pro results of acoustic survey call files identified by BCID as Indiana, northern long-eared, or gray bats, Rocky Forge Wind Project, 2015.

Site	Date Surveyed (2015)	File Name	BCID Results	Kaleidoscope Results	Manual Vetting Conclusion
AS1	6-Jul	P7062237.56#	MYGR	LABO	LABO
AS1	6-Jul	P7062320.54#	MYGR	LABO	LABO
AS1	6-Jul	P7070105.07#	MYGR	LABO	LABO
AS1	6-Jul	P7070116.03#	MYGR	LABO	LABO
AS1	6-Jul	P7070120.29#	MYGR	LABO	LABO
AS1	6-Jul	P7070122.01#	MYGR	LABO	LABO
AS1	6-Jul	P7070126.45#	MYGR	LABO	LABO
AS1	6-Jul	P7070128.58#	MYGR	LABO	LABO
AS1	6-Jul	P7070129.35#	MYGR	LABO	LABO
AS1	6-Jul	P7070112.32#	MYGR	MYGR	LABO
AS1	6-Jul	P7070133.05#	MYGR	MYGR	LABO
AS1	6-Jul	P7062055.38#	MYSO	MYLE	consistent with MYSO
AS1	6-Jul	P7062055.53#	MYSO	MYLE	consistent with MYSO
AS1	7-Jul	P7072040.14#	MYGR	LABO	LABO
AS1	7-Jul	P7072107.08#	MYGR	LABO	LABO
AS1	7-Jul	P7072107.16#	MYGR	LABO	LABO
AS1	7-Jul	P7072107.39#	MYGR	LABO	LABO
AS1	7-Jul	P7072108.02#	MYGR	LABO	LABO
AS1	7-Jul	P7072108.17#	MYGR	LABO	LABO
AS1	7-Jul	P7072108.23#	MYGR	LABO	LABO
AS1	7-Jul	P7072108.58#	MYGR	LABO	LABO
AS1	7-Jul	P7072109.29#	MYGR	LABO	LABO
AS1	7-Jul	P7072110.35#	MYGR	LABO	LABO
AS1	7-Jul	P7072110.43#	MYGR	LABO	LABO
AS1	7-Jul	P7072113.01#	MYGR	LABO	LABO

<b>Site</b>	<b>Date Surveyed (2015)</b>	<b>File Name</b>	<b>BCID Results</b>	<b>Kaleidoscope Results</b>	<b>Manual Vetting Conclusion</b>
AS1	7-Jul	P7072113.35#	MYGR	LABO	LABO
AS1	7-Jul	P7072113.51#	MYGR	LABO	LABO
AS1	7-Jul	P7072114.37#	MYGR	LABO	LABO
AS1	7-Jul	P7072115.59#	MYGR	LABO	LABO
AS1	7-Jul	P7072116.37#	MYGR	LABO	LABO
AS1	7-Jul	P7072116.52#	MYGR	LABO	LABO
AS1	7-Jul	P7072117.27#	MYGR	LABO	LABO
AS1	7-Jul	P7072118.54#	MYGR	LABO	LABO
AS1	7-Jul	P7072119.50#	MYGR	LABO	LABO
AS1	7-Jul	P7072125.02#	MYGR	LABO	LABO
AS1	7-Jul	P7072313.28#	MYGR	LABO	LABO
AS1	7-Jul	P7080059.55#	MYGR	LABO	LABO
AS1	7-Jul	P7080120.38#	MYGR	LABO	LABO
AS1	7-Jul	P7080311.23#	MYGR	LABO	LABO
AS1	7-Jul	P7072109.18#	MYSO	LABO	LABO
AS1	7-Jul	P7072108.31#	MYGR	MYGR	LABO
AS1	7-Jul	P7072108.46#	MYGR	MYGR	LABO
AS1	7-Jul	P7072109.39#	MYGR	MYGR	LABO
AS1	7-Jul	P7072110.18#	MYGR	MYGR	LABO
AS1	7-Jul	P7072111.42#	MYGR	MYGR	LABO
AS1	7-Jul	P7072113.42#	MYGR	MYGR	LABO
AS1	7-Jul	P7072115.07#	MYGR	MYGR	LABO
AS1	7-Jul	P7072115.39#	MYGR	MYGR	LABO
AS1	7-Jul	P7072116.22#	MYGR	MYGR	LABO
AS1	7-Jul	P7072119.03#	MYGR	MYGR	LABO
AS1	7-Jul	P7072119.29#	MYGR	MYGR	LABO
AS1	7-Jul	P7072119.39#	MYGR	MYGR	LABO
AS1	7-Jul	P7072204.32#	MYGR	MYGR	LABO
AS1	7-Jul	P7072103.06#	MYSO	MYLU	LABO
AS1	7-Jul	P7080043.08#	MYSO	MYSO	MYLU*
AS1	7-Jul	P7080036.56#	MYGR	No ID	LABO/PESU
AS2	6-Jul	P7062113.17#	MYGR	LABO	Noise
AS2	6-Jul	P7062251.00#	MYGR	LABO	LABO
AS2	6-Jul	P7062259.49#	MYGR	LABO	LABO
AS2	6-Jul	P7062327.30#	MYGR	LABO	LABO
AS2	6-Jul	P7062123.19#	MYGR	MYGR	LABO
AS2	6-Jul	P7062134.25#	MYSO	MYLE	consistent with MYSO
AS2	6-Jul	P7062319.53#	MYGR	MYLU	LABO
AS2	7-Jul	P7072159.18#	MYGR	LABO	LABO
AS2	7-Jul	P7072217.33#	MYGR	LABO	LABO
AS2	7-Jul	P7072337.58#	MYGR	LABO	LABO

Site	Date Surveyed (2015)	File Name	BCID Results	Kaleidoscope Results	Manual Vetting Conclusion
AS2	7-Jul	P7072340.50#	MYGR	LABO	LABO
AS2	7-Jul	P7072356.13#	MYGR	LABO	LABO
AS2	7-Jul	P7072330.17#	MYGR	MYGR	LABO
AS2	7-Jul	P7072341.35#	MYGR	MYGR	LABO
AS2	7-Jul	P7080051.38#	MYSO	MYLU	LABO
AS2	7-Jul	P7080357.56#	MYSO	MYSO	consistent with MYSO
AS3	7-Jul	P7080405.37#	MYSE	LABO	LABO
AS4	6-Jul	P7062216.58#	MYGR	LABO	LABO
AS4	6-Jul	P7062220.47#	MYGR	LABO	LABO
AS4	6-Jul	P7062223.45#	MYGR	LABO	LABO
AS4	6-Jul	P7062224.19#	MYGR	LABO	LABO
AS4	6-Jul	P7062240.05#	MYGR	LABO	LABO
AS4	6-Jul	P7070037.37#	MYGR	LABO	LABO
AS4	6-Jul	P7062222.10#	MYSO	LABO	LABO
AS4	7-Jul	P7080043.25#	MYGR	LABO	LABO
AS4	7-Jul	P7080119.51#	MYGR	LABO	LABO
AS4	7-Jul	P7080120.35#	MYGR	LABO	LABO
AS4	7-Jul	P7080320.41#	MYGR	LABO	LABO
AS4	7-Jul	P7072345.15#	MYSO	MYLU	LABO
AS5	6-Jul	P7070048.19#	MYSO	MYLE	consistent with MYSO
AS5	6-Jul	P7070108.04#	MYSO	MYSO	MYLU*
AS5	7-Jul	P7080037.19#	MYGR	MYGR	LABO
AS5	7-Jul	P7080111.42#	MYSO	MYSO	MYLU*
AS6	6-Jul	P7062114.25#	MYGR	LABO	LABO
AS6	6-Jul	P7070003.12#	MYGR	LABO	LABO
AS6	7-Jul	P7080030.55#	MYGR	LABO	LABO
AS6	7-Jul	P7080132.23#	MYGR	LABO	LABO

<sup>1</sup> MYSO = Indiana bat, MYGR = gray bat, LABO = eastern red bat, MYLE = eastern small-footed bat, MYLU = little brown bat, PESU = tri-colored bat

\*Manual vetting conclusion by Mr. Allen of BCID

## Mist-Net Survey

As described in the June 22, 2015 Study Plan, follow up mist-net surveys were conducted at three sites (26 net nights) as close as possible to three acoustics sites (AS1, AS2, AS5) where BCID and manual vetting identified calls from Indiana bats. Additionally, per the methodology outlined in the August 6, 2015 Study Plan, 16 net nights were completed at two mist-net sites within the western ridge area (Table 3, Figure 1). The goal of the mist-net surveys was to capture listed bats and to attach transmitters in order to locate day roosts. Mist-net site data sheets are in Appendix C and site photographs are in Appendix D.

A total of 25 bats of four species were captured from three sites over 26 net nights within the original assessment area. A total of six bats representing two species were captured during the

additional 16 net nights completed along the western ridge. Three northern long-eared bats and zero Indiana, gray or Virginia big-eared bats were captured (Table 4).

Table 3. Mist-net site locations, Rocky Forge Wind Project, 2015.

Site	Latitude	Longitude	Dates	Description
MS5	37.67153	-79.73362	13-14 July	Forested corridors along Mill Creek
MS1	37.72007	-79.70714	15-16 July	Corridor on top of ridge
MS2	37.70535	-79.71907	15-16 July	Forested corridor on ridge south of Sandbank Mountain
MS3	37.68467	-79.73482	11-12 August	Ridgeline on old mine rd., Mt. Evan
MS4	37.69749	-79.73001	13-14 August	Old mine rd.

Table 4. Total bat captures by mist-net site, species, age, sex, and reproductive status, Rocky Forge Wind Project, 2015.

Site	Species	Age	Sex	Reproductive Status	Total Bats	Notes
MS1	<i>Eptesicus fuscus</i>	adult	male	scrotal	2	
	<i>Lasiurus borealis</i>	adult	male	non-reproductive	1	
	<i>Lasiurus borealis</i>	-	-	-	1	Escaped
	<i>Myotis septentrionalis</i>	adult	female	post-lactating	1	
	<i>Myotis septentrionalis</i>	juvenile	female	non-reproductive	1	
	<i>Myotis septentrionalis</i>	adult	male	non-reproductive	1	
MS5	<i>Eptesicus fuscus</i>	adult	female	non-reproductive	2	
	<i>Eptesicus fuscus</i>	adult	female	post-lactating	2	
	<i>Eptesicus fuscus</i>	juvenile	female	non-reproductive	1	
	<i>Eptesicus fuscus</i>	adult	male	non-reproductive	1	
	<i>Eptesicus fuscus</i>	adult	male	scrotal	4	
	<i>Eptesicus fuscus</i>	-	-	-	1	Escaped
MS2	<i>Eptesicus fuscus</i>	adult	female	post-lactating	1	
	<i>Lasiurus borealis</i>	juvenile	female	non-reproductive	1	
	<i>Lasiurus borealis</i>	adult	male	non-reproductive	2	
	<i>Myotis leibii</i>	adult	male	non-reproductive	3	
MS4	<i>Eptesicus fuscus</i>	adult	male	non-reproductive	1	
	<i>Eptesicus fuscus</i>	adult	male	scrotal	1	
MS3	<i>Lasiurus borealis</i>	adult	female	non-reproductive	1	
	<i>Lasiurus borealis</i>	juvenile	female	non-reproductive	1	
	<i>Lasiurus borealis</i>	juvenile	male	non-reproductive	2	

## Radio Telemetry

Radio transmitters were attached to the three northern long-eared bats (1 adult female, 1 adult male, 1 juvenile female) in order to locate day roosts. Each individual was tracked for seven days after the night of capture. A total of twelve roost trees were located during telemetry efforts (Table 5, Figure 2). Photographs of roost trees are in Appendix E. Roost tree data sheets are in Appendix F.

No radio-tagged bats were located on 20 July due to equipment failure. The adult female was not located on 21 July even after extensive searching with the project and surrounding areas. The juvenile female was not located on 23 July due to transmitter failure.

A minimum of six roost trees were used by the adult male and no roost trees were used more than once during the tracking effort. All male roost trees, except RT 257, were north east of the area used by the adult and juvenile females and were located outside the project boundary (Figure 2). The adult female used a minimum of five roost trees, with RT 256 being used on three consecutive days. The juvenile female roosted in a minimum of five roost trees and was not found to use a roost tree more than once (Table 6).

Two emergence counts were conducted (either by a biologist or night vision video camera) at each roost tree, except RT 63 that was found on the last day of radio tracking. The maximum number of individuals counted emerging from a roost tree was 10 and the median emergence count was 1. Simultaneous emergence counts conducted at two roost trees (RT 256, RT 257) on 17 July suggest that the colony is comprised of at least 11 individuals (Table 7).

Table 5. Northern long-eared bat roost trees located during telemetry efforts, Rocky Forge Wind Project, 2015.

Roost Tree No.	Species	Latitude	Longitude	DBH (cm)	Estimated Height (m)		Condition <sup>2</sup>	Tree Ranking <sup>3</sup>	Bat Use <sup>4</sup>	No. Calendar Days Used
					Tree	Roost				
54	<i>Quercus montana</i>	37.72925	-79.69673	56.5	18.0	14.0	S	C	AM	1
55	<i>Acer rubrum</i>	37.71965	-79.70881	55.0	17.0	5.0	LD	C	JF	1
56	unk <sup>1</sup>	37.71967	-79.70899	43.9	17.0	6.0-9.0	S	C	AF	1
57	<i>Q. montana</i>	37.72957	-79.69833	56.0	8.0	5.0-6.0	S	SC	AM	1
58	unk	37.72925	-79.69655	38.5	5.0	4.0	S	SC	AM	1
59	<i>Carya</i> sp.	37.72185	-79.70363	22.2	6.0	6.0	S	SC	JF	1
60	<i>Q. montana</i>	37.71946	-79.70795	33.9	4.0	4.0	S	SC	JF	1
61	<i>A. rubrum</i>	37.72937	-79.69647	15.3	5.0	4.0	S	SC	AM	1
62	<i>Q. montana</i>	37.72381	-79.70826	44.3	15.0	5.0	LD	C	AF	1
63	<i>Betula alleghaniensis</i>	37.72934	-79.69643	43.6	15.0	6.0	L	C	AM	1
256	<i>Q. montana</i>	37.72294	-79.70217	12.6	5.0	3.0	S	SC	AF, JF, AM	3
257	<i>Q. montana</i>	37.72938	-79.69632	20.0	6.0	3.0	S	SC	JF	1

<sup>1</sup> unk = too decayed to identify species

<sup>2</sup> L = live, LD = live damaged, S = snag

<sup>3</sup> C= canopy, SC = sub canopy, U = understory

<sup>4</sup> AM = adult male, JF = juvenile female, AF = adult female

Table 6. Roost tree use by radio-tagged northern long-eared, Rocky Forge Wind Project, 2015.

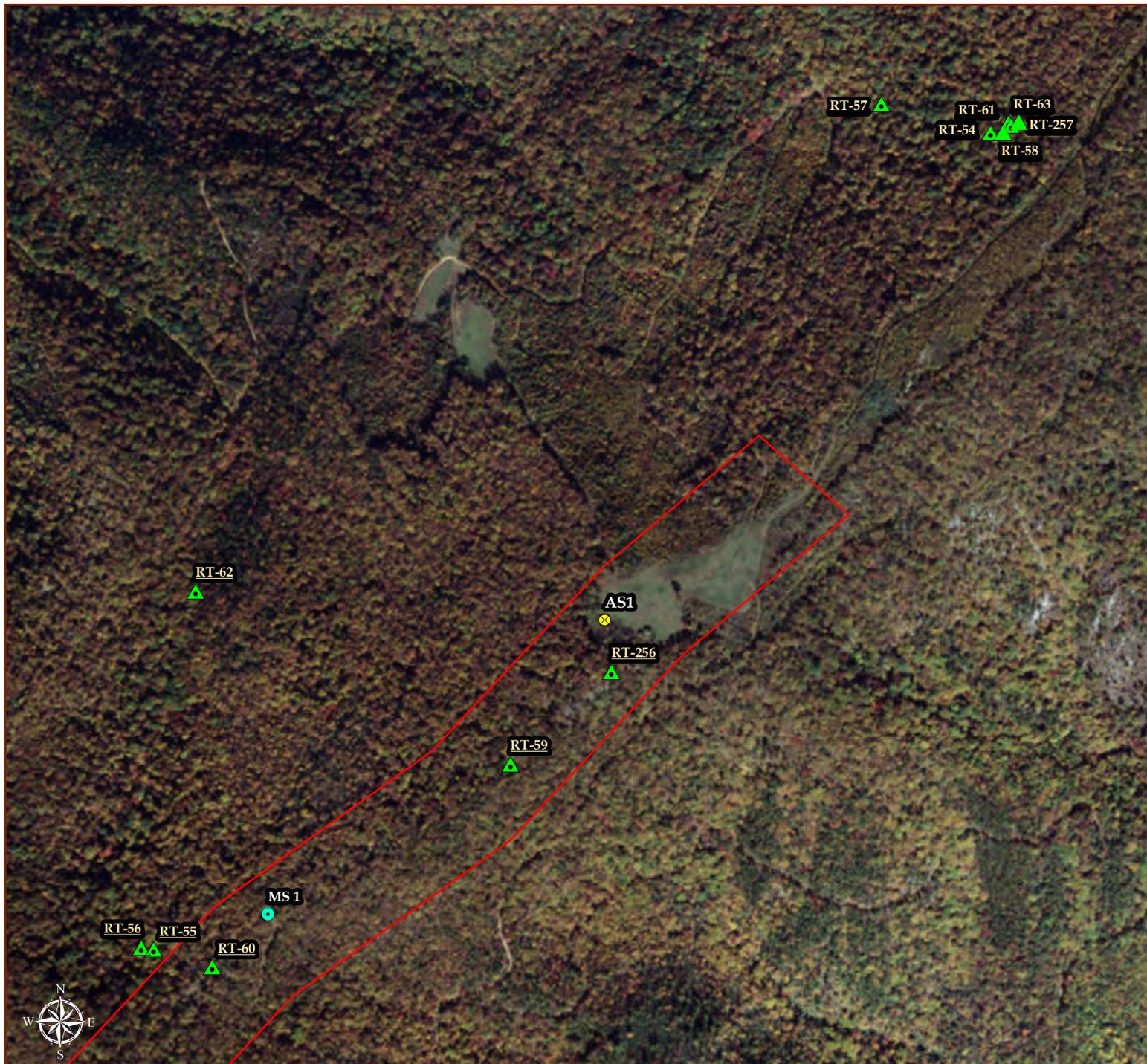
Bat <sup>1</sup>	16-July	17-July	18-July	19-July	20-July*	21-July	22-July	23-July
AF	RT 256	RT 256	RT 256	RT 56	-	-	RT 62	
AM		RT 256	RT 54	RT 57	-	RT 58	RT 61	RT 63
JF		RT 257	RT 256	RT 55	-	RT 59	RT 60	-

<sup>1</sup> AF = adult female, AM = adult male, JF = juvenile female

Table 7. Emergence counts of northern long-eared bat roost trees, Rocky Forge Wind Project, 2015.

Roost Tree	16-July	17-July	18-July	19-July	20-July	21-July	22-July	23-July
RT 256	10	9	9					
RT 257		2	0					
RT 54			1	0				
RT 55				1	0			
RT 56				3	0			
RT 57				0*	1			
RT 58						0*		0
RT 59						2	1	
RT 60							1	0
RT 61							1	0
RT 62							0*	0
RT 63								1
<b>Total</b>	<b>10</b>	<b>11</b>	<b>10</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>1</b>

\* = radio-tagged bat was present in tree, but did not emerge before dark



**Rocky Forge  
Wind Project**  
Roost Trees



Botetourt County, Virginia

- Rocky Forge Wind Project Boundary
- Mist-net Site
- ▲ Roost Tree
- ⊗ Acoustic Survey Site

1:7,200  
or  
1 inch = 600 ft

Coordinate System:  
NAD 1983 StatePlane  
Virginia South FIPS  
4502 Feet  
Projection: Lambert  
Conformal Conic  
Datum: North American  
1983  
Sources: USDA, ESRI,  
USGS

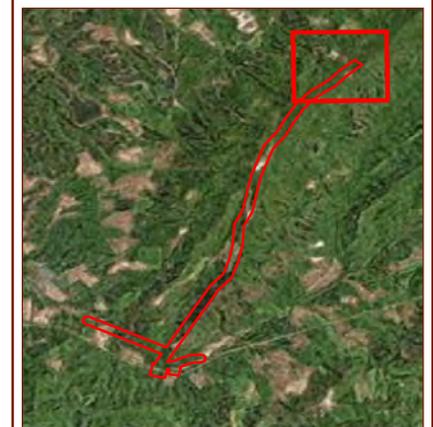


Figure 2. Northern long-eared bat roost tree locations, Rocky Forge Wind Project, 2015.

## Summary

### Indiana Bat

Results of the acoustic data analysis suggest that Indiana bats may be present within the project area; however, no Indiana bats were captured during the follow up mist-net survey despite placement of mist nets in optimal habitat and conditions for the species near locations where software indicated potential presence. If Indiana bats are present, the low number of acoustic calls and lack of captures suggest that a large colony is not likely roosting nearby, and Indiana bats may be using these areas as summer foraging or commuting habitat at low density.

For the western ridge portion of the project, the mist-net survey exceeded the USFWS minimum level of effort to determine presence/probable absence of Indiana bats in this part of the project area during the maternity season. Results of the survey indicate that Indiana bats are not likely present within the western ridge portion of the project.

### Northern Long-eared bat

Acoustic surveys indicated probable absence of northern long-eared bats; however three individuals were captured during mist-net efforts and radio-tracked to roosts nearby. A total of 12 roost trees were located and 24 emergence counts were completed. The maximum number of individuals counted emerging from a roost tree was 10 and the median emergence count was 1.

For the western ridge portion of the project, the mist-net survey exceeded the USFWS minimum level of effort to determine presence/probable absence of northern long-eared bats in this part of the project area during the maternity season, suggesting summer presence only on the north end of the project.

## Appendix A

### Acoustic Survey Data Sheets

Site No./Name AS1 Project No./Name 406 / Rocky Forge Wind Facility Acoustic Survey Date July 6, 2015 \*  
 County Bolton State VA Quad 500000 Observers: TC, NE Photos taken? Yes/No Camera Red Pentax (113-1056 4000)  
 Habitat Description: edge of woodlot, farthest field from entrance Automatic Identification Program(s) Used (circle): BCID / Kaleidoscope 113-1059

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MLE	Vetting (circle)
214	1740	1111	37.72354	079.70228	BCID	165	2	0	0.002765 (MYSO)	Agree Disagree
					Kpro					Agree Disagree

**Results (check):**

- No Target Species Detected
- MYSO Detected
- MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target species(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

Manual Vetting Notes:  
 The two calls consistent with those that may be made by this species. (Three additional calls not ID'd by the software were also consistent with Myotis call sequence)

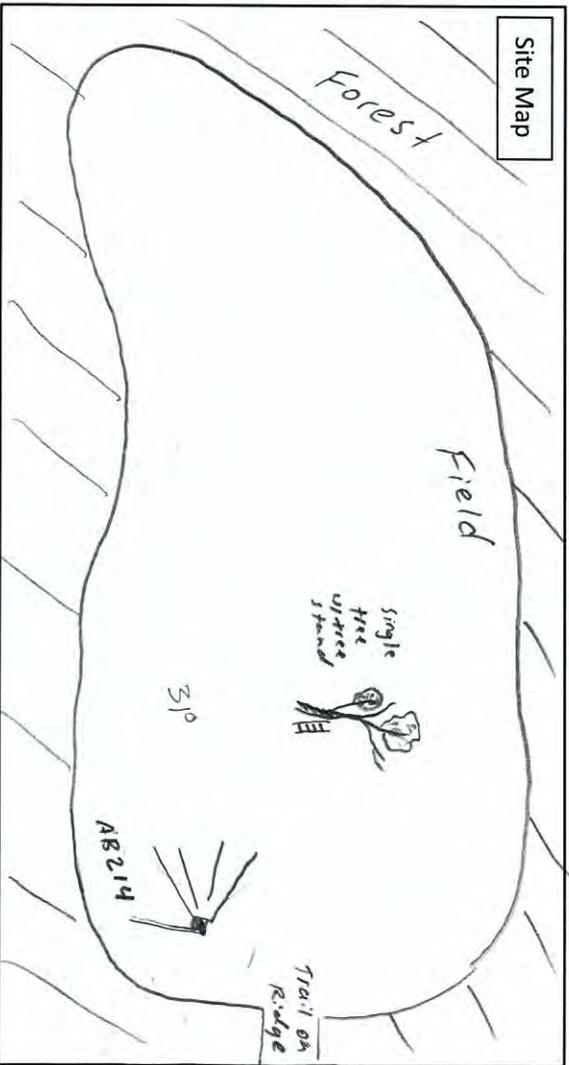
\*Weather: Low Temp 58 Time 0400

Precipitation: Yes/No  
 Comments: light rain first 20 min

**Deployment Checklist (please check each bubble after completion):**

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

**Site Map**



\* Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.

\*Time recorded in central time, mic type

62-330

Site No./Name AS1 Project: No./Name 406 / Rocky Forge Wind Facility Date 7/7/2015

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MLE	Vetting (circle)
214	1103	0938	37.72354	-79.70228	BCID	183	3	0	.000054	Agree
					Kpro					Disagree

**Results (check):**

- No Target Species Detected
- MYSO Detected
- MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target specie(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

**Manual Vetting Notes:**

Two of the calls I did as MYSO are portions of a LABO sequence, but I call I did as MYSO is consistent with those that may be made by this species.

\*Weather: Low Temp 62 Time 0330

\*Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.

Precipitation: Yes/ No  
 Comments: Recorded in central time.

**Deployment Checklist (please check each bubble after completion):**

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

7/6 - 11 gray bat calls not consistent with that species

7/7 - 39 gray bat calls not consistent with that species.



Site No./Name AS2 Project No./Name 406 / Rocky Forge Wind facility Acoustic Survey Date 7/6/2015  
 County Gatecourt State VA Quad 5 vigen Observers: T.C. NIK Photos taken? /No Camera Red pentax (113-10604) / (113-1062)  
 Habitat Description: edge of large woodlot near canopy corridor Automatic Identification Program(s) Used (circle): BCID / Kaleidoscope

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MLE	Vetting (circle)
<u>336</u>	<u>1755</u>	<u>1220</u>	<u>37.71091</u>	<u>-79.71505</u>	BCID	<u>17</u>	<u>1</u>	<u>0</u>	<u>.105943 (mYso)</u>	Agree Disagree
					Kpro					Agree Disagree

Results (check):

- No Target Species Detected
- MYSO Detected
- MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target species(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

Manual Vetting Notes:

Call consistent with those made by MYSO.

\*Weather: Low Temp 58 Time 0400

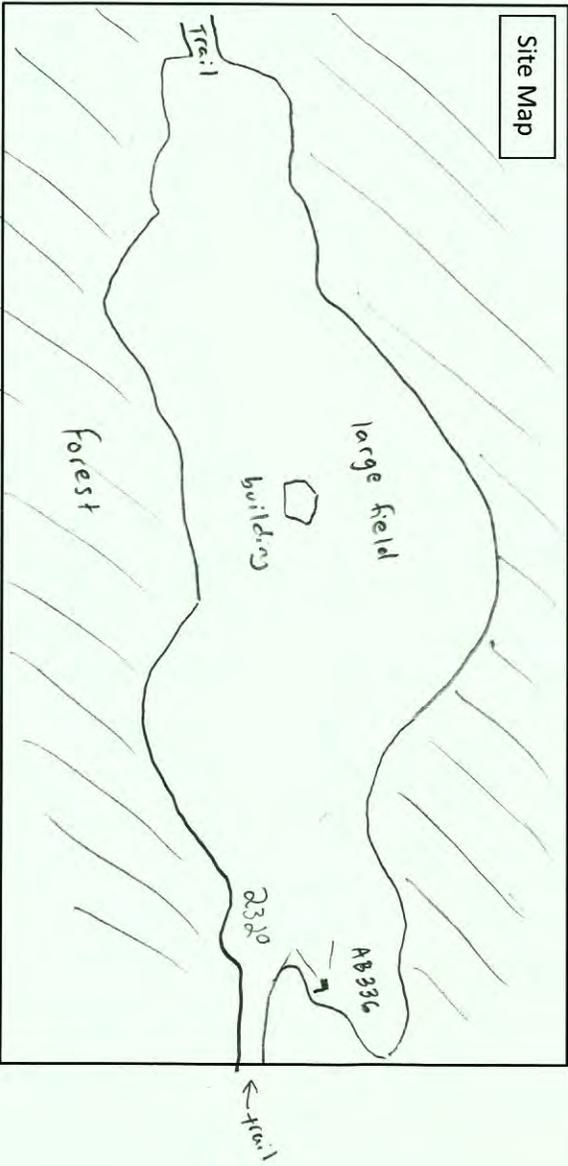
Precipitation: /No  
 Comments: light rain first 30 min

Deployment Checklist (please check each bubble after completion):

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

\* recorded in  
 central time

Site Map



\*Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.

Site No./Name AS2 Project: No./Name 406 / Rocky Forge Wind Facility Date 7/7/2015

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MLE	Vetting (circle)
336	1142	1007	37.71091	-79.71505	BCTD Kpro	49	2	0	.012002	Agree Disagree

**Results (check):**

- No Target Species Detected
- MYSO Detected
- MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target species(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

**Manual Vetting Notes:**

One call not consistent with calls made by MYSO, One call is consistent with calls made by MYSO.

\*Weather: Low Temp 62 Time 0330

\* Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.

Precipitation: Yes/NO  
 Comments: Recorded in central time.

**Deployment Checklist (please check each bubble after completion):**

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

7/6 - 6 gray bat calls not consistent with that species

7/7 - 7 gray bat calls not consistent with that species



Site No./Name ASS Project No./Name 4106 / Rocky Forge Wind Facility Acoustic Survey Date 7/6/2015  
 County Bate State VA Quad Sym 1041 Mt Observers: TC, MK Photos taken? Yes/No Camera Red pentax (113-1063 H/004)  
 Habitat Description: edge of woodlot Automatic Identification Program(s) Used (circle): BCID / Kaleidoscope (113-1065)

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MLE	Vetting (circle)
6	1828	1256	37.69929	-79.71937	BCID	16	0	0	N/A	Agree Disagree
					Kpro					Agree Disagree

Results (check):

No Target Species Detected

MYSO Detected

MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target specie(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

Manual Vetting Notes:

X

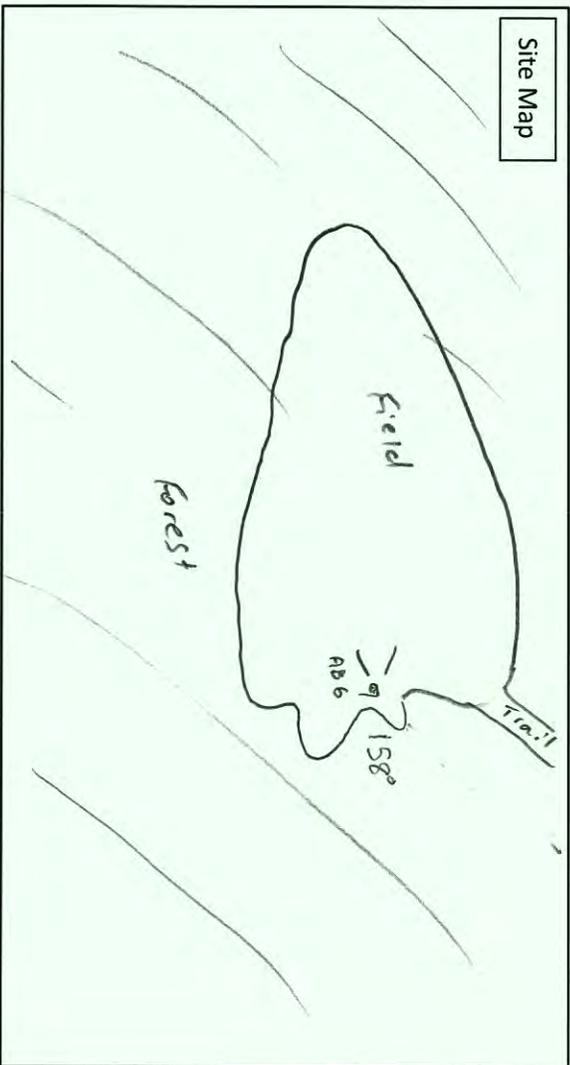
\*Weather: Low Temp 58 Time 0400

Precipitation: Yes/No  
 Comments: Light rain 1st 20 min

Deployment Checklist (please check each bubble after completion):

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

Site Map



\* Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.



\*Recorded in  
 Central time

Site No./Name AS3 Project: No. / Name 406 / Rocky Forge Wind Facility Date 7/7/2015

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MLE	Vetting (circle)
6	1207	1025	37.69929	-79.71937	BCID Kpro	17	0	1	.020426	Disagree Agree

**Results (check):**

No Target Species Detected

MYSO Detected

MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target specie(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

**Manual Vetting Notes:**

Call is not consistent with that of MYSE. (LABO)

\*Weather: Low Temp 62 Time 0330

\* Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.

Precipitation: Yes/No  
Comments: Recorded in central time.

**Deployment Checklist (please check each bubble after completion):**

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

Site No./Name AS4 Project: No./Name 406 / Rocky Forge Wind facility Acoustic Survey Date 7/6/2015  
 County Batavia State VA Quad 549104 M1 Observers: TC, MK Photos taken?  Yes / No Camera Red pentax (113-1066 thru 113-1068)  
 Habitat Description: edge wood lot Automatic Identification Program(s) Used (circle): BCID / Kaleidoscope

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MLE	Vetting (circle)
199	1812	1217	37.69327	-79.72189	BCID	163	1	0	.008811(MYSO)	Agree <del>Disagree</del>
					Kpro					Agree Disagree

Results (check):

No Target Species Detected

MYSO Detected

MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target species(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

Manual Vetting Notes:

Disagree: call too low quality for ID and likely portion of a LABO call sequence. No other Myotis calls found.

\*Weather: Low Temp 58 Time 0410

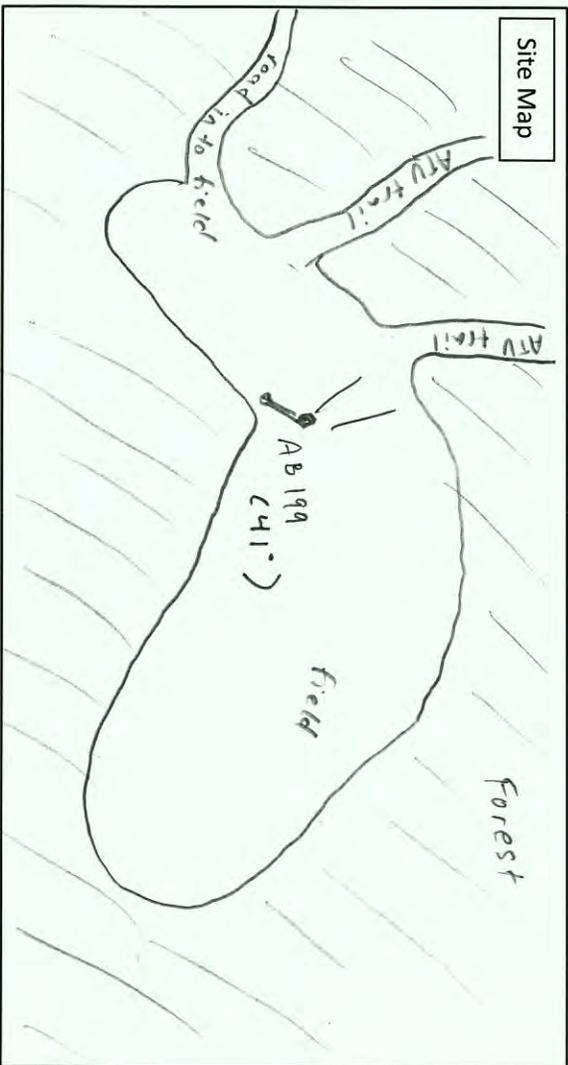
Precipitation: Yes/No

Comments: Light rain first 20 min

Deployment Checklist (please check each bubble after completion):

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

Site Map



\* Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.



Recorded in Central Time

Site No./Name AS4 Project: No./Name 406 / Rocky Forge Wind Facility Date 7/7/2015

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MLE	Vetting (circle)
199	12:30	10:39	37.69327	-79.72189	BCID	144	1	0	0.5264	Disagree
					Kpro					Agree

**Results (check):**

No Target Species Detected

MYSO Detected

MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target species(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

**Manual Vetting Notes:**

Call not consistent with MYSO calls, likely a LABO.

\*Weather: Low Temp 62 Time 0330

\*Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.

Precipitation: Yes/ No

Comments: \_\_\_\_\_

Deployment Checklist (please check each bubble after completion):

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

7/6 - 6 gray bat calls not consistent with that species

7/7 - 4 gray bat calls not consistent with that species

Record in Central Time



Site No./Name AS 5 Project: No./Name 406.01 / Rocky Forge Wind Facility Acoustic Survey Date 7/6/2015  
 County Bartlett State VA Quad Sys1 loc1 Mt Observers: JC, NK Photos taken?  Yes/No Camera Redpentax (113-1069 thru)  
 Habitat Description: edge of forest near hole in field near river Automatic Identification Program(s) Used (circle): BCID / Kaleidoscope (113-1071)

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MLE	Vetting (circle)
346	1828	1319	37.67104	-79.73508	BCID	63	2	0	.000433(4450)	Agree
					Kpro					Disagree

Results (check):

- No Target Species Detected
- MYSO Detected
- MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target species(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

Manual Vetting Notes:

The two calls are consistent with those that may be made by this species. No other Myotis calls heard at this site for this night.

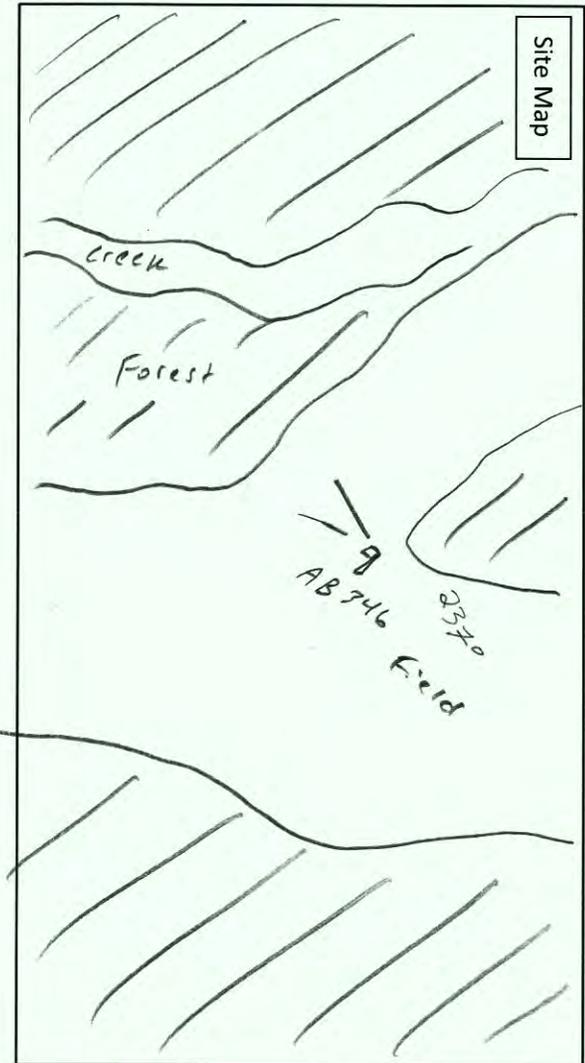
\*Weather: Low Temp 58 Time 0400

Precipitation:  Yes/No  
 Comments: Light rain 1st 20 min

Deployment Checklist (please check each bubble after completion):

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

Site Map



\*Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.

*\* Recorded in Central time*

Site No./Name AS5 Project: No./Name 406 / Rocky Forge Wind Facility Date 7/7/2015

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MLE	Vetting (circle)
	1331	1132	37.67104	-79.73508	BCID	150	1	0	.020300	Agree
346					Kpro					Disagree

**Results (check):**

- No Target Species Detected
- MYSO Detected
- MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target specie(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

**Manual Vetting Notes:**

The one call ID'd as MYSO is consistent with those that may be made by this species. No other MYSO calls found at this site for this night.

\*Weather: Low Temp 62 Time 0330

\* Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.

Precipitation: Yes/ No  
 Comments: Recorded in central tent.

**Deployment Checklist (please check each bubble after completion):**

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

7/7 - 1 gray bat call not consistent with that species



Site No./Name: AS6 Project No./Name: Y06.01 / Rocky Forge Wind Facility Acoustic Survey Date: July 2015  
 County: Boetfort State: VA Quad: Superior M40 observers: TC, NK Photos taken? Yes/No: Camera Red Pentax (113-1072 through 113-1074)  
 Habitat Description: Road corridors through wood lot Automatic Identification Program(s) Used (circle): BCID / Kaleidoscope

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MLE	Vetting (circle)
<u>180</u>	<u>1838</u>	<u>1341</u>	<u>37.67775</u>	<u>-79.74332</u>	BCID	<u>254</u>	<u>2</u>	<u>0</u>	<u>1.55192</u>	Agree <u>Disagree</u>
					Kpro					Agree Disagree

Results (check):

- No Target Species Detected
- MYSO Detected
- MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target species(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

Manual Vetting Notes:

X

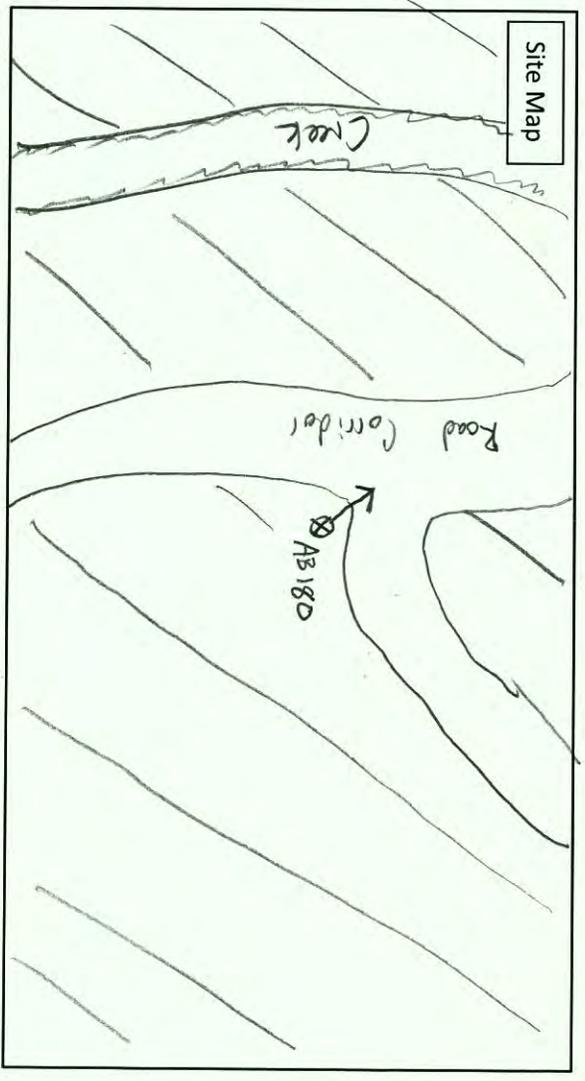
\*Weather: Low Temp 58 Time 0400

Precipitation: Yes/No Yes  
 Comments: Light rain first 20 min.

Deployment Checklist (please check each bubble after completion):

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

Temp recorded in Central Hill



\* Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.

Site No./Name AS6 Project: No./Name 406 / Rocky Forge Wind Facility Date 7/7/2015

Detector #	Time Up	Time Down	Latitude	Longitude	Program	Total # Calls	# MYSO	# MYSE	MILE	Vetting (circle)
180	1353	1147	37.67775	-79.74332	BatID Kpro	277	0	0	<del>1.1</del>	Agree Disagree Disagree

Results (check):

No Target Species Detected

MYSO Detected

MYSE Detected

\*note: positive detection results indicate that automated acoustic ID program(s) considered presence of the target specie(s) probable with high levels of certainty (P<0.05) AND manual vetting confirmed that the calls identified by the automated program(s) were consistent with calls that may be produced by the target species.

Manual Vetting Notes:

X

\*Weather: Low Temp 62 Time 0330

\*Nightly weather data will be downloaded from the mesowest website (<http://mesowest.utah.edu>) or obtained by on-site field crews to ensure weather minimums are not exceeded.

Precipitation: Yes/No  
Comments: Recorded in verbal time.

Deployment Checklist (please check each bubble after completion):

- All cables attached and secure
- Power unit on and finger rub test performed
- Power unit off (timer should have it remain in Standby mode)
- Sensitivity Adjusted
- Turn Volume DOWN
- Confirm Anabat unit is in standby mode
- GPS position recorded
- Pictures of and Anabat unit site taken

7/6 - 2 graybat calls not consistent with that species

7/7 - 2 graybat calls not consistent with that species.



## **Appendix B**

### **Acoustic Site Photographs**



AS 1



AS 2



AS 3



AS 4



AS 5



AS 6

## Appendix C

### Mist-net Site Data Sheets

Mist Netting Data Form

Site No. MS 1 Project No./Name 406.02 / Rocky Forge Date 7/15/2015  
 Site Location Logging road on forested ridge top.  
 County Botetourt State VA Time Up 2040 Time Down 0141  
 Lat/Lon; UTM: N/E 37.72007 W/N -79.70714 Zone — Datum NAD83 Observers J. Janos  
N Kovacs



**COPPERHEAD**  
ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq. (Hz)
1	2135	MYSE	A	F	PL	6.5	36.5	B	0.5	0	—	CC0926	1584
2	2149	LABO	A	M	NR	11.5	44.0	D	4.5	0	—	—	—
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
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21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

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

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

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

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

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

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

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

Mist Netting Data Form

Site No. MS 1 Project No./Name 406.02 / Rocky Forge Date 16 July 2015  
 Site Location Logging rd on forested ridge top State VA Time Up 2040 Time Down 0140  
 County Bate court W/N -79.70714 Zone --- Datum NAD 83 Observers G Janos / N Kovacs



**COPPERHEAD**  
 ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq. (kHz)
1	2155	MYSE	J	F	NR	5.5	35.5	B	2.0	0	---	CC0647	7.82
2	2200	MYSE	A	M	NR	6.5	35.0	C	2.5	0	---	CC0646	6.87
3	2315	LABO	Escape		from net			E	5.0				
4	2335	EPFU	A	M	S	18.5	47.0	B	0.5	0	---		
5	2335	EPFU	A	M	S	17.25	46.5	B	1.0	0	---		
6													
7													
8													
9													
10													
11													
12													
13													
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25													
26													
27													
28													
29													
30													

Time	Temp (F)	Sky	Wind	No. Bats
2030	65	1	2	0
2130	64	1	2	2
2230	63	1	1	1
2330	63	1	1	2
0030	63	0	0	0
0130	63	0	2	0

Moon Phase	0 %	Wax / Wane
Sun	Rise 0609	Set 2040
Moon	Rise 0649	Set 2055

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

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

Acoustic Survey: Unit type \_\_\_\_\_ Unit # \_\_\_\_\_ Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Coordinates \_\_\_\_\_

Weatherproofing \_\_\_\_\_

Comments:

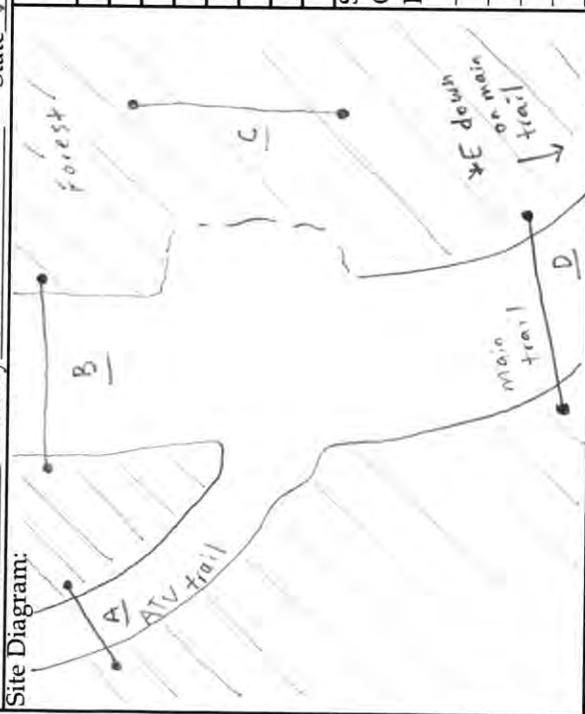
\* Moved net C to new location farther down main trail. Called new net location "net E" (past net D)

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

Mist Net Site Habitat Sheet Site No. MS 1 Project No./Name 406.02 / Rocky Forge Date 7/15/2015

Lat/Lon ; UTM: N/E 37.72007 W/N -79.70714 Zone - Observers G Janos N Kovacs

Datum: NAD83 County Botetourt State VA Quad Sugarloaf Mtn



Dominant Vegetation	
1. <i>Q. montana</i>	4. <i>A. rubrum</i>
2. <i>B. pseudoacacia</i>	5.
3. <i>P. strobus</i>	6.

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

Net	Height (m)	Length (m)	Dates
A	5.2	4	7/15 - 7/16
B	5.2	6	7/15 - 7/16
C	5.2	12	7/15 - 7/16
D	5.2	9	7/15 - 7/16
E	5.2	9	7/16
F			

Site Photographs  
 Camera: Fujifilm (Grygg)  
 Photo Log:

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

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

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

Comments:

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859-925-9012



Mist Netting Data Form

Sheet      of     

Site No. MS2 Project No./Name 406.02 / Apex Virginia Kelly Fore Date 15 July 2015  
 Site Location Wilderness Rd. on ridge south of Sandbank Mountain  
 County Boyle State VA Time Up 2020 Time Down 0141  
 Lat/Lon: UTM: 37.70535 W: 79.71907 Zone      Datum NAD83 Observers P. Raby, A. Cable



COPPERHEAD ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	0025	LABO	A	M	NR	10.5	39	C	1.5	0	-	-	-
2	0120	LABO	A	M	NR	11.5	41	D	4.5	0	-	-	-
3													
4													
5													
6													
7													
8													
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28													
29													
30													

Moon Phase	%	Wax / Wane
Sun	0608	2041
Moon	0553	2013

Time	Temp (F)	Sky	Wind	No. Bats
2000	68	0	0	0
2100	66	0	0	0
2200	66	0	1	0
2300	66	0	1	0
0000	66	0	1	1
0100	65	0	1	1
0200	65	0	1	0

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

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

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

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

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Mist Netting Data Form

Site No. MS2 Project No./Name 406-07 Rocky Forge Date 16 July 15  
 Site Location Wilderness Rd on Ridge South of Sandbank Mountain  
 County Bath State VA Time Up 2030 Time Down 0140  
 Lat/Lon; UTM: N1E 37.70535 W/N 79.71907 Zone — Datum NAD 83 Observers P. Roby, A. Cable



Moan Phase	0 %	Wax / Wane
Sun	Rise	Set
Moon	0609	2040
	0649	2655

Time	Temp (F)	Sky	Wind	No. Bats
2100	66	1	1	2
2200	64	1	1	1
2300	63	1	1	0
0000	63	2	1	2
0100	62	2	1	0
0200	62	1	0	0

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

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

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#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2115	MYLE	A	M	NR	5.0	32	F	1.0	0	—	—	—
2	2159	MYLE	A	M	NR	5.5	32	A	1.5	0	—	—	—
3	2207	MYLE	A	M	NR	5.75	31	C	1.5	0	—	—	—
4	0005	EPFU	A	F	PL	19.5	47	B	3.0	0	—	—	—
5	0055	LABO	J	F	NR	10.0	41	D	3.5	0	—	—	—
6													
7													
8													
9													
10													
11													
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Acoustic Survey: Unit type \_\_\_\_\_ Unit # \_\_\_\_\_ Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Coordinates \_\_\_\_\_  
 Weatherproofing \_\_\_\_\_  
 Comments: \_\_\_\_\_

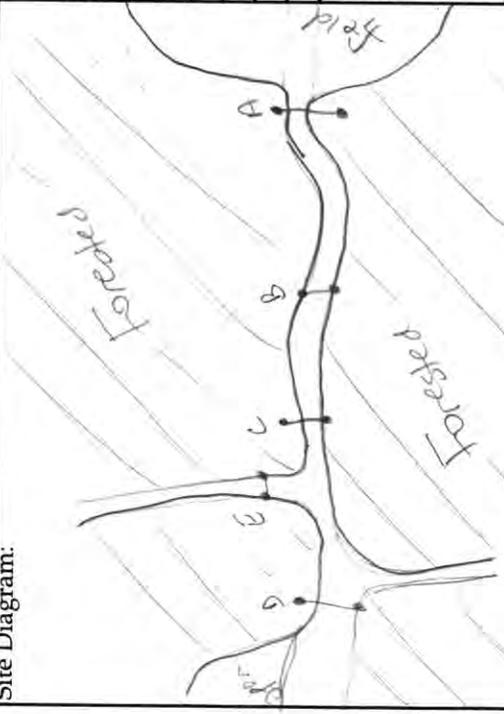
Mist Net Site Habitat Sheet Site No. MS2 Project No./Name 406021 Apex Virginia Park Zone Date 15 July 2015

Lat/Lon: UTM: N/E 3770535 W/N 79.71907 County Boone State VA Quad Sugarloaf Mountain Observers P. Roby, A. Cable

Net	Height (m)	Length (m)	Dates	Dominant Vegetation						
				1.	2.	3.	4.	5.	6.	
A	5.2	9	15 July	Castanea dentata	Quercus prinus					
B	5.2	6	15+16 July	Quercus rubra	Myrica sylvatica					
C	5.2	6	15+16 July	Acer pensylvanicum						
D	5.2	6	15+16 July							
E	2.6	4	15+16 July							
F	5.2	12	16 July							

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



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

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

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

Comments:



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Mist Netting Data Form

Sheet      of     

Site No. MS 3 Project No./Name 06.04 / Rocky Forge Date 8/11/18  
 Site Location Ridgeline on Old mine rd, Mt. Evans  
 County Botetourt State VA Time Up 2018 Time Down 0120  
 Lat/Lon ; UTM: N/E 37.68467 W/N 071.73462 Zone      Datum NAD 83 Observers C. Leffewich  
J. Bourne



COPPERHEAD ENVIRONMENTAL CONSULTING

Mo. Phase	%	Rise	Set
Sun	15	0630	2018
Moon		0347	1810

Time	Temp (F)	Sky	Wind	No. Bats
0030	71	2	2	0
2130	68	2	2	0
2230	60	2	1	0
2330	66	0	1	0
0030	65	0	1	1
0120	65	0	2	0

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

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

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	0045	LABO	J	M	NR	0.5	38	D	1	0			
2													
3													
4													
5													
6													
7													
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29													
30													

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

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

Please Return to:  
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Night 1

Mist Netting Data Form

Site No. MS3 Project No./Name 406.04 / Rocky Forge Date 8/12/15  
 Site Location RidgeLine on Old Mine rd., Mt. Evans  
 County Batavia State VA Time Up 2015 Time Down 0120  
 Lat/Lon; UTM: N/E 37.68467 W/N 079.73482 Zone 18 Datum NAD 83 Observers C. Lettowich  
J. Bourn



Moan Phase	5 %	Rise	Wax / Wane
Sun		0631	2017
Moon		0442	1853

Time	Temp (F)	Sky	Wind	No. Bats
2030	67	1	0	1
2130	62	1	0	1
2230	60	0	0	0
2330	60	0	0	1
0030	60	0	0	0
0130	58	0	0	0

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

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

Please Return to:  
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#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2105	LABO	J	M	NR	8.0	37	D	2.0	0			
2	2155	LABO	J	F	NR	10.5	38	D	1.0	0			
3	0025	LABO	A	F	NR	15.5	40	B	3.0	0			
4													
5													
6													
7													
8													
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Acoustic Survey: Unit type \_\_\_\_\_ Unit # \_\_\_\_\_ Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Weatherproofing \_\_\_\_\_ Coordinates \_\_\_\_\_  
 Comments: \_\_\_\_\_

night 2

Mist Net Site Habitat Sheet Site No. MS 3 Project No./Name 466.04, Rocky Forge Date 8/11/15

Lat/Lon; UTM: N/E 37.08467 W/N 079.73482 Zone 18QUC Observers C. Leftwich

Datum: NAD83 County Botetourt State VA Quad Sugarloaf mtn. Observers J. Bourne

Site Diagram:

Net	Height (m)	Length (m)	Dates	Dominant Vegetation						
A	5.2	6	8/11-8/12	1. <u>Q. montana</u>	4.					
B	5.2	6	8/11-8/12	2. <u>N. sylvatica</u>	5.					
C	5.2	6	8/11-8/12	3.						
D	5.2	6	8/11-8/12							
E										
F										

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

Site Photographs  
 Camera: CC  
 Photo Log:

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

**Roost habitat:** 1. **Poor:** No or few snags >= 5" DBH with sloughing bark or other usable roost features (cracks, crevices, etc)  
 2. **Moderate:** Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.  
 3. **Optimal:** Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.

**Water Resources:** 1. **Poor:** bat drinking resources not present at the site.  
 2. **Moderate:** Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.  
 3. **Optimal:** Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.

**Forest Structure:** (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).  
 1. **Poor:** Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging  
 2. **Moderate:** some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.  
 3. **Optimal:** Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.

**Land Cover:** 1. **Poor:** Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.  
 2. **Marginal:** Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.  
 3. **Optimal:** Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

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

Comments:



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 859-925-9012

17.5

Mist Netting Data Form

Sheet 1 of 1

Site No. MS 8 Project No./Name 406.05 / Rock Forge Date 13 Aug 15



COPPERHEAD ENVIRONMENTAL CONSULTING

Site Location old mine Rd State VA Time Up 2015 Time Down 6:20

County Dorchester W/N 079.73001 Zone --- Observers C. Leffewick

Lat/Lon ; UTM: N/E 37.69749 Datum AD 83

Mo. Phase	S %	Wax / Wane
Sun	Rise <u>0631</u>	Set <u>2015</u>
Moon	<u>0538</u>	<u>1932</u>

Time	Temp (F)	Sky	Wind	No. Bats
<u>2030</u>	<u>65</u>	<u>0</u>	<u>1</u>	<u>0</u>
<u>2130</u>	<u>65</u>	<u>0</u>	<u>1</u>	<u>1</u>
<u>2230</u>	<u>66</u>	<u>0</u>	<u>1</u>	<u>0</u>
<u>2330</u>	<u>66</u>	<u>0</u>	<u>2</u>	<u>0</u>
<u>0030</u>	<u>65</u>	<u>0</u>	<u>2</u>	<u>0</u>
<u>0120</u>	<u>63</u>	<u>0</u>	<u>1</u>	<u>0</u>

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

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

Please Return to:  
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#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2225	EPEU	A	M	S	19.25	44	A	1.5	0	---	---	---
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
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29													
30													

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

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

Night 1

24.5

Mist Netting Data Form

Site No. MS 9 Project No./Name 406.09 / Rocky Forge Date 14-Aug-2015

Site Location Old Mine Rd, Beckwith State VA Time Up 2014 Time Down 0115

Lat/Lon; UTM: N/E 37.69479 W/N 079.73001 Zone 18 Datum NAD83 Observers S. Leftwich

Observers J. Bounie



COPPERHEAD ENVIRONMENTAL CONSULTING

#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2150	EPFU	A	M	NR	23.5	93	B	1.0	0			
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
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25													
26													
27													
28													
29													
30													

Moon Phase	3%	Wax / Wane
Sun	0632	2014
Moon	0634	2007

Time	Temp (F)	Sky	Wind	No. Bats
2030	69	0	1	0
2130	68	0	1	1
2230	67	0	1	0
2330	67	0	1	0
0030	66	0	1	0
0115	66	0	1	0

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

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

Acoustic Survey: Unit type \_\_\_\_\_ Unit # \_\_\_\_\_ Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Coordinates \_\_\_\_\_

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

Night 2

Mist Net Site Habitat Sheet

Site No. 257 Project No./Name 466,041 BackFaye Date 13 Aug 15

Lat/Lon ; UTM: N/E 37.69779 W/N 079.73001 Zone 18QUC Observers C. Leitch

Datum: NAD83 County Botetourt State VA Quad Sunnyside Mtn Observers J. Beane

Site Diagram:

Net	Height (m)	Length (m)	Dates	Dominant Vegetation
A	2.6	4	8/13, 8/14	1. <i>A. rubrum</i> 4.
B	5.2	4	8/13, 8/14	2. <i>Q. montana</i> 5.
C	5.2	4	8/13, 8/14	3. <i>N. sylvatica</i> 6.
D	5.2	4	8/13, 8/14	
E				
F				

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

Site Photographs  
Camera: ll  
Photo Log: \_\_\_\_\_

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

- Roost habitat:** 1. Poor: No or few snags >= 5" DBH with sloughing bark or other usable roost features (cracks, crevices, etc)
- 2. Moderate: Snags with sloughing bark or other roost features present 5-15 inch DBH within 1000 feet of forested areas.
- 3. Optimal: Snags with sloughing bark or other roost features present >15 inch DBH within 1000 feet of forested areas.

Water Resources:

- 1. Poor: bat drinking resources not present at the site.
- 2. Moderate: Ephemeral or intermittent streams or ponded areas present but too cluttered to allow many bats to drink easily or simultaneously. No corridors, openings or canopy gaps allow bats easy access to the resource.
- 3. Optimal: Streams or ponds (including road ruts) present that appear to offer drinking resource throughout the majority of the summer. Flyways to resources are available.

Forest Structure:

- (if hardwoods are absent or nearly absent or if stand is monoculture, area automatically qualifies as a 1: poor).
- 1. Poor: Habitat even aged and young. Trees smaller than 5 inch DBH. Understory growth cluttered and restricts flying/foraging
- 2. Moderate: some diversity in age of trees in the stand. Trees 5 to 15 inches present. Understory clutter dominant but not ubiquitous. Trees greater than 15" DBH may be present but rare.
- 3. Optimal: Mature forest. Diverse age classes of trees present. Trees > 15 inch DBH frequent. Varying tree height and treefalls allow for frequent small openings and gaps that facilitate bat foraging.

Land Cover:

- 1. Poor: Square kilometer surrounding site predominantly un-forested. Few mature trees present not connected to other areas of trees.
- 2. Marginal: Trees present in the form of small woodlots and wooded fence rows. Little connection to adjacent forested areas.
- 3. Optimal: Area is largely forested. Wooded stands are connected to other wooded stands via wooded stream, fence row, or other wooded corridor.

Total Habitat Score (Should be between 4 & 12)

9

Comments:



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

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Mist Netting Data Form

Sheet 1 of 1

Site No. MS 5 Project No./Name 906.02 / Rocky Forge Date 13 July 2015  
 Site Location Forested corridors along Mill Creek  
 County Botetourt State VA Time Up 2045 Time Down 0145  
 Lat/Lon; UTM: N/E 37.67153 W/N -79.73362 Zone 18Q Datum NAD 83 Observers G. Jones, N. Kovacs



#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2138	EPU	A	M	S	20.0	49.0	B	0.5	0	—	—	—
2	2315	EPU	A	M	S	17.5	48.0	D	0.5	0	—	—	—
3	2332	EPU	Eschyle		604			D	3	—	—	—	—
4	2332	EPU	A	M	S	17.0	47.0	A	2.5	0	—	—	—
5	0024	EPU	A	F	NR	22.0	48.0	B	2.5	0	—	—	—
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

Moon Phase	%	20	Wax / Wane
Sun	Rise	0607	Set
Moon		0406	1835

Time	Temp (F)	Sky	Wind	No. Bats
2100	70	2	2	1
2200	67	2	1	0
2300	66	3	1	3
0000	66	3	1	1
0100	64	2	0	0
0200	63	0	0	0

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

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

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

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

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 (859) 925-9012

*Nets opened a few minutes late due to brief thunder shower*

Mist Netting Data Form

Site No. MS5 Project No./Name 406.02 - 1 Rocky Forge Date 14 July 2015  
 Site Location forested corridors along Mill Creek  
 County Bate State VA Time Up 2041 Time Down 0201  
 Lat/Lon ; UTM: N/E 37.67153 W/N - 79.73362 Zone 18N Datum NAD83 Observers C. Janos  
M. Kovacs



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Moisture Phase	%	5	Wax / Wane
Rise			Set
Sun		0607	2041
Moon		0458	1927

Time	Temp (F)	Sky	Wind	No. Bats
2100	67	5	1	1
2200	67	3	0	2
2300	65	3	0	1
0000	64	0	0	2
0100	63	0	0	0
0200	62	2	0	0

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

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

Please Return to:  
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#	Time	Species	Age	Sex	Repr.	Mass (g)	FA (mm)	Net	Height (m)	WDI	G/H/B/T	Band# Type	Freq.
1	2155	EPU	A	M	NR	17.5	48.0	B	2.5	0	-	-	-
2	2220	EPU	J	F	NR	20.5	48.0	A	1.0	0	-	-	-
3	2240	EPU	A	F	PL	21.75	49.0	A	1.0	0	-	-	-
4	2300	EPU	A	F	PL	20.5	47.0	A	2.0	0	-	-	-
5	0041	EPU	A	M	S	20.0	47.0	B	2.0	0	-	-	-
6	0041	EPU	A	F	NR	21.0	48.0	B	4.5	0	-	-	-
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

Acoustic Survey: Unit type \_\_\_\_\_ Unit # \_\_\_\_\_ Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Date \_\_\_\_\_ Start time \_\_\_\_\_ Stop time \_\_\_\_\_  
 Coordinates \_\_\_\_\_

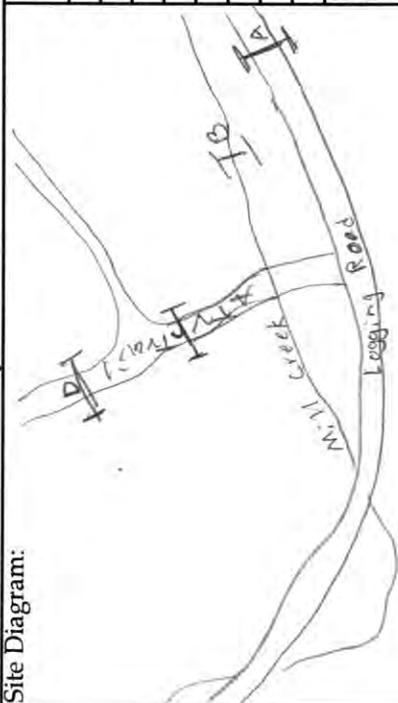
Weatherproofing \_\_\_\_\_  
 Comments: Rain from 2050 to 2110

Mist Net Site Habitat Sheet Site No. M55 Project No./Name 406.02 Rocky Forge Date 13 July 2015

Lat/Lon ; UTM: N/E 37.67153 WJN-79.73362 Zone — Observers G. Janos, N. Kovacs

Datum: NAD 83 County Bate State VA Quad Sugarloaf Mountain

Site Diagram:



Net	Height (m)	Length (m)	Dates
A	5.2	6	7/13-7/14
B	5.2	9	7/13-7/14
C	5.2	6	7/13-7/14
D	5.2	6	7/13-7/14
E			
F			

Dominant Vegetation					
1.	<i>T. canadensis</i>	4.	<i>P. strobus</i>		
2.	<i>O. alba</i>	5.			
3.	<i>L. tulipifera</i>	6.			

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

Site Photographs  
 Camera: *Fujifilm*  
 Photo Log: *2040-2047*

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

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

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

**Comments:**

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



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## Appendix D

### Mist-net Site Photographs



MS 1 Net A



MS 1 Net B



MS 1 Net C



MS 1 Net D



MS 2 Net E



MS 2 Net A



MS 2 Net B



MS 2 Net C



MS 2 Net D



MS 2 Net E



MS 3 Net A



MS 3 Net B



MS 3 Net C



MS 3 Net D



MS 4 Net A



MS 4 Net B



MS 4 Net C



MS 4 Net D



MS 5 Net A



MS 5 Net B



MS 5 Net C



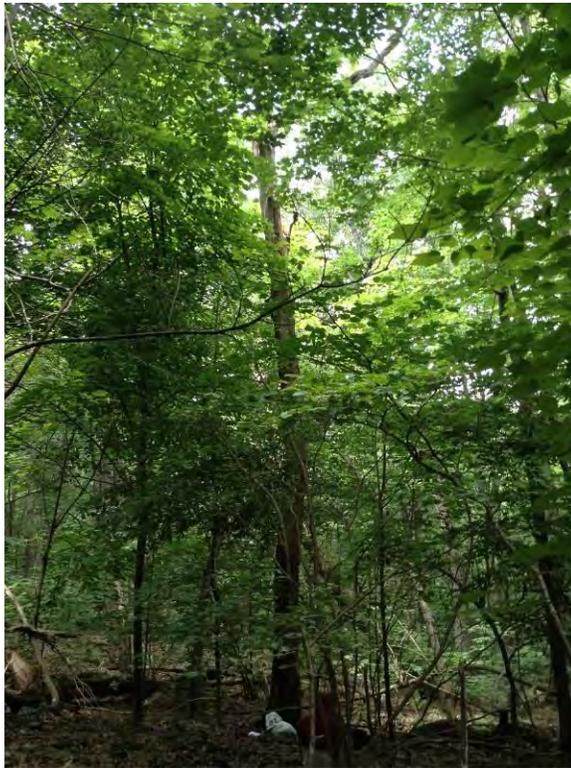
MS 5 Net D

## Appendix E

### Roost Tree Photographs



RT 55



RT 56



RT 57



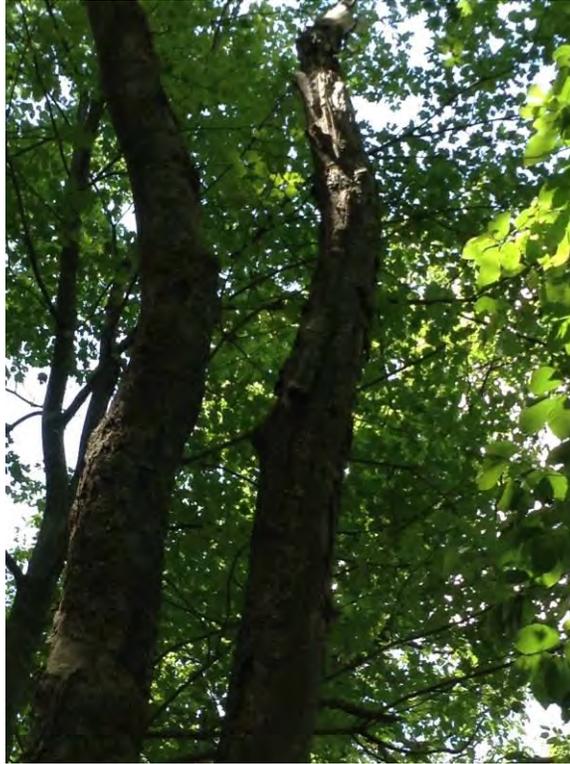
RT 58



RT 59



RT 60



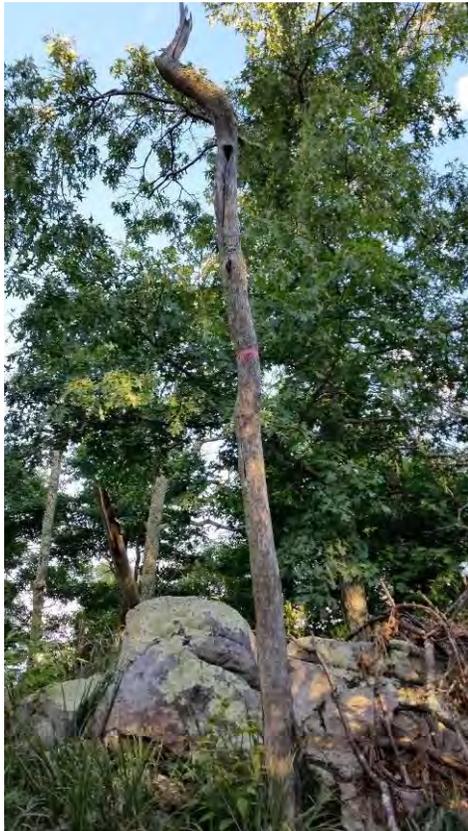
RT 61



RT 62



RT 63



RT 256



RT 257

## Appendix F

### Roost Tree Data Sheets

Roost Tree # RT 54 Project No./Project Name 406.03 / Rocky Forge Date First Found 18 July 2015

Location Open forest off ATV trail (Close to RT 257)

County Batesout State VA Quad Sugarleaf Mth.

Lat-Long/UTM: N/E 37.72925 W/N -79.69673 Zone - Datum: NAD83 Observers: AKOVACS, J Bourne

#	Tree Tag #	Species	DBH (cm)	Height ft or (m)		Roost	Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost			Usable	Total		
1	54	Q montana	56.5	20	15	-	snag	H	H	C	bark crevice
2		A rubrum	30.5	20	-	-	live	L	H	C	-
3		A rubrum	14.6	15	-	-	live	L	H	SC	-
4		A rubrum	28.2	15	-	-	live	L	H	C	-
5		Q rubra	86.1	32	-	-	live	M	H	C	-
6		A rubrum	47.8	10	-	-	snag	H	H	SC	crevice
7		A rubrum	48.4	13	-	-	snag	H	H	SC	crevice cavity
8		Q montana	59.5	23	-	-	live	L	H	C	-
9		A rubrum	30.2	20	-	-	live	L	H	C	-
10		B alleghaniensis	14	18	-	-	live	L	H	SC	-
11		Q montana	51.1	22	-	-	live	M	H	C	crevice
12		Q montana	72.1	22	-	-	live-damaged	M	H	C	cavity
13		Q montana	71.1	19	-	-	live-damaged	L	H	C	bark
14		Q montana	75.7	20	-	-	live-damaged	H	H	C	bark crevice
15											
16											
17											
18											
19											
20											
21											
22											

Habitat	
Interior	Open

Canopy Cover at Roost	
Open	Closed

Basal Area	
Live Trees	All Trees
110	140

Roost Location	
Bark	Crevise

↓ QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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



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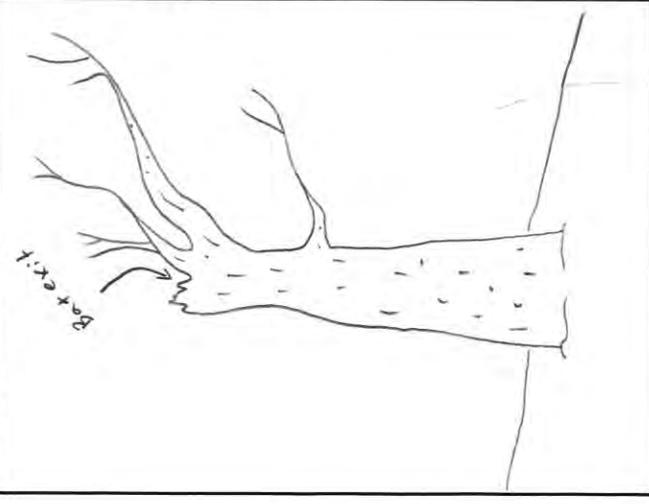
Copperhead Environmental Consulting Inc.  
P.O. Box 73, 11641 Richmond Rd.  
Paint Lick, KY 40461 (859) 925-9012

Roost Tree # 54

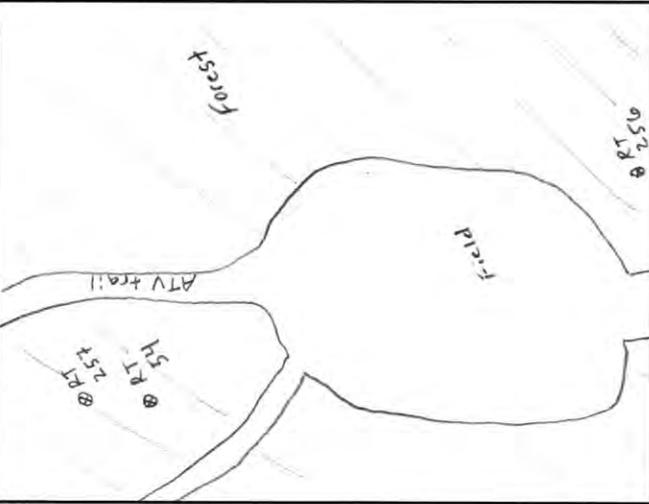
Bat Species/Sex/Frequency: MYSE/M / 172.687

Band # CC0646

Roost Tree Diagram:



Location Diagram:



No.	Date	Bat Freq.	Bat Days			Observations
			Bat Band #	Sex of Bat		
1	7/18	.687	CC0646	M	Bark crevice where large 1.5m hole.	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time			Focal Bat exit #	Personnel/ Comments
					Sunset	Bats Start	Bats End		
1	7/18	75	few clouds	1	2038	2049	2049	1	
2	7/19	75	few clouds	0	2039	—	—	—	video
3									
4									

No.	Nature	Aspect	Cavity or Crevice Characteristics		
			Width	Height	H <sub>2</sub> O Level
1					
2					
3					

Comments:

Second night (7/19) emergence video recorded. Black bag → camera 2

Roost Tree # 55 Project No./Project Name 406.03 / Rocky Forge Date First Found 19 July 2015

Location Forest off of main ridge to E.

County Botetourt

State VA

Zone

Quad Sugarloaf Mtn.

Lat-Long/UTM: N/E 37.71965 W/N -79.70881 Datum: NAD83 Observers: N Kowacs, J Bourne

#	Tree Tag #	Species	DBH (cm)	Height (ft or m)		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/Observation
				Tree	Roost		Usable	Total		
1	55	A rubrum	45.1	55	15	live damaged	H	H	C	Cavity/bark
2		A rubrum	24.8	25	-	live	L	H	SC	-
3		A rubrum	55.3	60	30	snag	H	H	C	Cavity/crevice
4		Q montana	42.8	65	-	live	L	H	C	-
5		Q montana	36.6	60	-	live	M	H	C	-
6		Q montana	50	65	-	live	M	H	C	-
7		Q rubra	29.8	50	-	live	L	H	C	-
8		Q montana	40.4	55	-	live	L	H	C	-
9		Q montana	45.3	60	-	live	L	H	C	-
10		unknown	37.2	30	20	snag	H	L	SC	Cavity
11		Q montana	72.4	65	-	live	M	H	C	-
12	56	unknown	43.9	55	20, 10, 30	snag	H	M	C	Cavity, crevice
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

Habitat	
Interior	Open
Edge	Open

Canopy Cover at Roost	
Open	Closed
Intermediate	

Basal Area	
Live Trees	All Trees
90	30
	120

Roost Location	
Bark	Crevice
Cavity	

QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking	
Canopy	Understory
Sub-Canopy	

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



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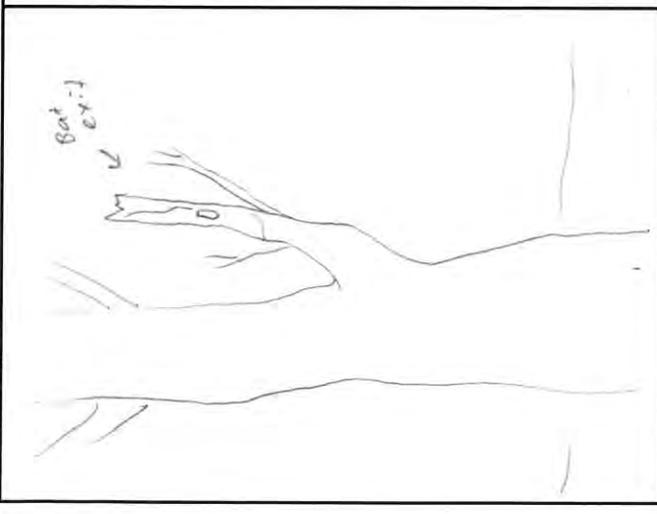
Copperhead Environmental Consulting Inc.  
P.O. Box 73, 11641 Richmond Rd  
Paint Lick, KY 40461 (859) 925-9012

Roost Tree # 55

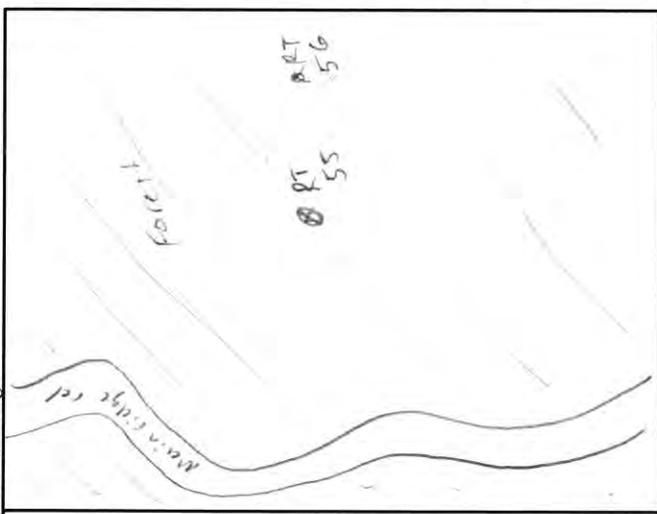
Bat Species/Sex/Frequency: MYSEIF/172,782

Band # CC0647

Roost Tree Diagram:



Location Diagram:



No.	Date	Bat Freq.	Bat Days			Observations
			Bat Band #	Sex of Bat		
1	7/19	782	CC0647	F	In broken limb	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Emergence Count

No.	Date	Temp of	Weather	# of Bats	Time			Focal Bat exit #	Personnel/Comments
					Sunset	Bats Start	Bats End		
1	7/19/15	75°	few clouds	1	8:51	9:00	9:00	1	
2	7/20	71	few clouds	0	8:38				video
3									
4									

No.	Nature	Aspect	Opening Measurements		
			Width	Height	H2O Level
1					
2					
3					

Comments:

Second night (7/20) emergence video recorded. Black bag → camera 2.

Roost Tree # RT 56 Project No./Project Name 406.D3 / Rocky Forge Date First Found 19 July 2015  
 Location Forest off of main ridge trail (near RT 55)  
 County Botetourt State VA Quad Sugarloaf mth. Observers: N Kovacs, J Bourne  
 Lat-Long/UTM: N/E 37.71967 W/N -79.70899 Zone - Datum: NAD83

#	Tree Tag #	Species	DBH (cm)	Height (m)		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	56	unknown	43.9	55	20 to 30	snag	H	M	C	cavity crevice
2		A. rubrum	48.7	20	-	live	L	H	SC	-
3		A. rubrum	19.5	20	-	live	L	H	SC	-
4		A. rubrum	55	50	15	live	M	H	C	crevice
5		A. montana	56.1	60	-	live	L	H	C	-
6		unknown	56.7	45	35	snag	H	L	C	cav/crev.
7		A. rubrum	18.9	20	20	live damage	M	H	SC	crevice
8		A. montana	51.3	65	-	live	L	H	C	-
9		A. rubrum	18	45	-	live	L	H	C	-
10		A. rubrum	21.7	45	-	live	L	H	C	-
11		A. rubrum	24.6	35	-	live	L	H	SC	-
12		A. rubrum	58.3	60	20 to 30	snag	H	H	C	cav/crevice
13		A. pennsylvanic	14.5	20	-	live	L	H	SC	-
14	55	A. rubrum	45.1	55	15	live damaged	H	H	C	cav/ bark
15										
16										
17										
18										
19										
20										
21										
22										

Habitat	
interior	Open

Canopy Cover at Roost	
Open	Closed

Basal Area	
Live Trees	Snags
110	30
140	

Roost Location	
Bark	Cavity
	crevice

↓ QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking	
Canopy	Sub-Canopy
	Understory

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

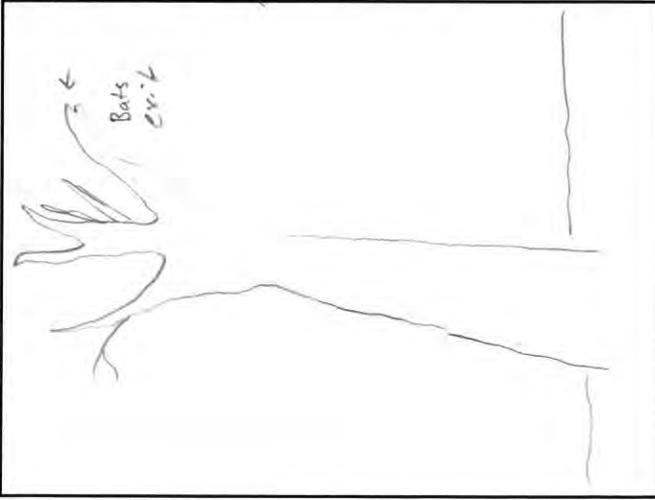


Roost Tree # 56

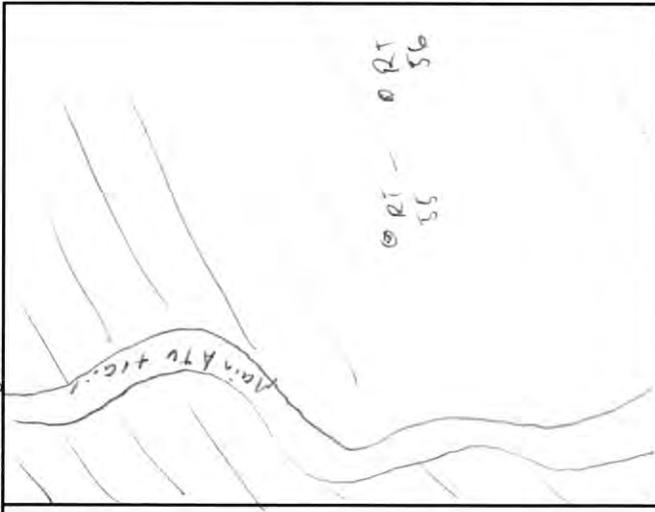
Bat Species/Sex/Frequency: MYSE/F/172.584

Band # C C 0926

Roost Tree Diagram:



Location Diagram:



No.	Date	Bat Freq.	Bat Days			Observations
			Bat Band #	Sex of Bat		
1	7/19	.584	CC0926	F		Cavity new top
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Emergence Count

No.	Date	Temp of	Weather	# of Bats	Time			Focal Bat exit #	Personnel/ Comments
					Sunset	Bats Start	Bats End		
1	7/19	75	few clouds	3	2051	2057	2058	-	NO received
2	7/20	71	few clouds	0	2053	-	-	-	-
3									
4									

No.	Nature	Aspect	Opening Measurements		
			Width	Height	H2O Level
1					
2					
3					

Comments:

Checked with receiver at 10 count and bat left (7/19)

Roost Tree # RT 57 Project No./Project Name 406.03 / Rocky Forge Date First Found 7/19/15  
 Location one base off ATV trail, C. 1000 on Rt 287  
 County Botetourt State VA Quad Superior M-11 Observers: N. Kovacs, J. Baird  
 Lat-Long/UTM: N/E 37.72957 W/N -79.69933 Datum: NAD83

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	57	Q. montana	56	25	15 to 20	snag	H	M	SC	bark/crevice
2		A. rubrum	18.2	35	-	live	L	H	C	-
3		Q. rubra	19.4	40	-	live damage	M	H	C	bark
4		Q. nigra	38.6	45	-	live	L	H	C	-
5		A. rubrum	32	40	-	live damage	L	H	C	-
6		A. rubrum	21.1	40	-	live	L	H	C	-
7		Q. nigra	29.9	50	-	live	L	H	C	-
8		N. sylvatica	10.1	35	-	live	L	H	SC	-
9		N. sylvatica	46	45	-	live	L	H	C	-
10		N. sylvatica	23.6	40	-	live	L	H	C	-
11		Q. rubra	37.5	40	-	live	L	H	C	-
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

Habitat	
Interior	Open
Edge	Open

Canopy Cover at Roost	
Open	Closed
Intermediate	

Basal Area	
Live Trees	All Trees
100	110
10	

Roost Location	
Bark	Crevice
Cavity	

QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking	
Canopy	Understory
Sub-Canopy	

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

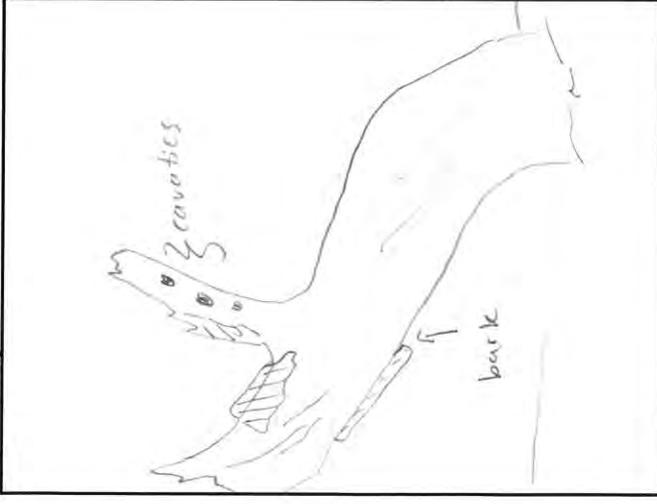


Roost Tree # 57

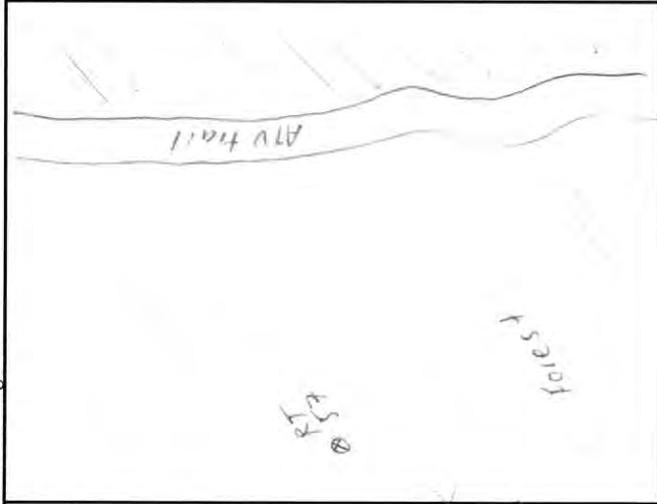
Bat Species/Sex/Frequency: MYSE / M / 172.667

Band # CC0646

Roost Tree Diagram:



Location Diagram:



No.	Date	Bat Freq.	Bat Days			Observations
			Bat Band #	Sex of Bat		
1	7/19	.687	CC0646	M	work/cav/crevice	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Markings  
 for  
 10/1  
 10/2  
 10/3

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time			Focal Bat exit #	Personnel/ Comments
					Sunset	Bats Start	Bats End		
1	7/19	75	few clouds	0	—	—	—		
2	7/20	71	few clouds	1	2038	2033	—	video	
3									
4									

No.	Nature	Aspect	Opening Measurements			H <sub>2</sub> O Level
			Width	Height	Ground	
1						
2						
3						

Comments:

Second night (7/20) emergence video recorded. Red bag → camera 1

Roost Tree # *58*

Project No./Project Name *406.03 / near Roost tree 54*

Date First Found *21 July 2015*

Location *Forest off Hwy trail*

County *Bathurst*

State *VA*

Quad *Southeast*

Lat-Long/UTM: N/E *37.72925* W/N *-79.69655*

Datum: *NAD83*

Observers: *N. Kovacs, J. Zamm*

#	Tree Tag #	Species	DBH (cm)	Height (ft or m)		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	58	unknown	38.5	18	14	snag	H	L	SC	cavity
2		Q. montana	59.3	55	45	live	M	H	C	crevice
3		Q. montana	61.7	50	-	live	L	H	C	-
4		Q. montana	62.7	45	-	live	L	H	C	-
5		Q. rubra	38.1	45	-	live	L	H	C	-
6		Q. rubra	29.1	40	-	live	L	H	C	-
7		Fraxinus spp	25.8	30	-	live	L	H	SC	-
8		Q. sylvatica	59.6	50	-	live	L	H	C	-
9		Q. rubra	32.3	45	-	live	L	H	C	-
10		Q. rubra	24.2	40	-	live	L	H	C	-
11		A. rubrum	22.5	30	-	live	L	H	SC	-
12		Q. montana	38.7	25	20-30	snag	M	H	SC	cav/crev.
13		Q. montana	47.9	20	20	snag	M	H	SC	crevice
14		Q. rubra	46.2	60	25	live	M	H	C	crevice
15	54	Q. montana	75.7	60	45	snag	H	H	C	bark/crevice
16										
17										
18										
19										
20										
21										
22										

Habitat	
Interior	Open

Canopy Cover at Roost	
Open	Closed

Basal Area	
Live Trees	All Trees
110	150

Roost Location	
Bark	Crevice

QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking	
Canopy	Understory

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

\* Found w/ freq. 172.689



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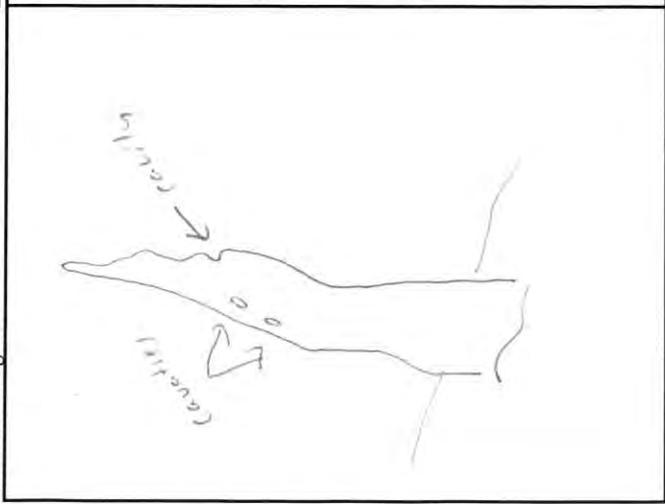
2

Band # CC0646

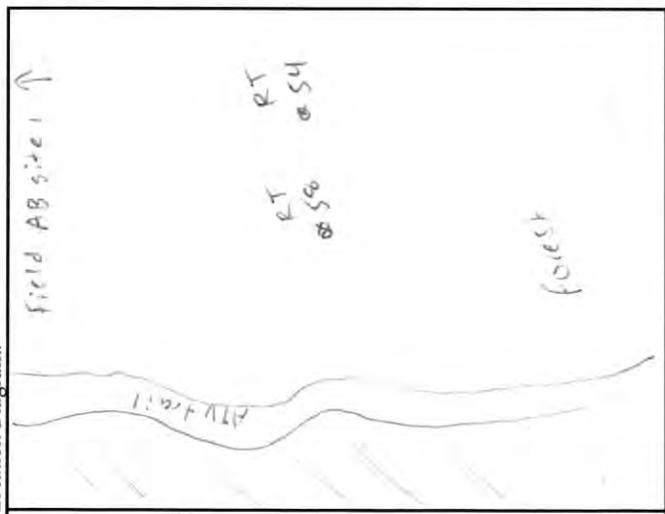
Bat Species/Sex/Frequency: MYSE/M/172.687 (688-801)

Roost Tree # 58

Roost Tree Diagram:



Location Diagram:



No.	Date	Bat Freq.	Bat Days			Observations
			Bat Band #	Sex of Bat		
1	7/21	.687	CC0646	M		cavity
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time			Focal Bat exit #	Personnel/ Comments
					Sunset	Bats Start	Bats End		
1	7/21	69	partly cloudy	0	2038	-	-	-	
2	7/23	46	partly cloudy	0	2036	-	-	1.640	
3									
4									

No.	Nature	Aspect	Cavity or Crevice Characteristics		
			Width	Height	H2O Level
1					
2					
3					

Comments:

(21 July) couldn't pick up bat .687 on lower frequency, found her signal at .688 and when we closed in on her location had to switch to .689 in order to pinpoint the snag

7/21 - bat didn't emerge before dark



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Roost Tree # 59 Project No./Project Name 406.03 / Rocky Forge Date First Found 21 July 2015

Location Small clearing w multiple snags off of main ridge trail

County Bates State VA Quad Sugarloaf Mtn Observers: NADSS Kousser, Bourne

Lat-Long/UTM: N/E 37.72185 W/N -79.70363 Zone 18 Datum: NAD83

#	Tree Tag #	Species	DBH (cm)	Height (ft or m)		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	59	Laysan sp	22.2	20	20	Shag	M	H	SC	crevice
2		Q alba	63.9	60	-	live	L	H	C	-
3		C glabra	15	20	-	live damaged	L	H	SC	-
4		C glabra	11.3	20	-	live	L	H	SC	-
5		Q alba	36	50	-	live	L	H	C	-
6		Q alba	48.2	50	-	live	L	H	C	-
7		Q alba	37.5	45	-	live	L	H	C	-
8		Q montana	51.6	55	-	live	L	H	C	crevice
9		Q rubra	32.7	50	-	live	L	H	C	-
10		Q rubra	38.4	50	-	live	L	H	C	low crevice
11		unknown	24	20	-	Shag	H	L	SC	-
12		Q rubra	56.1	55	-	live	L	H	C	-
13		P serotina	29.5	40	20	live damaged	M	H	C	cavity
14		P serotina	28	40	15	live damaged	M	H	C	cavity
15		Q alba	48.4	50	20	live damaged	L	H	C	crevice
16		C glabra	22.4	35	-	live	L	H	SC	-
17										
18										
19										
20										
21										
22										

Habitat	
Interior	Open

Canopy Cover at Roost	
Open	Closed

Basal Area	
Live Trees	All Trees
140	160

Roost Location	
Bark	Cavity
	Crevice

↓ QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking	
Canopy	Sub-Canopy
	Understory

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

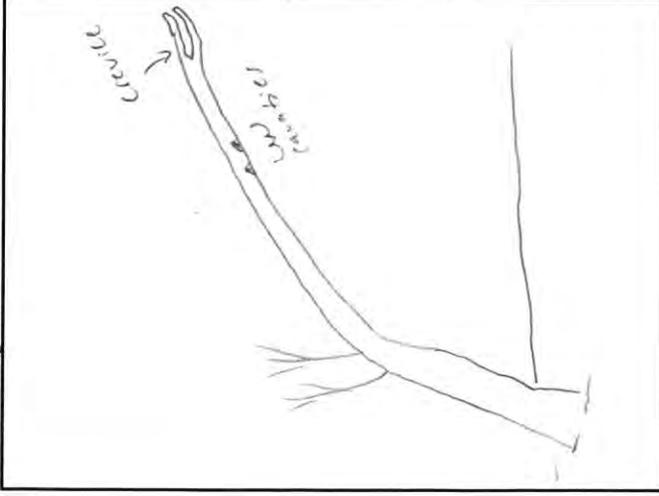


Roost Tree # RT 59

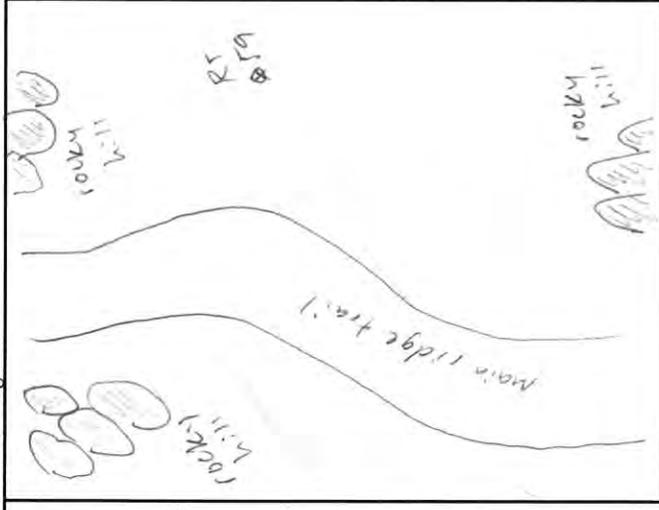
Bat Species/Sex/Frequency: MTSE/F/172.782 (783)

Band # CC0647

Roost Tree Diagram:



Location Diagram:



No.	Date	Bat Freq.	Bat Days		Sex of Bat	Observations
			Bat Band #			
1	7/21	782	CC0647		F	11 mile on top
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time			Focal Bat exit #	Personnel/ Comments
					Sunset	Bats Start	Bats End		
1	7/21	69	partly cloudy	2	2038	2058	2100	-	Receiver
2	7/22	68	partly cloudy	1	2035	2100	2100	-	-
3									
4									

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

Comments:

(21 July) couldn't pick bat 782 on the correct frequency. Had to use 172.783.

Roost Tree # 60 Project No./Project Name 406.03 / Rocky Forge Date First Found 22 July 2015  
 Location Small clearing w/ multiple snags near main ridge rd. (near RT 55, 56)  
 County Botetourt State VA Quad Sugarloaf mth  
 Lat-Long/UTM: N/E 37.71946 W/N -79.70795 Zone - Datum: NAD83 Observers: N Kovacs, J Bouvier

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/Observation
				Tree	Roost		Usable	Total		
1	60	<i>Q. montana</i>	33.9	14	13	snag	H	H	SC	cav. crevice
2		<i>Q. montana</i>	54	55	-	live	L	H	C	-
3		<i>Q. montana</i>	48.6	50	-	live	L	H	C	-
4		<i>A. rubrum</i>	28.3	30	-	live	L	H	SC	-
5		<i>A. rubrum</i>	15.4	30	-	live	L	H	SC	-
6		<i>Q. montana</i>	47.6	40	25	snag	M	H	C	cavity
7		<i>A. rubrum</i>	45.7	40	-	live damaged	L	H	C	cavity
8		<i>Q. montana</i>	48.5	35	-	snag	L	H	C	-
9		<i>A. rubrum</i>	46.4	50	-	snag	L	H	C	-
10		unknown	37.9	30	10	snag	H	L	C	cav. crevice
11		<i>N. sylvatica</i>	20.9	20	-	live	L	H	SC	-
12		<i>Q. montana</i>	34.1	25	-	snag	L	H	SC	-
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

Habitat	
Interior	Edge
	Open

Canopy Cover at Roost	
Open	Intermediate
	Closed

Basal Area	
Live Trees	Snags
60	60
	120

Roost Location	
Bark	Cavity
	Crevice

↓ QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking	
Canopy	Sub-Canopy
	Understory

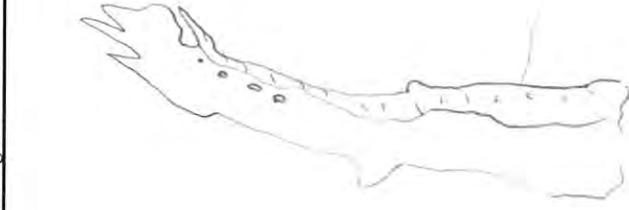
A 10 factor English prism is used to identify trees within the plot, centered on the roost tree.

Roost Tree # 60

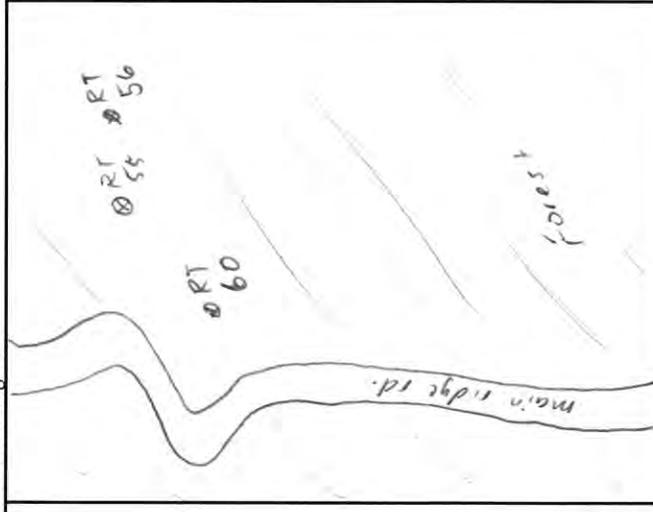
Bat Species/Sex/Frequency: MYSE / F / 172.782

Band # 110647

Roost Tree Diagram:



Location Diagram:



No.	Date	Bat Freq.	Bat Days			Observations
			Bat Band #	Sex of Bat		
1	7/22	1782	110647	F	caul/cleave	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time			Focal Bat exit #	Personnel/ Comments
					Sunset	Bats Start	Bats End		
1	7/22	68°	partly cloudy	1	2037	2112	2112	-	No receiver
2	7/25	66°	partly cloudy	0	2036	-	-	-	video sp
3									
4									

No.	Nature	Aspect	Cavity or Crevice Characteristics		
			Width	Height	H <sub>2</sub> O Level
1					
2					
3					

Comments:

\* Had to use freq. 172.783 to locate bat.

7/25 had to use freq. 172.784 to locate bat



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Roost Tree # 61

Project No./Project Name 406.03 / Rocky Forge

Date First Found 22 July 2015

Location Forest off of Hwy 100, near Roost tree 257

County Boone

State W/V

Zone

Datum: NAD 83

Observers: N. Kovacs, J. Bourke

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/Observation
				Tree	Roost		Usable	Total		
1	61	A rubrum	15.3	15	14	snag	H	H	SC	bark
2		A rubrum	16.0	25	-	snag	L	H	SC	-
3		A rubrum	19.3	35	-	live	L	H	C	-
4		Q. alleghaniensis	42.9	50	-	live	L	H	C	bark
5		Q. rubra	33.9	45	-	live	L	H	C	-
6		N. sylvatica	19	25	-	live	L	H	SC	-
7		Q. montana	58	35	35	live damaged	M	H	C	crevice
8		Q. montana	43.2	45	25	live	M	H	C	bark
9		Q. montana	58.3	60	-	live	M	H	C	bark
10		Q. montana	54.9	55	30	live	M	H	C	bark
11		Q. rubra	18	35	-	live	L	H	C	-
12		Q. rubra	39.5	50	-	live	L	H	C	-
13		N. sylvatica	59.5	50	-	live	L	H	C	-
14		Q. rubra	49.9	55	-	live	L	H	C	-
15										
16										
17										
18										
19										
20										
21										
22										

Habitat	
Interior	Open
Edge	Open

Canopy Cover at Roost	
Open	Intermediate
	Closed

Basal Area	
Live Trees	All Trees
120	140

Roost Location	
Bark	Crevice

↓ QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking	
Canopy	Sub-Canopy
	Understory

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

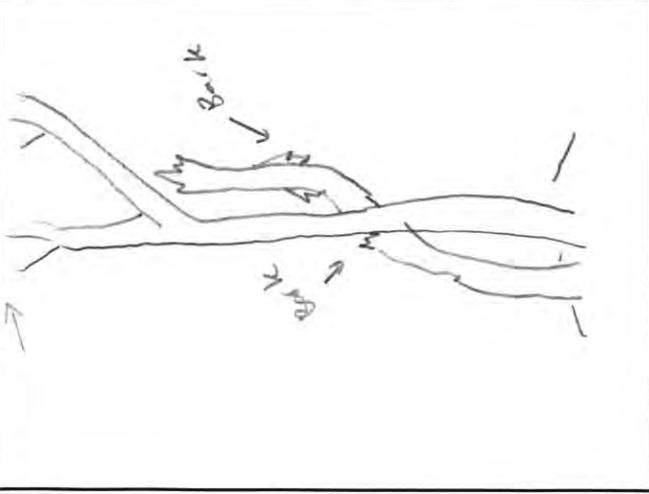


Roost Tree # 61

Bat Species/Sex/Frequency: MYSE / M / 172.687

Band # CC0646

Roost Tree Diagram:



Location Diagram:



No.	Date	Bat Freq.	Bat Days			Observations
			Bat Band #	Sex of Bat		
1	7/22	1687	CC0646	M	Bark	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time			Focal Bat exit #	Personnel/ Comments
					Sunset	Bats Start	Bats End		
1	7/22	68°	light clouds	1	2035	2055	2055	video	
2	7/23	66°	partly cloudy	0	2036	0	0	-	
3									
4									

No.	Nature	Aspect	Cavity or Crevice Characteristics		
			Width	Height	H <sub>2</sub> O Level
1					
2					
3					

Comments:

\* Had to pick up bat on frequency 172.688. Camera 2



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Roost Tree # 602 Project No./Project Name 406.03 / Rocky Forge Date First Found 22 Jul 2015

Location Valley forest off of ridge County Botetourt State VA Quad Sugarloaf Mountain

Lat-Long/UTM: N/E 37.72381 W/N -79.70826 Zone - Datum: NAD83 Observers: AKOVACS, J BOURNE

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/Observation
				Tree	Roost		Usable	Total		
1	602	Q. montana	44.3	50	15	live damaged	H	H	C	crevice
2		N. sylvatica	8.1	15	-	live	L	H	U	-
3		P.inus spp.	2.0	40	-	live	L	H	C	-
4		P.inus spp.	13.3	35	-	live	L	H	C	-
5		Q. montana	41.3	50	-	live	M	H	C	crevice
6		Q. montana	30	50	-	live	L	H	C	-
7		A. rubrum	15	25	-	live	L	H	SC	-
8		Q. montana	51.8	60	25	live damaged	M	H	C	cavity
9		Q. montana	30.7	55	-	live	L	H	C	-
10		Q. montana	52.9	50	-	live damaged	M	H	C	crevice
11		N. sylvatica	11.2	13	-	live damaged	L	H	U	-
12		N. sylvatica	7.1	12	-	live	L	H	U	-
13		N. sylvatica	7.2	12	-	live	L	H	U	-
14										
15										
16										
17										
18										
19										
20										
21										
22										

Habitat	
Interior	Open

Canopy Cover at Roost	
Open	Intermediate
	Closed

Basal Area		
Live Trees	Snags	All Trees
130	0	130

Roost Location	
Bark	Cavity
	Crevice

↓ QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

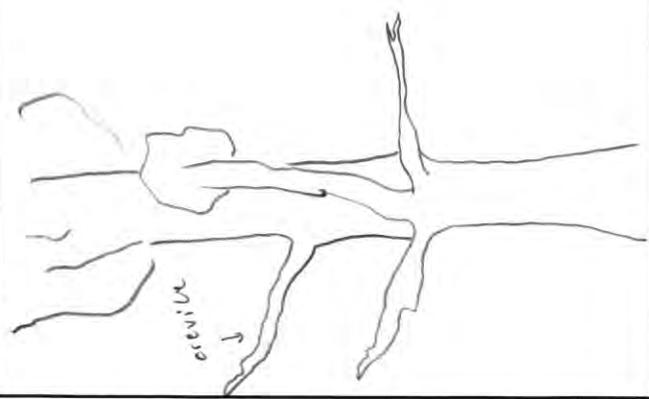
A 10 factor English prism is used to identify trees within the plot, centered on the roost tree.



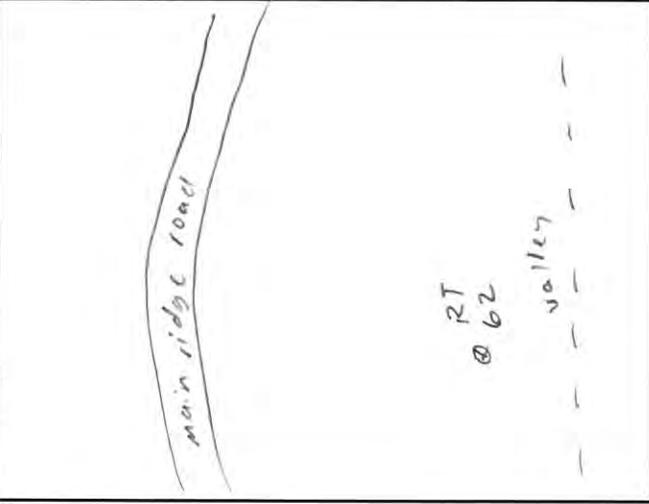
Roost Tree # 62

Bat Species/Sex/Frequency: MYSE / F / 172.584 Band # CC0926

Roost Tree Diagram:



Location Diagram:



No.	Date	Bat Freq.	Bat Days			Observations
			Bat Band #	Sex of Bat		
1	7/22	584	CC0926	F	crevice	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Emergence Count

No.	Date	Temp of	Weather	# of Bats	Time			Focal Bat exit #	Personnel/Comments
					Sunset	Bats Start	Bats End		
1	7/22	68°	partly cloudy	0	2035				
2	7/23	66°	partly cloudy	0	2036			crevice may have left	
3									
4									

No.	Nature	Aspect	Opening Measurements		
			Width	Height	H2O Level
1					
2					
3					

Comments:

Had to use frequency 172.585 to pick her up.  
Bat roosted in tree until at least 2120



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Roost Tree # 63 Project No./Project Name 406.03 / Rocky Forge Date First Found 23 Jun 2015

Location Woodlot off of ATV trail (near RT 257 etc.)

County Botetourt State VA Quad Sugarloaf mtn Observers: N Kovacs  
 Lat-Long/UTM: N/E 37.7-2934 W/N -79.69643 Zone - Datum: NAD83

#	Tree Tag #	Species	DBH (cm)	Height (ft or m)		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	63	<i>B. virginianensis</i>	43.6	50	20	live	M	H	C	bark/crevice
2		<i>Q. rubra</i>	28.9	45	-	live	L	H	C	-
3		<i>B. virginianensis</i>	22.3	40	-	live	L	H	C	-
4		<i>Q. rubra</i>	49.4	50	-	live	L	H	C	-
5		<i>A. rubrum</i>	19.6	35	-	live	L	H	C	-
6		<i>Q. rubra</i>	40.7	55	-	live	L	H	C	-
7		<i>Q. montana</i>	58.4	50	20-30	live damaged	M	H	C	bark/crevice
8		<i>Q. rubra</i>	34	40	-	live	L	H	C	-
9		<i>Q. montana</i>	57.5	50	20-30	live damaged	M	H	C	bark/crevice
10		<i>Q. rubra</i>	18.5	40	-	live	L	H	C	-
11		<i>Q. rubra</i>	32.9	40	-	live	L	H	C	-
12		<i>N. sylvatica</i>	59.6	50	-	live	L	H	C	-
13		<i>Q. rubra</i>	49.6	50	-	live	L	H	C	-
14										
15										
16										
17										
18										
19										
20										
21										
22										

Habitat	
Interior	Open

Canopy Cover at Roost	
Open	Closed

Basal Area	
Live Trees	All Trees
130	130

Roost Location	
Bark	Crevice

↓ QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking	
Canopy	Sub-Canopy
	Understory

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

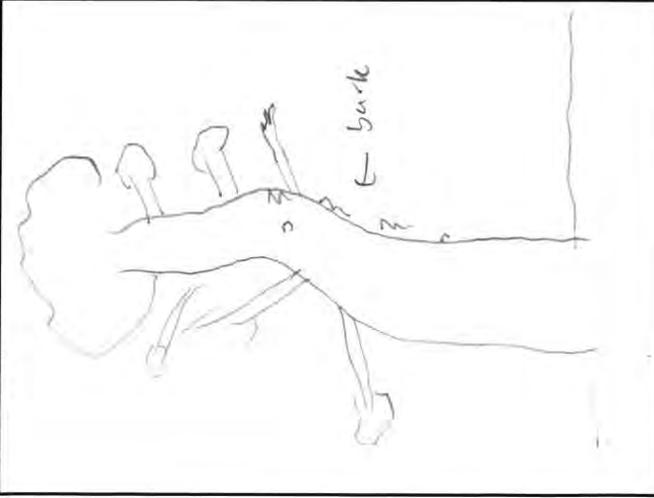


Roost Tree # 63

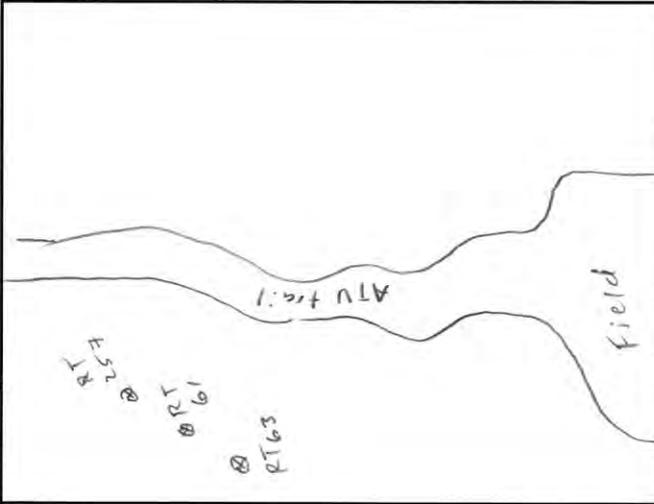
Bat Species/Sex/Frequency: MYSE/M/172.687

Band #

Roost Tree Diagram:



Location Diagram:



No.	Date	Bat Freq.	Bat Days		Observations
			Bat Band #	Sex of Bat	
1	7/23	1.687		M	bark (various places)
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp of	Weather	# of Bats	Time			Focal Bat exit #	Personnel/ Comments
					Sunset	Bats Start	Bats End		
1	7/23	66*	partly cloudy	1	2036	2058	2058		
2									
3									
4									

No.	Nature	Aspect	Cavity or Crevice Characteristics		
			Width	Height	H2O Level
1					
2					
3					

Comments:

\* found bat under frequency 172.689

Roost Tree # RT 256 Project No./Project Name 406.02 / Rocky Forge Date First Found 16 July 2015  
 Location forest gap onto edge of ridge  
 County Batetourt State VA Quad Sugarloaf Mountain  
 Lat-Long/UTM: N/E 37.70294 W/N 79.70217 Zone 18Q Datum: NAD 83 Observers: G. Janas, M. Kovacs

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Roost	Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost			Usable	Total		
1	256	<i>Q. montana</i>	12.6	6	3	—	Snag	L	L	S-C	Cavity
2		<i>Q. montana</i>	46.3	9	—	—	Snag	L	H	S-C	—
3		<i>Q. montana</i>	58.2	20	—	—	Snag	L	H	C	—
4		<i>Q. montana</i>	41.6	10	—	—	Snag	L	L	S-C	—
5		<i>Q. rubra</i>	33.3	18	—	—	live	L	H	C	—
6		<i>Q. rubra</i>	34.0	21	—	—	live	L	H	C	—
7		<i>Q. rubra</i>	25.1	21	—	—	live	L	H	C	—
8		<i>Q. montana</i>	26.3	9	—	—	Snag	H%	M	S-C	—
9		<i>Q. montana</i>	37.0	14	—	—	live-damaged	M	H	S-C	—
10		<i>Q. montana</i>	25.0	12	—	—	Snag	H	H	S-C	—
11		<i>Q. montana</i>	11.1	4	—	—	Snag	L	L	S-C	—
12		<i>Q. montana</i>	28.5	8	—	—	Snag	H	H	S-C	—
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											

Habitat	
Interior	Open
Edge	Open

Canopy Cover at Roost	
Open	Closed
Intermediate	

Basal Area	
Live Trees	All Trees
30	80
	120

Roost Location	
Bark	Crevise
	Cavity

↓ QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking	
Canopy	Sub-Canopy
	Understory

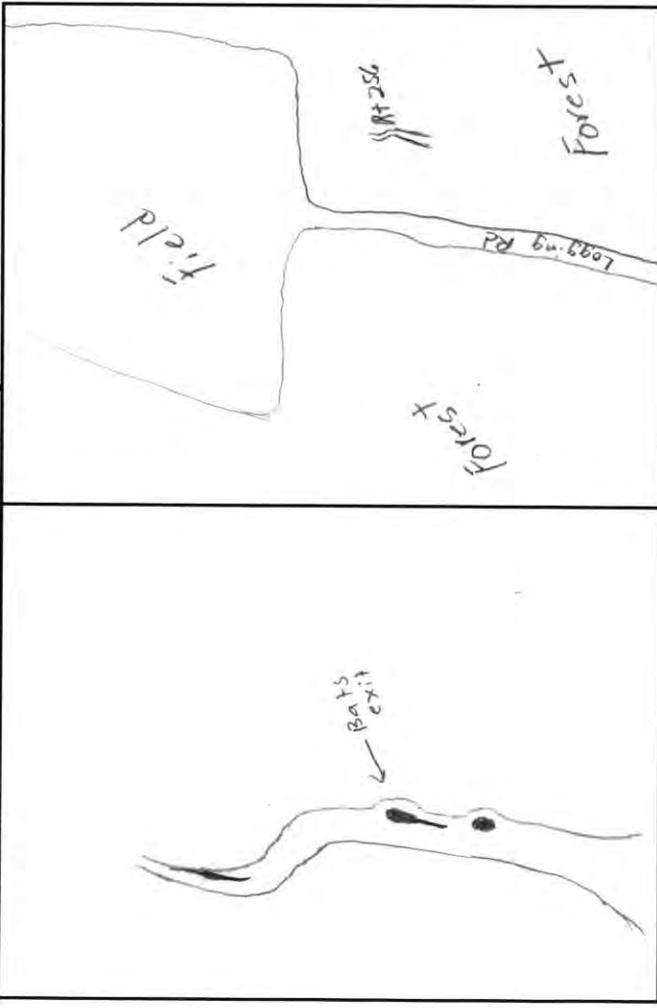
A 10 factor English prism is used to identify trees within the plot, centered on the roost tree.

Roost Tree # 256 MYSE / F / 172.782  
 MYSE / F / 172.584  
 MYSE / M / 172.687

Band # CC0926  
CC0646

Roost Tree Diagram:

Location Diagram:



No.	Date	Bat Freq.	Bat Days			Observations
			Bat Band #	Sex of Bat		
1	7/16	.584	CC0926	F	Woodpecker cavity	
2	7/17	.584	CC0926	F	" "	
3	7/17	.687	CC0646	M	" "	
4	7/18	.584	CC0926	F	" "	
5	7/18	.782	CC0647	F	" "	
6						
7						
8						
9						
10						
11						
12						
13						
14						

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time			Focal Bat exit #	Personnel/ Comments
					Sunset	Bats Start	Bats End		
1	7/16	65	few clouds	10	2050	2108	2106	6	
2	7/17	68	Few clouds	9	2040	2106	-	-	No rec. ref
3	7/18	65	few clouds	9	2038	2107	-	-	No rec. ref / video
4									

No.	Nature	Aspect	Opening Measurements			H <sub>2</sub> O Level
			Width	Height	Ground	
1						
2						
3						

Comments:

Third night (7/18) emergence video recorded black bay → camera 2.



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

Roost Tree # RT257 Project No./Project Name 706.03 / Rocky forge Date First Found 17 July 2015

Location Open forest area off of ATV trail State VA Quad Sugarloaf Mtn.

County Bethestun Lat-Long/UTM: N/E 37.72938 W/N -79.69632 Zone - Datum: NAD83 Observers: G. Janos, N. Kovach

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/Observation
				Tree	Roost		Usable	Total		
1	257	<i>Q. montana</i>	20	7m	3m	Snag	H	H	SC	Bark
2		<i>Q. montana</i>	60.2	30m	-	Live	M	H	C	Bark
3		<i>A. rubrum</i>	17.3	9	-	L	L	H	C	-
4		<i>Q. montana</i>	43.9	24	-	L	L	H	SC	Crevise
5		<i>Q. montana</i>	48.5	24	-	L	L	H	C	Cavity
6		<i>Q. rubra</i>	26.3	24	-	L	L	H	C	-
7		<i>Q. montana</i>	42.8	7	-	S	L	H	SC	Crevise
8		<i>Q. montana</i>	55.5	25	-	L	L	H	C	-
9		<i>N. sylvatica</i>	9.1	6	-	L	L	H	SC	-
10		<i>Q. montana</i>	31.7	28	-	L	L	H	C	-
11		<i>A. rubra</i>	27.1	18	-	L	L	H	SC	-
12		<i>N. sylvatica</i>	60.6	21	-	L	L	H	C	-
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

Habitat	
Interior	Open

Canopy Cover at Roost	
Open	Closed

Basal Area	
Live Trees	All Trees
100	120

Roost Location	
Bark	Crevise

↓ QUICK REFERENCE / ↑ CIRCLE

*Condition	
Snag	Live
	Live-Damaged

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

***Tree Ranking	
Canopy	Sub-Canopy
	Understory

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

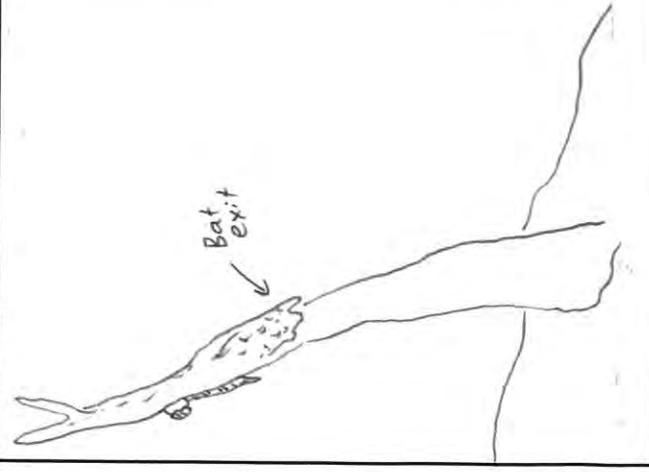


Roost Tree # 257

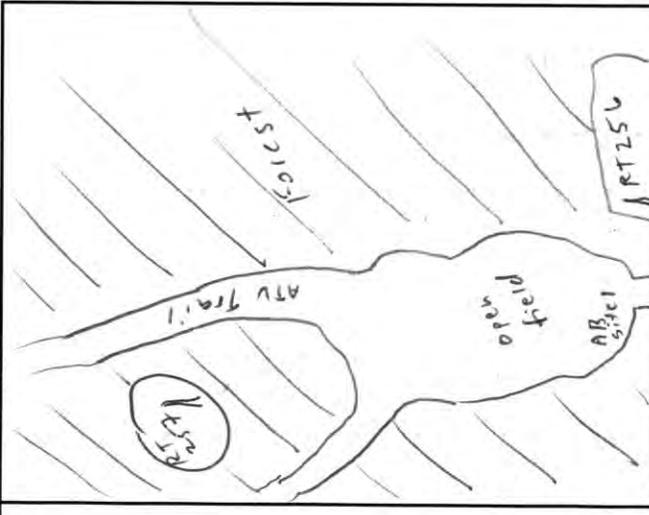
Bat Species/Sex/Frequency: MYSE/F/172,782

Band # C0647

Roost Tree Diagram:



Location Diagram:



No.	Date	Bat Freq.	Bat Days			Observations
			Bat Band #	Sex of Bat		
1	7/17	782	C0647	F	Wood knot in snag	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time				Focal Bat exit #	Personnel/ Comments
					Sunset	Bats Start	Bats End	Tagged Bat		
1	7/17	68	few clouds	2	2038	2103	2109	782	1	
2	7/18	65	few clouds	0	2038	—	—	—	—	
3										
4										

No.	Nature	Aspect	Cavity or Crevice Characteristics		
			Width	Height	H <sub>2</sub> O Level
1					
2					
3					

Comments:

No recovers available for emergence of 7/18.



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