FEDERALLY PROTECTED BAT SURVEY REPORT

Eastern North Carolina
Northern Long-eared Bat (*Myotis septentrionalis*) Research Study
Gates County
North Carolina

Survey Phase VII Spring/Summer 2019
TIP R-9999
WBS No. 34634.1.4

Prepared for

The North Carolina Department of Transportation
Environmental Analysis Unit
Natural Environment Section
1598 Mail Service Center
Raleigh, NC 27699-1598
919.707.6000

FINAL VERSION
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FINAL VERSION
December 2019

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1.0 PROJECT DESCRIPTION

The North Carolina Department of Transportation (NCDOT) has requested CALYX Engineers + Consultants, Inc., an NV5 Company (CALYX/NV5) to assist the Department in conducting portions of a research study of the northern long-eared bat (*Myotis septentrionalis*, MYSE) in eastern North Carolina. The objectives for this current portion of the study are to:

- Conduct mist netting and radio telemetry on pregnant/lactating MYSE to locate and characterize day roosts during the maternity season, and
- Determine the timing of the maternity season for a unique population of MYSE.

CALYX/NV5 will sample entirely within Merchants Millpond State Park located in Gates County, NC using mist netting techniques. This survey phase will occur within the April 22 – July 15, 2019 timeframe.

NCDOT tasked CALYX/NV5 with surveying Merchants Millpond State Park in Gates County (Table 1, Figure 1). The netting window for this project ran from April 22, 2019 to July 15, 2019. Any reproductive (pregnant or lactating) female MYSE captured in mist-nets were to be equipped with a radio-transmitter and tracked to any and all roost trees for up to 15 days.

Table 1. Eastern NC MYSE Research Study Location Information – 2019

Location	County	Owner
Merchants Millpond State Park	Gates	NC State Parks

2.0 SPECIES INFORMATION

MYSE was officially listed by the United States Fish and Wildlife Service (USFWS) as a Threatened species in April of 2015 (USFWS 2016). The listing became effective May 2, 2015. USFWS also established a final rule under the authority of section 4(d) of the Endangered Species Act that provides measures for the conservation of MYSE. The USFWS has tailored the final 4(d) rule to prohibit the take of MYSE from certain activities within areas where they are in decline. This incidental take protection applies only to known MYSE occupied maternity roost trees and known MYSE hibernacula.

MYSE occurs widely across much of Canada and the eastern and northcentral United States but is unevenly distributed and rarely found in large numbers. It is more common in the northern part of its range than in the southern portion. In North Carolina, MYSE have primarily been documented in the western portion of the state, with more recent records from the Coastal Plain.

Winter hibernacula for the MYSE in western North Carolina includes caves and mines. Winter roosts in eastern North Carolina include tree cavities and crevices. Suitable summer habitat for MYSE is generally characterized as forested areas with trees over 3 inches in diameter at breast height (DBH). Summer roost sites include tree cavities or crevices, the loose bark of live or dead trees, and abandoned buildings (USFWS 2017).

3.0 METHODS

This section describes the methods used to perform surveys and habitat assessments. All survey methods followed the procedures and protocols set forth by the scope of work, including the NCDOT Standardization for MYSE Research 2016 (NCDOT 2016). This included all or part of USFWS 2019 Range-wide Indiana Bat Summer Survey Guidelines (USFWS 2019) for the USFWS Southeast Region. Decontamination protocols followed USFWS National White Nose Syndrome Decontamination Protocol (USFWS 2018), and North Carolina's White-nose Syndrome Surveillance and Response Plan (NCWRC 2013).

No caves, mines, bridges or other potential non-tree roost sites were investigated as part of this study. Any structure with known bat activity was mist-netted to determine if MYSE were present.

3.1 Mist-Net Surveys

Phase VII mist-netting was conducted with the goal of catching the target bats, reproductive female MYSE. The highest quality foraging/roosting habitat for MYSE within each site was targeted for mist- netting. A CALYX/NV5 biologist determined how many nets to set each night, erecting a minimum of 4 nets. Individual mist-net placement varied from night to night within a site. The specific site and orientation of each net was determined in the field by the permitted biologist. Digital photographs were taken of each net site and net set placement (Appendix B). MYSE not fitted with a transmitter were wing-punched for DNA analysis. Additionally, hair samples were collected and sent for analysis.

Nets were checked for bats every ten minutes, at most. Data was recorded on a datasheet template provided by NCDOT (Appendix A), including bat captures, weather, and habitat type. For each bat capture, data collection included a variety of parameters, including (but not limited to) time of capture, species, age, sex, reproductive condition, weight, and right forearm length. Per the request of NCWRC all species were banded with a uniquely numbered, custom-fitted Porzana band on the right forearm of males and left forearm of females. If a target MYSE was captured, a radio-transmitter was attached to the bat and radio-tracking began. The frequency of the radio-transmitter was recorded on the datasheet. Prior to release, all *Myotis* were photographed following techniques provided by USFWS in the 2019 Range-wide Indiana Bat Survey Guidelines (Appendix C). The natural community type for each mist-net site was determined per Schafale and Weakley (1990).

Nets remained open at least five hours each night. Surveys were repeated if the following occurred: winds move the nets more than 50 percent of the time or rain or fog persisted for 30 minutes or continued intermittently throughout the survey period.

3.2 Radio-Tracking and Emergence Surveys

During surveys, all captured reproductive female MYSE were fitted with Holohil Model #LB-2X, 12-day, 40 pulse per minute, 0.27g radio-transmitters. CALYX/NV5 was originally tasked with deploying six (6) transmitters. Transmitters were attached following 2019 Indiana Bat Range-Wide Survey Guidelines (USFWS 2019), and transmitter frequencies were noted on data sheets. Bats were tracked daily to roosts. If the roost could not be located, tracking continued up to a maximum of 8 hours. Tracking was conducted via terrestrial telemetry, with a handheld five-element Yagi antenna and a hand-held receiver (ATS R410 Scanning Receiver). Individuals were tracked for 12 days, or the life of the transmitter (or up to 15 days if the roost site of the bat was unknown for any period of time during the tracking window).

Once a roost site was located, it was flagged, and roost tree data was collected using the USFWS Indiana Bat Roost Datasheet, (USFWS 2019). Field data included geographic coordinates, type of roost, bat number (transmitter frequency) of the bat using the roost, tree species, diameter at breast height (dbh) of tree, roost height (if known), cavity description (if known), total tree height, tree condition (live, snag), and percent bark cover.

All known roost tree sites had at least one emergence count preformed at the site to record bat activity, using the USFWS Bat Emergence Survey Datasheet (USFWS 2019). Surveys began one-half hour before dusk and ended up to one hour after dusk. Emergence surveys were not conducted if there was rain, heavy fog, or high winds.

3.3 Habitat Analysis

Prior to performing field surveys, a desktop-GIS assessment using the latest orthoimagery was performed to determine availability of potentially suitable habitat for MYSE. This information was utilized to aid in scouting for mist-netting sites. On-site scouting was conducted prior to netting to locate potential mist-net sites.

The natural community types were characterized using the *Classification of the Natural Communities of North Carolina, Third Approximation* (Shafale and Weakley 1990) where mist-net surveys were conducted. In addition, for each site where MYSE were captured, habitat in the survey area was scored using the following (circling one for each, 1-6):

1) pine/hardwood/mixed/unforested
2) upland/bottomland
3) managed (thinned, burned, or pine plantation)/unmanaged
4) cutover/immature forest/mature forest
5) clutter (Classifications 1-4)
    (1) sparse/no, < 10% cover (ex: open for 40m in all directions)
    (2) low, 10–39% cover (low clutter stands typically contain <6 or >95-year-old trees, ex: microphone pointed outward from edge habitat)
    (3) medium, 40–75% cover (medium clutter stands typically contain 70–100-year-old trees, ex: at least 10-m wide travel corridor, fairly open above)
    (4) high, > 75% cover (high clutter stands typically contain 10–25-year-old trees, ex: closed canopy & travel corridor < 10-m wide)
6) natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

4.0 FINDINGS

This section describes the results of mist-net, roost tree, and emergence count surveys and habitat analysis. In general, nets were placed to sample potential travel corridors such as ATV trails, utility corridors, or streams. Edge habitat was utilized when other potential travel corridors were not available.

4.1 Mist-Net Surveys

Netting was conducted between April 22 and July 12, 2019 from approximately sunset to five hours after sunset, Eastern Daylight Time. Mist-net surveys were performed with the goal of capturing reproductive female MYSE. Net deployments were individually tailored to flight corridors within the highest quality foraging/roosting habitat available within each survey site. Configurations utilized combinations of nets sized between 2.6 and 18 meters in length, stacked

between one net panel (single high) and three net panels (triple high) in height. One building was selectively targeted for mist-netting (an old maintenance shed; site MM-26) when park staff mentioned the presence of guano on the porch. No bats were found currently using the shed.

Mist-netting sites and number of bats per site are presented in Table 2. Mist-net captures were documented on data sheets provided by NCDOT which were designed to incorporate the same information as that contained in the USFWS Sample Data Sheet for Indiana Bat surveys (USFWS 2017). Fifty-two (52) total crew nights were attempted (including 2 rainouts) at twenty-five (25) sites. A crew night is defined as one netting crew at one site on one night. The survey efforts resulted in the capture of 180 bats representing nine (9) species (Table 2). Data sheets and photos for each mist net site are provided in Appendices A and B. MYSE photographs are provided in Appendix C. All reproductive female MYSE were identified with a code, starting with 2 letters (MM for Merchants Millpond State Park), followed by a three-digit number (the last three numbers of each MYSE transmitter frequency). Four (4) reproductive female MYSE were captured during the 2019 Spring/Summer Survey Session: MM660 (at site MM-03 on 5/22/2019), MM980 (at site MM-23 on 6/11/2019), MM701 (at site MM-24 on 6/14/2019), and MM939 (at site MM-03 on 6/27/2019). An additional 15 MYSE (3 non-reproductive females, 12 males) were caught at five (5) other sites (Figure 2, Table 3). Wing punches and hair samples were taken from capture MYSE and submitted to Dr. Mark Ford, with Virginia Tech University. See Table 4.

In addition to the MYSE caught at Merchants Millpond State, an adult male non-reproductive little brown bat (*M. lucifugus*, MYLU) was caught on 5/1/2019 at site MM-17 (Figure 5). This site is approximately 0.40 km away from a site where two (2) MYLU were caught during the 2017/2018 fall and winter netting at Merchants Millpond State Park. The two MYLU caught in the winter were both caught on the same night at site MM-13. One was an adult female non-reproductive MYLU. The other was an adult male scrotal MYLU. Photos of the MYLU caught on 5/1/2019 are in Appendix F.

Table 2. Mist-Net Capture Summary

Site Name	Site #	Night	Date	Community Type (MYSE Net Sites)	CORA	EPFU	LABO	LANO	MYAU	MYLU	MYSE		NYHU	PESU	Total	Comments
											F	M				
Lassiter Trail	MM-02	1	4/29/2019	Mesic Mixed Hardwood Forest (Coastal Plain Subtype); Small Stream Swamp (Blackwater Subtype)	-	-	2	-	-	-	-	-	-	-	**2**	
		2	5/13/2019		-	-	-	-	-	-	-	-	-	-	**0**	
		3	6/25/2019		-	-	-	-	1	-	1	1	-	1	**4**	MYSE juvenile female; MYSE juvenile male
		4	7/7/2019		-	-	-	-	-	-	1	-	-	1	**2**	MYSE juvenile female
Fire Road 1	MM-03	1	5/22/2019		-	2	3	-	2	-	1	-	-	-	**8**	MYSE adult female (pregnant), 150.660 (band # CALYX 1123)
		2	6/11/2019		1	2	9	-	2	-	-	-	-	-	**15**	1 escaped net prior to identification
		3	6/27/2019		-	-	3	-	1	-	1	-	-	-	**5**	MYSE adult female (lactating), 150.939 (band # CALYX 1218); LABO recaptured (band # 1073), originally banded at MM-03 on 6/11/2019
		4	7/6/2019		-	1	4	-	1	-	-	-	1	2	**9**	
Far Fire Trail	MM-04	1	5/9/2019		-	-	2	-	-	-	-	-	-	1	**3**	
Fire Road Bike Intersection	MM-06	1	7/3/2019		-	-	-	-	-	-	-	-	-	-	**0**	
Cottonmouth Culvert	MM-08	1	5/22/2019		-	-	1	-	-	-	-	-	-	-	**1**	
Fire Trail	MM-09	1	5/8/2019		-	-	1	-	-	-	-	-	-	-	**1**	
Fire Road Boardwalk	MM-10	1	6/27/2019		-	2	-	-	-	-		-	1	-	**3**	
Campground	MM-12	1	4/22/2019	Mesic Mixed Hardwood Forest (Coastal Plain Subtype); Cypress-Gum Swamp (Blackwater Subtype)	-	1	3	-	-	-	-	1	-	-	**5**	
Bennett's Creek Trail	MM-13	1	4/30/2019		-	-	1	-	1	-	-	-	-	-	**2**	
		2	5/7/2019		-	-	-	1	-	-	-	-	-	1	**2**	
		3	5/21/2019		1	-	2	-	1	-	-	-	-	-	**4**	
		4	7/8/2019		1	-	-	-	-	-	-	-	-	-	**1**	
Roundabout Campground 1	MM-16	1	6/13/2019		2	-	1	-	2	-	-	-	1	1	**7**	MYAU recaptured (band # CALYX 1150), originally banded at MM-22 on 5/17/2019
Coleman Trail	MM-17	1	5/1/2019	Mesic Mixed Hardwood Forest (Coastal Plain Subtype); Cypress-Gum Swamp (Blackwater Subtype)	1	-	-	-	-	1	-	-	-	-	**2**	
		2	5/21/2019		-	-	-	-	-	-	-	1	-	-	**1**	
Boat Ramp	MM-19	1	4/23/2019		-	-	1	-	-	-	-	-	-	-	**1**	
		2	5/16/2019		1	-	-	-	1	-	-	1	-	1	**4**	
		3	6/17/2019		-	-	-	-	-	-	-	2	-	-	**2**	
		4	7/5/2019		-	-	-	-	-	-	-	-	4	-	**4**	
Visitor's Center	MM-20	1	5/7/2019		-	-	-	-	-	-	-	-	1	-	**1**	
		2	6/25/2019		-	-	-	-	-	-	-	-	1	-	**1**	
Campground Trails	MM-21	1	5/8/2019	Mesic Mixed Hardwood Forest (Coastal Plain Subtype); Cypress-Gum Swamp (Blackwater Subtype)	-	-	-	-	-	-	-	1	-	-	**1**	
		2	5/13/2019		-	-	-	-	-	-	-	1	-	1	**2**	
		3	7/2/2019		-	-	1	-	-	-	-	1	2	1	**4**	
Bennett's Canoe Site	MM-22	1	5/17/2019		4	-	-	-	2	-	-	-	2	-	**8**	
		2	5/18/2019		1	-	1	-	4	-	-	1	-	-	**7**	MYSE adult male
		3	5/19/2019		-	-	-	-	-	-	-	-	-	-	**0**	

Table 2. Mist-Net Capture Summary (continued)

Site Name	Site Number	Night	Date	Community Type (MYSE Net Sites)	CORA	EPFU	LABO	LANO	MYAU	MYLU	MYSE		NYHU	PESU	Total	Comments
											F	M				
Fire Road Pull Off	MM-23	1	6/11/2019	Mesic Mixed Hardwood Forest (Coastal Plain Subtype)	2	2	8	-	2	-	1	2	1	-	**18**	MYSE adult female (lactating), 150.980 (band # CALYX 1119); MYSE adult male (band # CALYX 1110); MYSE adult male (band # CALYX 1114)
		2	6/24/2019		2	-	2	-	-	-	-	-	-	1	**5**	LABO recaptured (band # CALYX 1117), originally banded at MM-23 on 6/11/2019
		3*	7/11/2019		-	-	-	-	-	-	-	-	-	-	**0**	Rainout
		4	7/12/2019		1	-	-	-	2	-	-	-	-	1	**4**	
Middle Fire Road	MM-24	1	6/14/2019		-	2	5	-	1	-	1	-	-	-	**8**	MYSE adult female (lactating), 150.701 (band # CALYX 1237); LABO recaptured (band # CALYX 1121), originally banded at MM-23 on 6/11/2019; EPFU recaptured (band # CALYX 0796), originally banded at MM-23 on 6/11/2019
		2	6/29/2019		-	3	1	-	-	-	-	-	-	-	**4**	EPFU recaptured (band # CALYX 0790), originally banded at MM-23 on 6/11/2019
		3	7/13/2019		-	-	-	-	1	-	-	-	-	1	**2**	
660 Roost Tree	MM-25	1	6/16/2019		-	-	-	-	-	-	-	-	1	-	**1**	
Roundabout Campground Shed	MM-26	1	6/26/2019		-	3	1	-	-	-	-	-	1	-	**6**	1 escaped net prior to identification
Family Camp Trail	MM-27	1	6/26/2019		-	-	-	-	2	-	-	-	-	-	**2**	
701 Roost Tree 1	MM-28	1	7/1/2019		-	-	-	-	-	-	-	-	-	1	**1**	
Byrd Property 1[1]	MM-29	1	7/3/2019	Mesic Mixed Hardwood Forest (Coastal Plain Subtype)	-	-	2	-	-	-	-	-	-	-	**2**	
		2*	7/4/2019		-	-	-	-	-	-	-	-	-	-	**0**	Rainout
		3	7/5/2019		-	-	1	-	-	-	1	-	-	-	**2**	MYSE adult female (nonreproductive, band # CALYX 1250)
Byrd Property 2[1]	MM-30	1	7/6/2019		-	-	1	-	-	-	-	-	-	-	**1**	
		2	7/7/2019		-	-	-	-	-	-	-	-	-	-	**0**	
Byrd Property 3[1]	MM-31	1	7/8/2019		1	-	1	-	3	-	-	-	-	-	**5**	MYAU recaptured (band # CALYX 1217), originally banded at MM-03 on 6/27/2019
		2	7/9/2019		-	-	-	-	1	-	-	-	-	1	**2**	
Fire Road Hidden Trail	MM-32	1	7/10/2019		1	-	4	-	-	-	-	-	-	-	**5**	LABO recaptured (band # CALYX 1073), originally banded at MM-03 on 6/11/2019
				Total	19	18	61	1	30	1	7	12	16	15	**180**	

*Incomplete night

CORA = *Corynorhinus rafinesquii*, Rafinesque's Big-eared Bat; EPFU = *Eptesicus fuscus*, Big-brown Bat; LABO = *Lasiurus borealis*, Eastern Red Bat; LANO = *Lasionycteris noctivagans*, Silver-haired Bat; MYAU = *Myotis austroriparius*, Southeastern Myotis; MYLU = *Myotis lucifugus*, Little Brown Bat; MYSE = *Myotis septentrionalis*, Northern Long-eared Bat, NYHU = *Nycticeius humeralis*, Evening Bat; PESU = *Perimyotis subflavus*, Tricolored Bat

[1] Byrd Property 1-3 is additional property owned by Merchants Millpond State Park but does not show up on their trail maps

Reproductive Female | Non-reproductive Female MYSE | Male MYSE

Table 3. Mist-Net Capture Site Information

Site Name	Site #	Latitude	Longitude	# of MYSE Captured	# of Reproductive Female MYSE Captured
Lassiter Trail	MM-02	36.436850	-76.692960	3	-
Fire Road 1	MM-03	36.447660	-76.681470	2	2
Far Fire Trail	MM-04	36.436480	-76.686580	-	-
Fire Road Bike Intersection	MM-06	36.440690	-76.680400	-	-
Cottonmouth Culvert	MM-08	36.427930	-76.677930	-	-
Fire Trail	MM-09	36.429090	-76.681300	-	-
Fire Road Boardwalk	MM-10	36.427105	-76.683198	-	-
Campground	MM-12	36.425620	-76.702870	1	-
Bennett's Creek Trail	MM-13	36.430550	-76.700900	-	-
Roundabout Campground 1	MM-16	36.443580	-76.694649	-	-
Coleman Trail	MM-17	36.430646	-76.697321	1	-
Boat Ramp	MM-19	36.431864	-76.697250	3	-
Visitor's Center	MM-20	36.436064	-76.699507	-	-
Campground Trails	MM-21	36.424618	-76.703301	3	-
Bennett's Canoe Site	MM-22	36.426944	-76.704897	1	-
Fire Road Pull Off	MM-23	36.435002	-76.676271	3	1
Middle Fire Road	MM-24	36.440982	-76.679281	1	1
660 Roost Tree	MM-25	36.438399	-76.668702	-	-
Roundabout Campground Shed	MM-26	36.448293	-76.694944	-	-
Family Camp Trail	MM-27	36.439320	-76.693030	-	-
701 Roost Tree 1	MM-28	36.434780	-76.670490	-	-
Byrd Property 1	MM-29	36.448984	-76.665321	1	-
Byrd Property 2	MM-30	36.449487	-76.667453	-	-
Byrd Property 3	MM-31	36.448614	-76.667524	-	-
Fire Road Hidden Trail	MM-32	36.448199	-76.678050	-	-

Table 4. Hair and Wing Punch Sample Information

Date	Site #	Band #	Sex	Age	Reproductive Condition	Hair Sample	Wing Punch
4/22/2019	MM-12	CALYX 1046	Male	Adult	Non-reproductive		X
5/8/2019	MM-21	CALYX 1058	Male	Adult	Non-reproductive	X	X
5/13/2019	MM-21	CALYX 1059	Male	Adult	Non-reproductive	X	X
5/16/2019	MM-19	CALYX 1147	Male	Adult	Non-reproductive		X
5/18/2019	MM-22	CALYX 1101	Male	Adult	Non-reproductive		X
5/21/2019	MM-17	CALYX 1061	Male	Adult	Non-reproductive	X	X
5/22/2019	MM-03	CALYX 1123	Female	Adult	Pregnant	X	
6/11/2019	MM-23	CALYX 1110	Male	Adult	Non-reproductive		X
6/11/2019	MM-23	CALYX 1114	Male	Adult	Non-reproductive		X
6/11/2019	MM-23	CALYX 1119	Female	Adult	Lactating	X	
6/14/2019	MM-24	CALYX 1237	Female	Adult	Lactating	X	
6/17/2019	MM-19	CALYX 1087	Male	Adult	Testes-descended	X	X
6/17/2019	MM-19	CALYX 1088	Male	Adult	Non-reproductive	X	X
6/25/2019	MM-02	CALYX 1120	Male	Juvenile	Non-reproductive	X	
6/25/2019	MM-02	CALYX 1221	Female	Juvenile	Non-reproductive	X	
6/27/2019	MM-03	CALYX 1218	Female	Adult	Lactating	X	
7/2/2019	MM-21	CALYX 1096	Male	Adult	Non-reproductive	X	
7/5/2019	MM-29	CALYX 1250	Female	Adult	Non-reproductive	X	
7/7/2019	MM-02	CALYX 1159	Female	Juvenile	Non-reproductive	X	

4.2 Radio-Tracking and Emergence Surveys

Nineteen (19) total MYSE were caught during this project. Four (4) of those were reproductive females (1 pregnant and 3 lactating). Transmitters were placed on all reproductive female MYSE and radio-tracking was conducted for all transmitted bats. Three (3) were tracked to roost trees (MM660, MM701, and MM939). MM980 was never located after transmitter was placed on the bat. All bats located in roost tree were generally located in cypress-gum swamp habitat or mesic mixed hardwood forests (Table 5). All roost descriptions and photographs are located in Appendix D.

Emergence counts were performed at all located roost trees. All results are presented in Table 5. Highlights include 61 bats being observed emerging from MM660's tree and 63 bats emerging from MM701's first roost tree. The minimum distance a bat traveled to a roost tree from its capture site was 0.19 km m (MM701 third roost tree); the maximum distance traveled was 1.95 km (MM939 first roost tree) (Table 6). Refer to Appendix E for emergence data sheets.

Table 5. Roost Tree and Emergence Summary

Bat ID	Band #	Dates Tracked (Total Days)	Community Type	Tree Species	DBH	Roost No.	Latitude	Longitude	Roost Date(s) (Total Days)	Emergence		Comments
										Date	# Observed Emerging	
MM660	CALYX 1123	5/23/19 – 6/2/19 (11)	Cypress-Gum Swamp (Blackwater Subtype)	*Taxodium distichum*	16.4 in	1	36.438400	-76.668700	5/23/19-6/1/19 (10)	5/23/19	61	Tagged bat emerged at approximately 20:32. Lost signal on 6/2/19. Suspect battery died; signal seemed weak on 6/1/19.
MM980	CALYX 1119	6/12 – 6/23 (12)	-	N/A	-	-	-	-	-	-	-	Bat never located; no roost trees were found.
MM701	CALYX 1237	6/15/19-6/25/19 (11)	Cypress-Gum Swamp (Blackwater Subtype)	*Taxodium distichum*	15.8 in	1	36.434780	-76.670490	6/15/19 (1)	6/15/19	63	Tagged bat emerged at approximately 20:58.
				Taxodium distichum	16.3 in	2	36.440850	-76.669280	6/18/19 (1)	6/18/19	6	
			Mesic Mixed Hardwood Forest (Coastal Plain Subtype)	*Ulmus* sp.	6.3 in	3	36.442260	-76.678520	6/20/19 (1)	6/20/19	1	Tagged bat emerged at approximately 20:54.
				Quercus alba	8.2 in	4	36.443620	-76.679800	6/21/19	6/21/19	1	Tagged bat emerged at approximately 20:57.
				Pinus taeda	17.6 in	5	36.442940	-76.678440	6/22/19	6/22/19	1	Tagged bat emerged at approximately 20:51.
				Pinus taeda	18.6 in	6	36.443180	-76.679080	6/23/19	6/23/19	1	Tagged bat emerged at approximately 20:52.
				Pinus taeda	19.3 in	7	36.442930	-76.679110	6/24/19	6/24/19	1	Tagged bat emerged at approximately 20:48.
MM939	CALYX 1218	6/28/19 – 7/12/19 (15)	Cypress-Gum Swamp (Blackwater Subtype)	*Taxodium distichum*	18.3 in	1	36.440100	-76.666610	6/28/19-6/30/19 (3)	6/28/19	7	Tagged bat emerged at approximately 20:41.

Table 6. Roost Tree Distance from Capture Site

Bat ID	Capture Site	Roost No.	Distance from Capture Site to Roost
MM660	MM-03	1	1.91 km
MM701	MM-24	1	1.30 km
		2	1.11 km
		3	0.19 km
		4	0.37 km
		5	0.29 km
		6	0.30 km
		7	0.27 km
MM939	MM-03	1	1.95 km

Maximum and minimum distance traveled from capture site to roost tree

4.3 Habitat Analysis

Habitat types found at each MYSE capture mist-net site were characterized per Classification of the Natural Communities of North Carolina, Third Approximation (Schafale and Weakley 1990). The habitat type for each MYSE mist-net site is shown in Table 2. In total, MYSE captures occurred within three (3) different habitat types: Cypress-Gum Swamp (Blackwater Subtype), Mesic Mixed Hardwood Forest (Coastal Plain Subtype), and Small Stream Swamp (Blackwater Subtype). Roost trees were also located in three (3) different habitat types (Table 4).

Each mist-net site with a MYSE capture and roost tree located was scored using the following criteria:

1. pine/hardwood/mixed
2. upland/bottomland
3. managed (thinned, burned, or pine plantation)/unmanaged
4. cutover/immature forest/mature forest
5. natural (>50% wooded), rural (<50% agricultural land), mixed (primary land use is not wooded or agricultural)
6. clutter (Classifications 1-4: system modified from O'Keefe 2009 and Law 2002).

All classifications for mist-net and roost tree sites can be found in Table 7.

Table 7. Habitat Analysis Breakdown of MYSE Mist-Net Sites and Roost Tree Sites

Location	Type	Site Name	Pine Hardwood or Mixed	Upland or Bottomland	Managed or Unmanaged	Cutover, Immature, or Mature Forest	Natural or Rural	Clutter (1-4)
Merchants Millpond SP	MN	MM-02	Mixed	Upland	Managed	Mature	Natural	3
Merchants Millpond SP	MN	MM-03	Mixed	Bottomland	Unmanaged	Mature	Natural	3
Merchants Millpond SP	MN	MM-12	Mixed	Bottomland	Unmanaged	Mature	Natural	3
Merchants Millpond SP	MN	MM-17	Hardwood	Upland	Managed	Mature	Natural	1
Merchants Millpond SP	MN	MM-19	Hardwood	Bottomland	Unmanaged	Mature	Natural	3
Merchants Millpond SP	MN	MM-21	Mixed	Bottomland	Managed	Mature	Natural	3
Merchants Millpond SP	MN	MM-22	Hardwood	Bottomland	Unmanaged	Mature	Natural	1
Merchants Millpond SP	MN	MM-23	Mixed	Upland	Managed	Mature	Natural	2
Merchants Millpond SP	MN	MM-24	Mixed	Upland	Managed	Mature	Natural	2
Merchants Millpond SP	MN	MM-29	Mixed	Upland	Managed	Mature	Natural	2
Merchants Millpond SP	RT	MM660-1	Hardwood	Bottomland	Unmanaged	Mature	Natural	2
Merchants Millpond SP	RT	MM701-1	Hardwood	Bottomland	Unmanaged	Mature	Natural	2
Merchants Millpond SP	RT	MM701-2	Hardwood	Bottomland	Unmanaged	Mature	Natural	2
Merchants Millpond SP	RT	MM701-3	Mixed	Upland	Managed	Mature	Natural	2
Merchants Millpond SP	RT	MM701-4	Mixed	Upland	Managed	Mature	Natural	2
Merchants Millpond SP	RT	MM701-5	Mixed	Upland	Managed	Mature	Natural	2
Merchants Millpond SP	RT	MM701-6	Mixed	Upland	Managed	Mature	Natural	2
Merchants Millpond SP	RT	MM701-7	Mixed	Upland	Managed	Mature	Natural	2
Merchants Millpond SP	RT	MM939-1	Hardwood	Bottomland	Unmanaged	Mature	Natural	2

MN = Mist-net Site
RT = Roost Tree

5.0 REFERENCES

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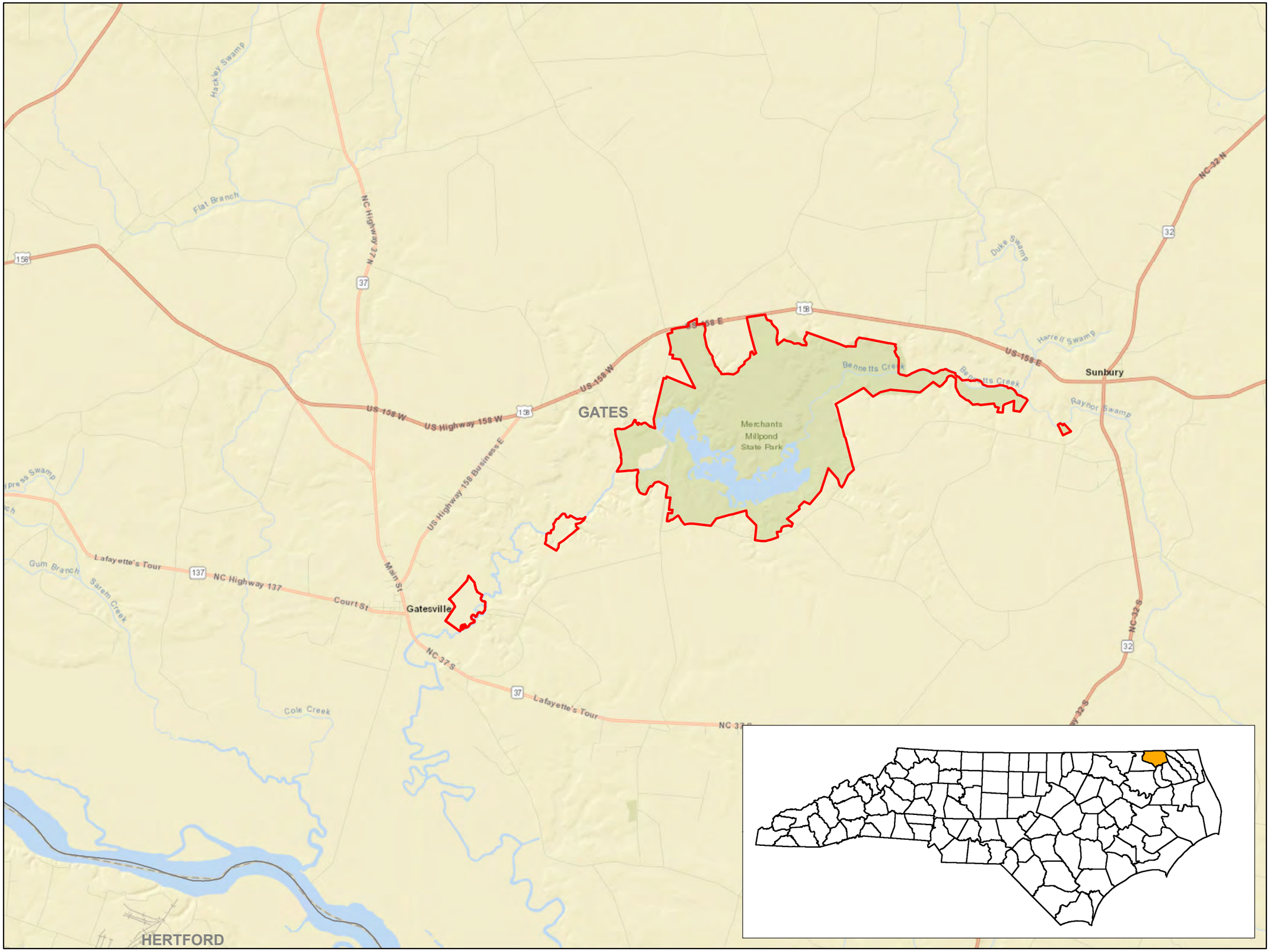
FIGURES



Legend

- Merchants Millpond SP
- County Boundaries

FIGURE 1

NCDOT
Eastern North Carolina
MYSE Research Study
Spring/Summer 2019

Merchants Millpond SP
Project Area Overview

Gates County, NC

Map Date: 9/15/2019

N

GRAPHIC SCALE

0 1 2 3 4

Kilometers

This Exhibit is for planning purposes only and information shown hereon does not meet The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600).

Sources:

Aerial Photography: NC Center for Geographic Analysis
World Street Map: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia,

Legend

Mist-Net Sites

- Reproductive Female MYSE
- Male or NR Female MYSE
- No MYSE Caught
- Merchants Millpond SP

FIGURE 2a

NCDOT
Eastern North Carolina
MYSE Research Study
Spring/Summer 2019

Merchants Millpond SP
Overview

Gates County, NC

Map Date: 9/2/2019

N

GRAPHIC SCALE

0 0.35 0.7 1.05

Miles

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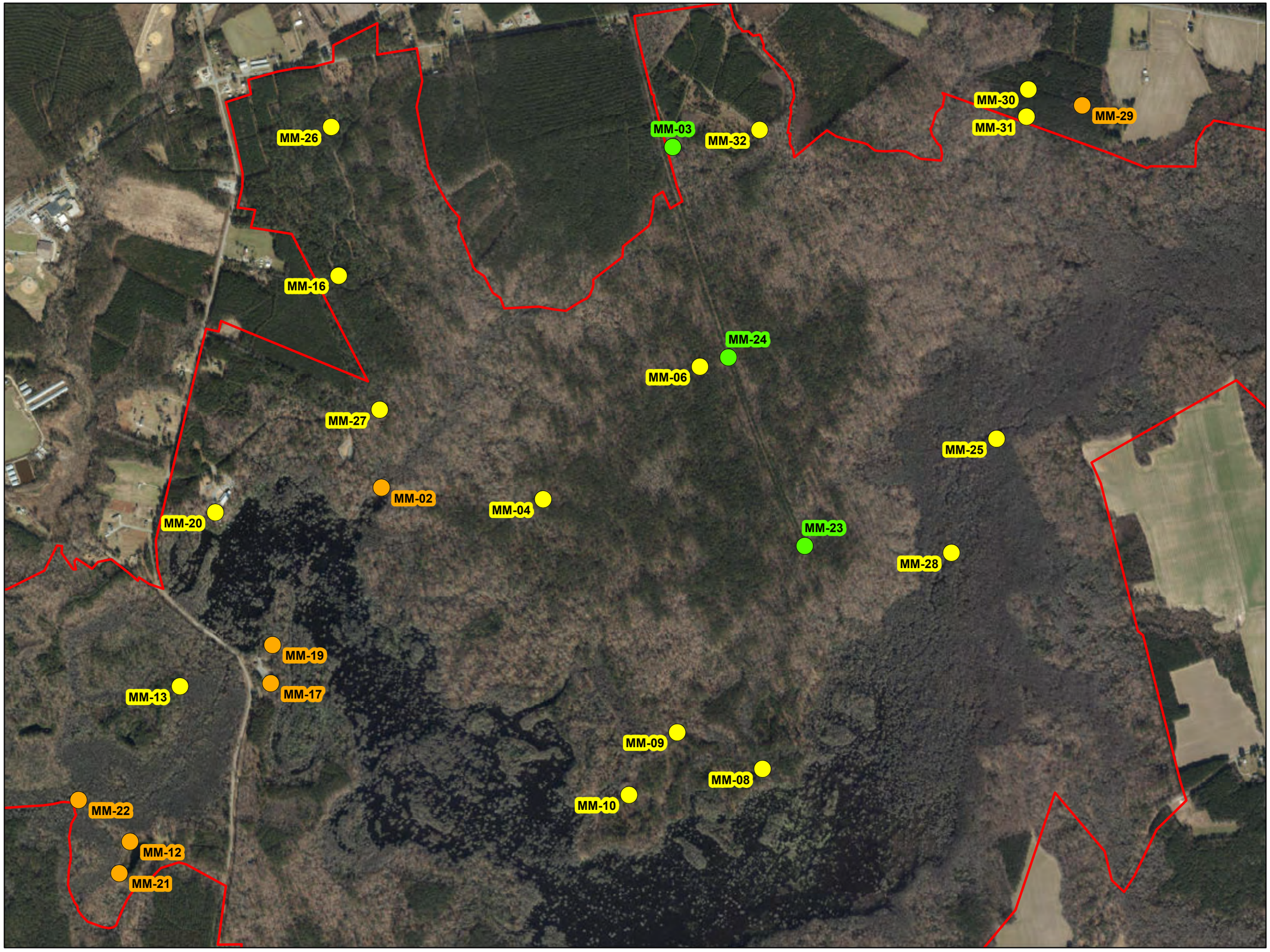
Sources:

Aerial Photography: ESRI Imagery Prime World 2D



Legend

Mist-Net Sites

- Reproductive Female MYSE
- Male or NR Female MYSE
- No MYSE Caught
- Merchants Millpond SP

FIGURE 2b

NCDOT
Eastern North Carolina
MYSE Research Study
Spring/Summer 2019

Merchants Millpond SP
Mist-Net Sites

Gates County, NC

Map Date: 9/2/2019

N

GRAPHIC SCALE

0 0.1 0.2 0.3

Miles

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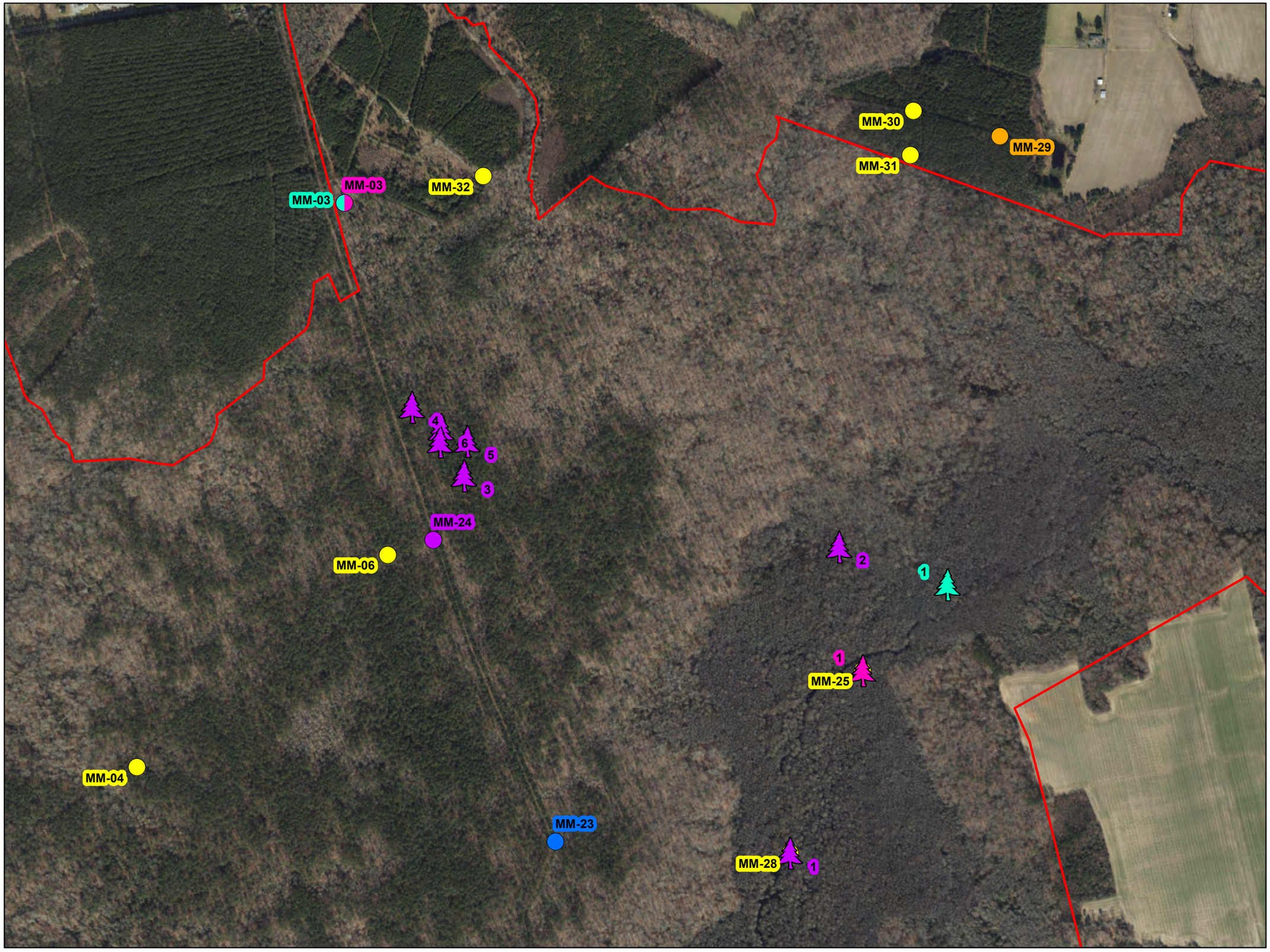
Sources:

Aerial Photography: ESRI Imagery Prime World 2D



Legend

Roost Trees

- MM660
- MM701
- MM939

Transmitted MYSE Capture Sites

- MM660
- MM701
- MM939
- MM980

Mist-Net Site

- Male or NR Female MYSE
- No MYSE Caught
- Merchants Millpond SP

FIGURE 2c

NCDOT
Eastern North Carolina
MYSE Research Study
Spring/Summer 2019

Merchants Millpond SP
Roost Tree Overview

Gates County, NC

Map Date: 9/2/2019

N

GRAPHIC SCALE

0 500 1,000 1,500

Feet

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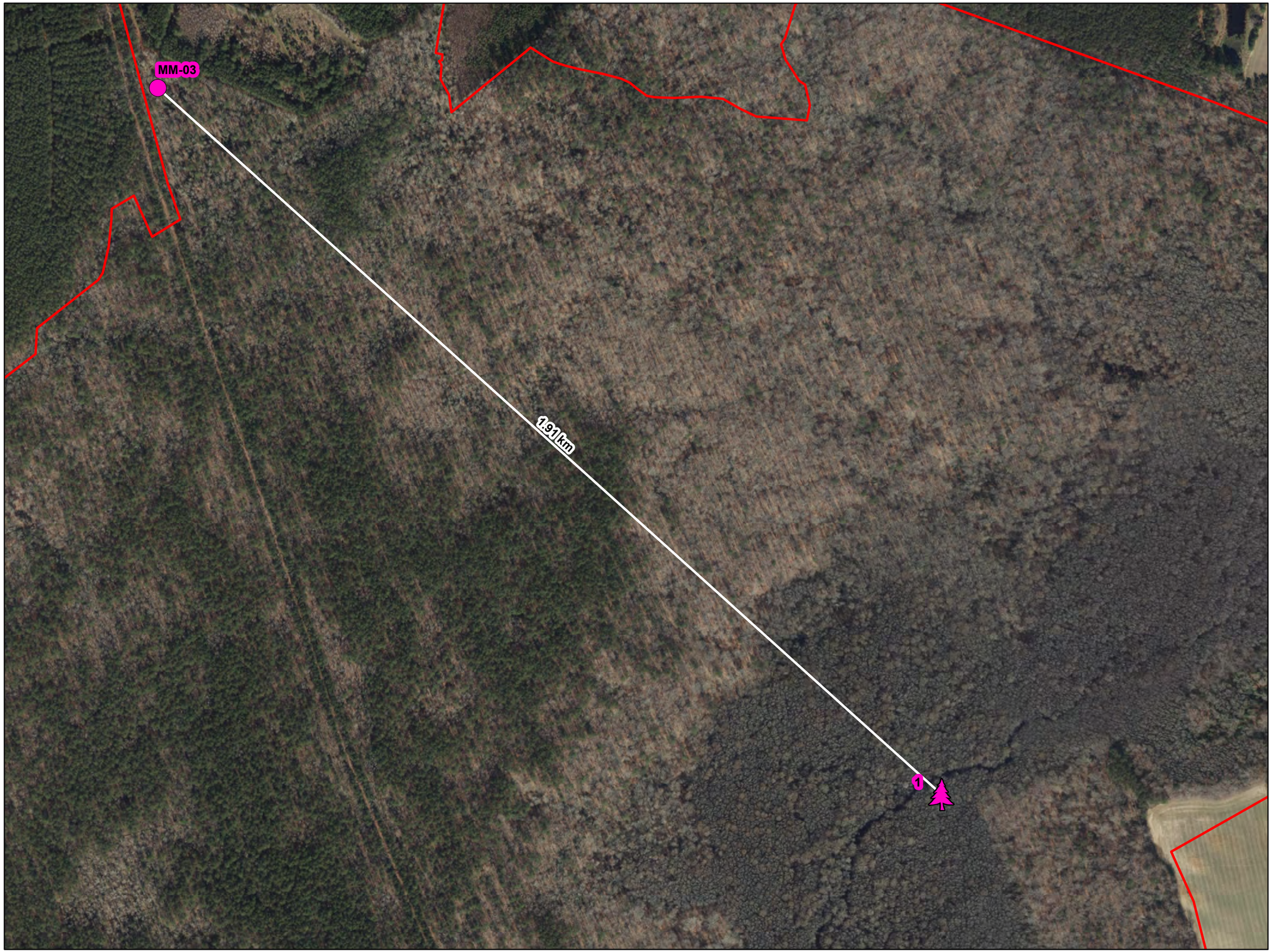
Sources:

Aerial Photography: ESRI Imagery Prime World 2D



Legend

Roost Trees

MM660

Transmitted MYSE Capture Sites

MM660

Merchants Millpond SP

FIGURE 2d

NCDOT
Eastern North Carolina
MYSE Research Study
Spring/Summer 2019

Merchants Millpond SP
MM660 Roost Tree

Gates County, NC

Map Date: 9/2/2019

N

GRAPHIC SCALE

0 300 600 900

Feet

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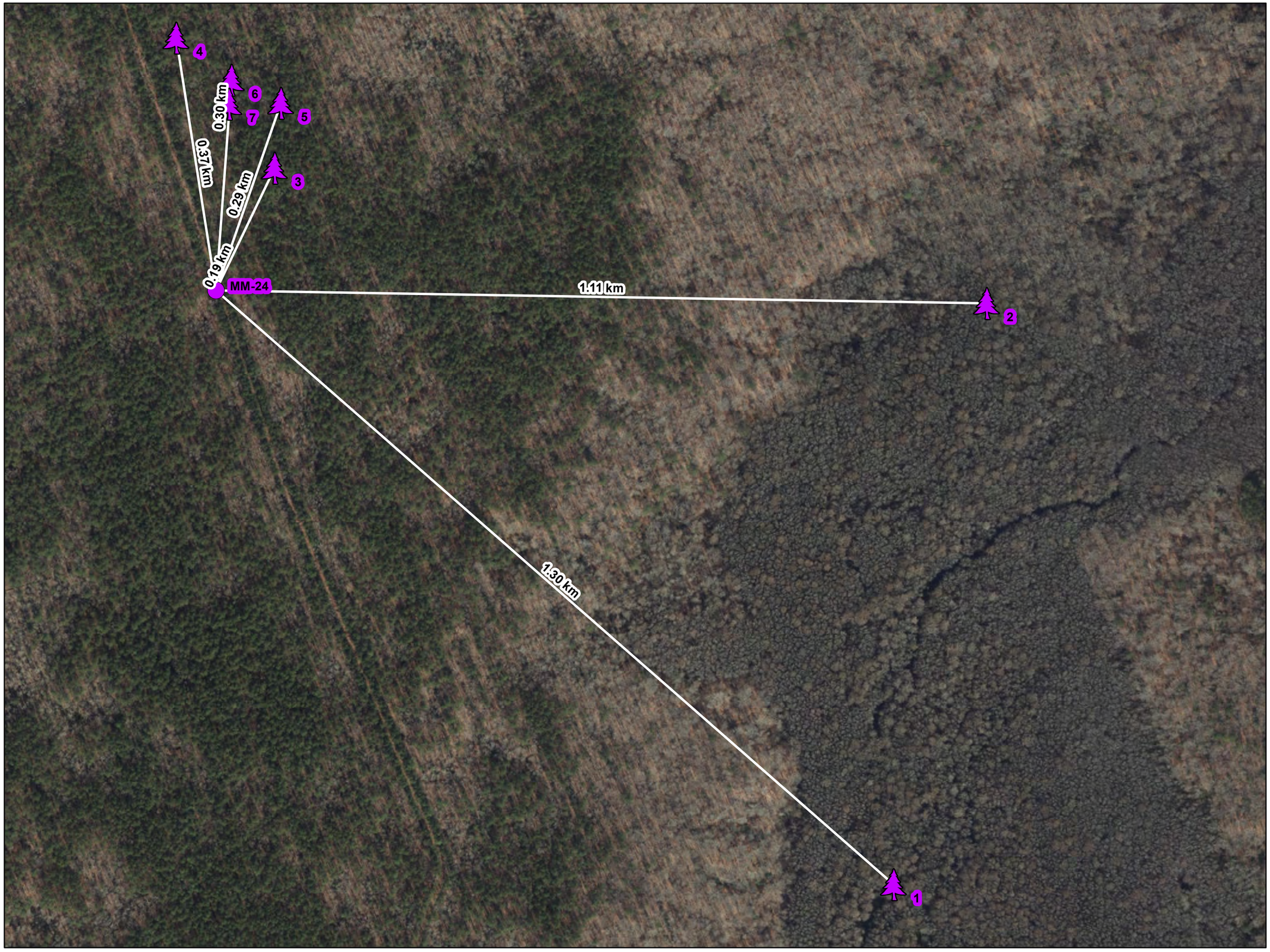
Sources:

Aerial Photography: ESRI Imagery Prime World 2D



Legend

Roost Trees

MM701

Transmitted MYSE Capture Sites

MM701

FIGURE 2e

NCDOT
Eastern North Carolina
MYSE Research Study
Spring/Summer 2019

Merchants Millpond SP
MM701 Roost Trees

Gates County, NC

Map Date: 9/2/2019

N

GRAPHIC SCALE

0 230 460 690

Feet

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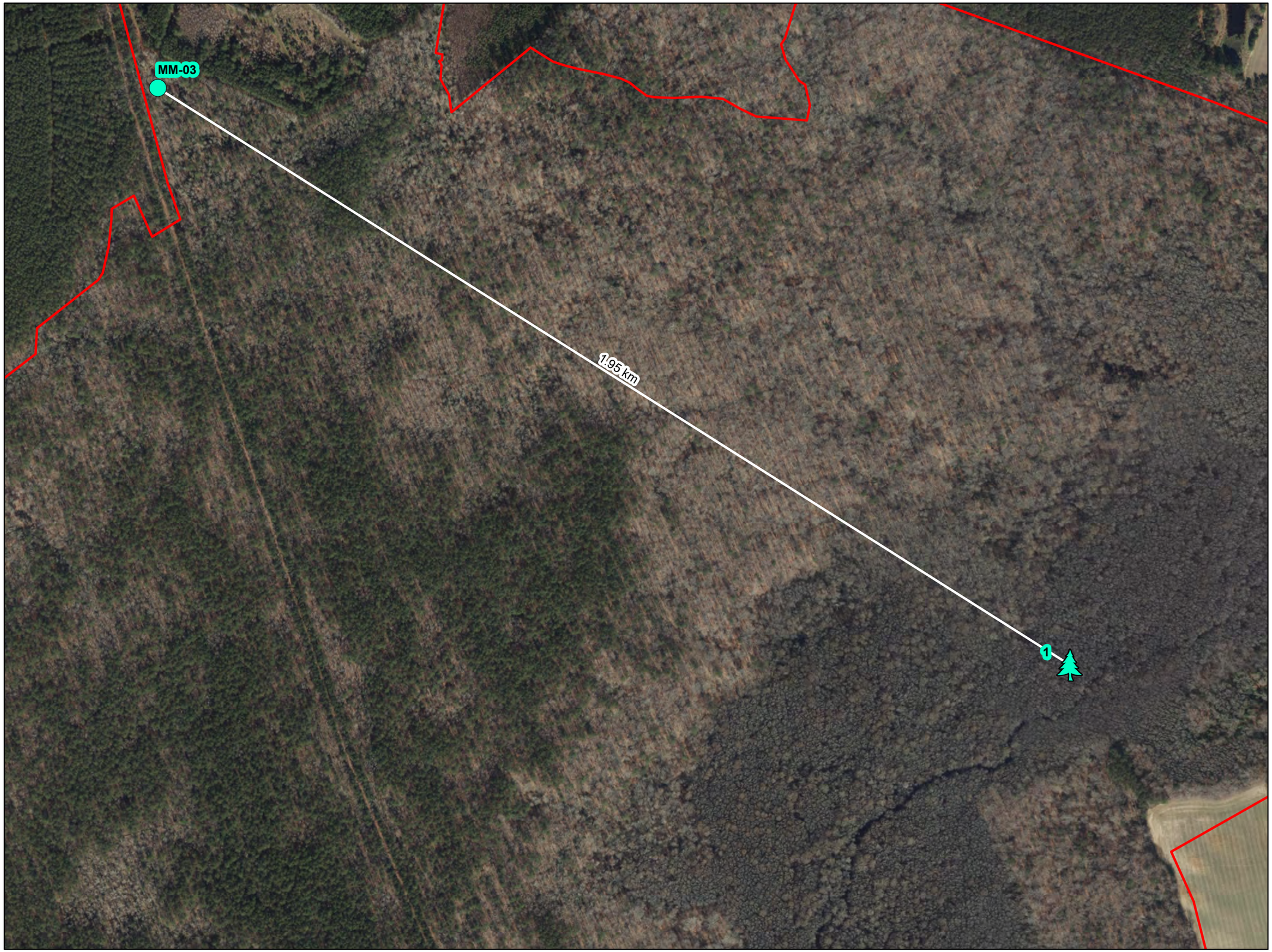
Sources:

Aerial Photography: ESRI Imagery Prime World 2D



Legend

Roost Trees

MM939

Transmitted MYSE Capture Sites

MM939

Merchants Millpond SP

FIGURE 2f

NCDOT
Eastern North Carolina
MYSE Research Study
Spring/Summer 2019

Merchants Millpond SP
MM939 Roost Tree

Gates County, NC

Map Date: 9/2/2019

N

GRAPHIC SCALE

0 300 600 900

Feet

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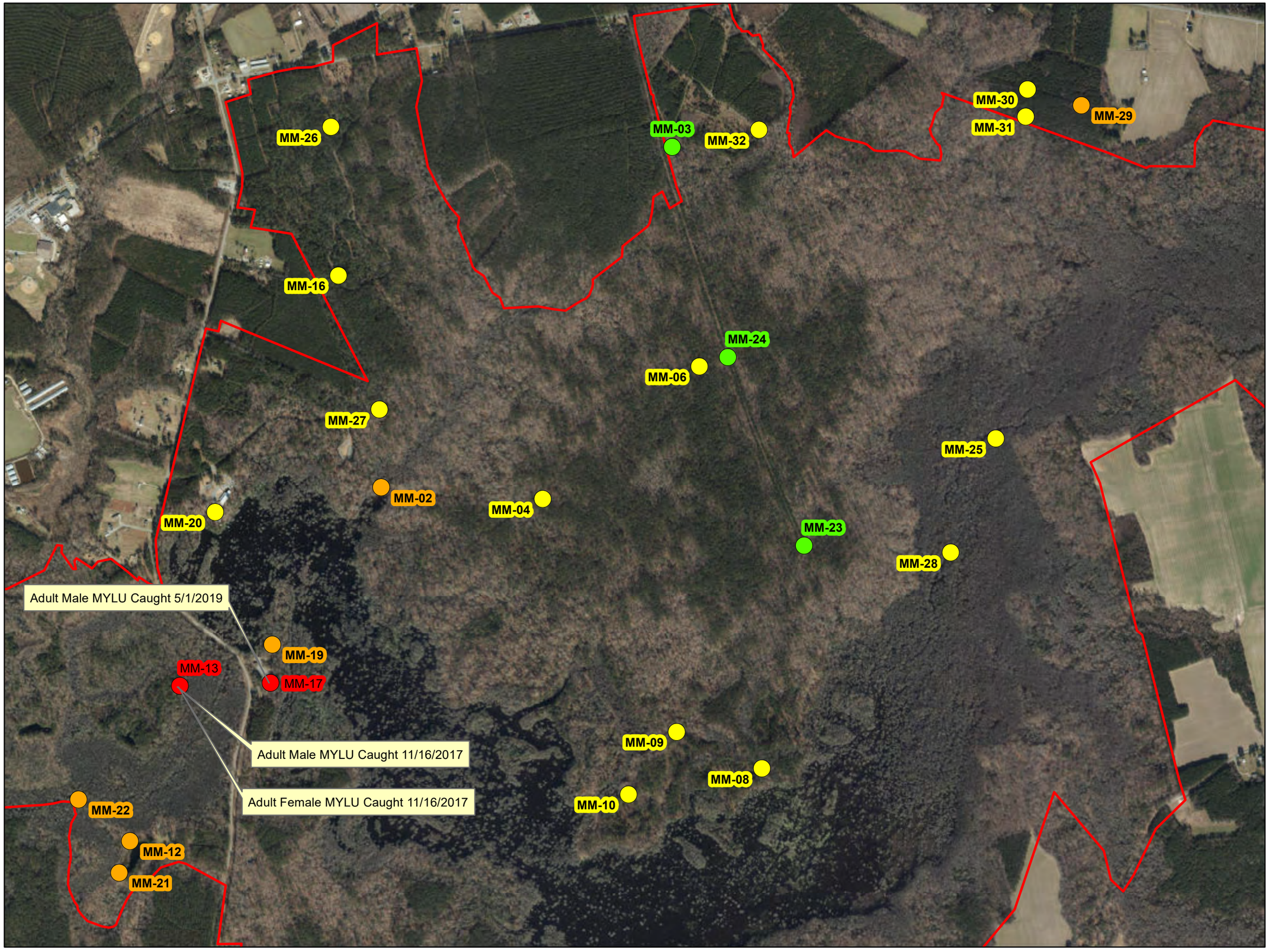
Sources:

Aerial Photography: ESRI Imagery Prime World 2D



Legend

Capture Sites

- Reproductive Female MYSE
- Additional MYSE
- No MYSE Caught
- MYLU
- Merchants Millpond SP

FIGURE 3a

NCDOT
Eastern North Carolina
MYSE Research Study
Spring/Summer 2019

Merchants Millpond SP
MYLU Sites Overview

Gates County, NC

Map Date: 9/2/2019

N

GRAPHIC SCALE

0 0.1 0.2 0.3

Miles

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Sources:

Aerial Photography: ESRI Imagery Prime World 2D

Legend

Capture Sites

- Additional MYSE
- MYLU
- Merchants Millpond SP

FIGURE 3b

NCDOT
Eastern North Carolina
MYSE Research Study
Spring/Summer 2019

Merchants Millpond SP
MYLU Sites

Gates County, NC

Map Date: 9/2/2019

N

GRAPHIC SCALE

0 40 80 120

Meters

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Sources:

Aerial Photography: ESRI Imagery Prime World 2D

APPENDICES

Appendix A

NCDOT Mist-Netting and Acoustic Survey Data Forms

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E. Research	**County:**	Gates	**Site#:**	MM-12	**Night#:**	1	**Site Name:**	Campground	**Date:**	04/22/19
Latitude: 36.425620		Longitude: -76.702870						Datum: NAD83	Elevation: 25'	ID By: K. Cunningham	
Observers: D. DiLandro, M. DesChamps								Start Time: 19:30		End Time: 00:30	

Conditions:	Time 20:00	Temp 64°F	Wind 0	Clouds 0	Time 23:00	Temp 55°F	Wind 0	Clouds 0	Time 00:30	Temp 53	Wind 0	Clouds 0

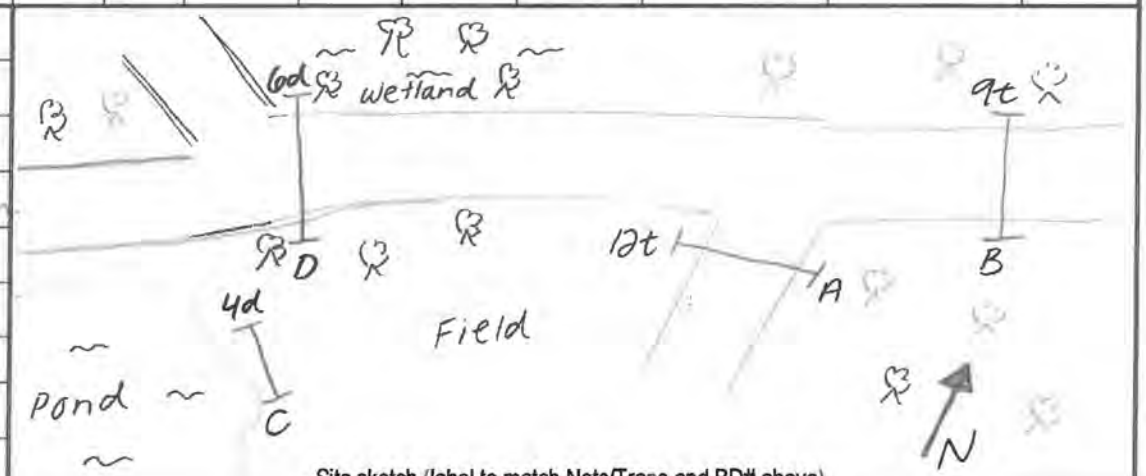
Moon Effect: Wan Gib N/A	Start: / Stop: /	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 (Pond) (Forested) 52, 61

NETS/TRAPS:	**A:** 1x3H-12m	**B:** 1x3H-9m	**C:** 1x2H-4m	**D:** 1x2H-6m	**E:**	**F:**
Pool size WxL	/	/	4m x 6m	/		
Swoop WxL	/	/	4m x 6m	/		
Photo? or #	Y	Y	Y	Y		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: Quercus nigra, Quercus rubra, Swamp chestnut oak, musclewood, prunus serotina, loblolly, beech eq. taxodium distichum, Am. elm

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: CALYX2 Date: 4/22/19

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:10	LABO	M	A	NR	37	—	7	B	4	0372 / 0	pinhole right wing, cut on tongue
2	20:30	LABO	M	—	NR	—	—	—	B	5.5	—	EFN
3	20:30	MYSE	M	A	NR	35	—	5.5	D	1.5	CALYX 1046 / 0	photos, seen some things, small pinholes in both wings
4	2230	EPFU	M	A	NR	45	—	16	B	6	0629 / 0	
5	0030	LABO	F	A	NR	42	—	12	B	4.0	1049 / 0	small pinholes in both wings
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	19 E. Research	**County:**	Gates	**Site#:**	MM-19	**Night#:**	1	**Site Name:**	~~Boat~~ Ramp Boat Ramp	**Date:**	04/23/19
Latitude: 36.431001				Longitude: -76.697484				Datum: NAD83	Elevation: 12'	ID By: K. Cunningham	
Observers: D. Dilandro, M. Deschamps								Start Time: 19:30		End Time: 00:30	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2000	70	0	0	23:00	65	0	0	01:00	64	0	0

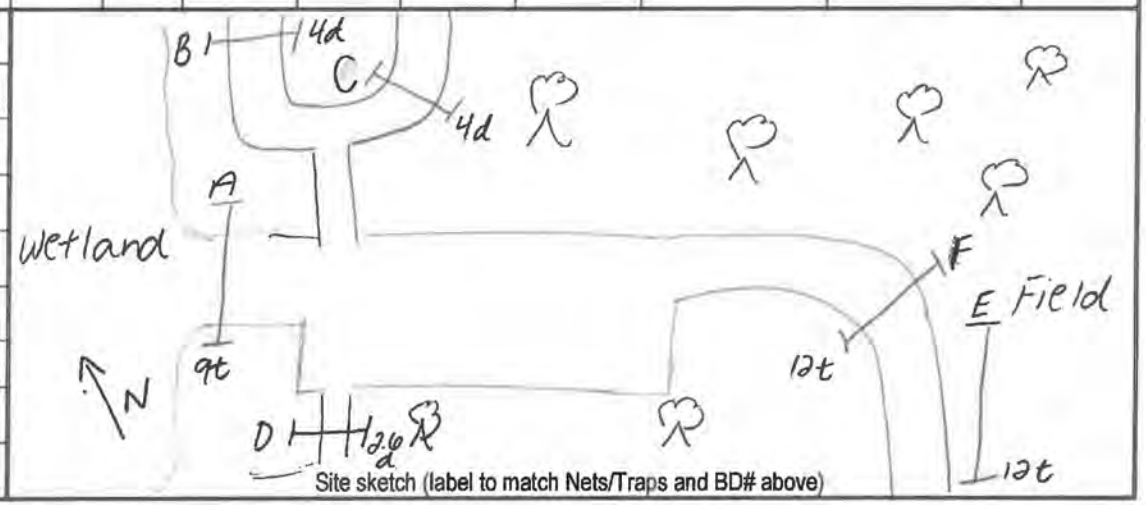
Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wan Gib	—	—	43-Mixed forested wetland

NETS/TRAPS:	A: 1×3H-9m	B: 1×2H-4m	C: 1×2H-4m	D: 1×2H-2.6m	E: 1×3H-12m	F: 1×3H-12m
Pool size WxL	—	—	—	—	—	—
Swoop WxL	—	—	—	—	—	—
Photo? or #	Y	Y	Y	Y	Y	Y

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: Quercus nigra, Q. rubra, Liquidambar styraciflua, Ilex opaca, Swamp chestnut oak, Ar[illegible] spinosa, Pinus taeda, Acer rubrum, Prunus serotina, Liriodendron tulipifera

Remarks: Carolina Wren in net D



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date: 04/23/19

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21:30	LABO	F	A	NR	42	—	14	F	6.5	CALYX 1050	—
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E. Research	**County:**	Gates	**Site#:**	MM-02	**Night#:**	1	**Site Name:**	Cypress Pond Lassiter Trail	**Date:**	04/29/19
Latitude: 36.436850		Longitude: -76.692960						Datum: NAD83	Elevation: 6'	ID By: K. Cunningham	
Observers: D. DiLandro								Start Time: 19:50		End Time: 00:50	

Conditions:	Time 21:00	Temp 57°F	Wind 0	Clouds 0	Time 23:00	Temp 54°F	Wind 0	Clouds 25%	Time 00:30	Temp 55°F	Wind 0	Clouds 25%

Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / Forest (Mixed) / Water (Pond) / Wetland (Forest) / Barren (*describe*):
wan-cres.	/	/	

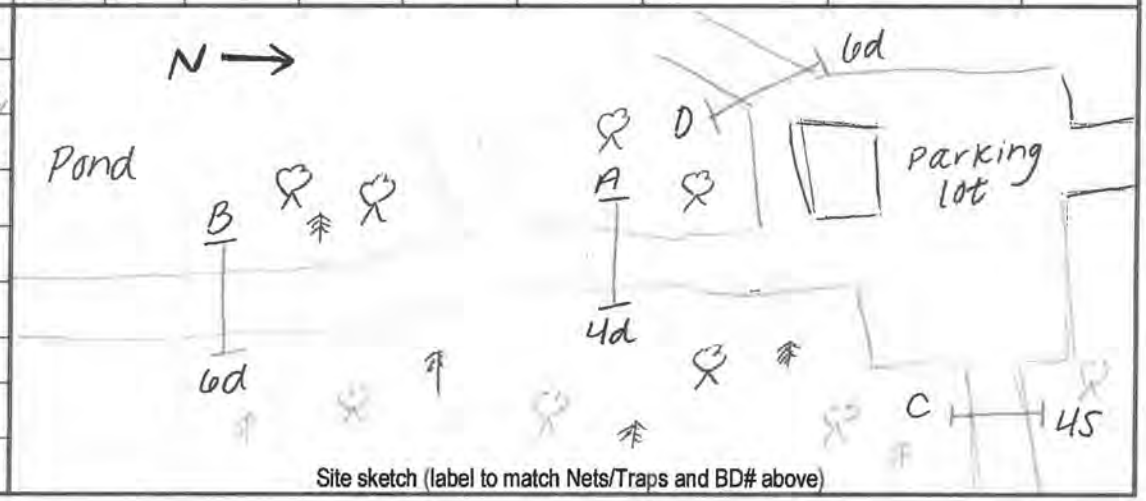
NETS/TRAPS:	A: 1x2H-4m	B: 1x2H-6m	C: 1x1H-4m	D: 1x2H-6m	E:	F:
Pool size WxL	/			/		
Swoop WxL				/		
Photo? or #	Y	Y	Y	Y		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Acer rubrum, Liquidambar Styraciflua, Aralia spinosa, Liriodendron tulipifera, Fagus grandifolia, Quercus michauxii, Ilex opaca, Pinus taeda, Taxodium distichum, Oxydendron arboreum

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2010	LABO	F	A	NR	40	—	12	D	1.5	1051 10	
2	20:30	LABO	F	A	NR	41	—	11.5	D	1.5	1052 10	
3												
4												
5												
6												
7												
8												
9												
10												
11												
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NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E. Research	**County:**	Gates	**Site#:**	MM-13	**Night#:**	1	**Site Name:**	Bennetts Ck Trail	**Date:**	4/30/19
Latitude:	36.431409	Longitude:	-76.700728					Datum: NAD83	Elevation: 23'	ID By:	K. Cunningham
Observers:	D. DiLandro							Start Time:	20:15	End Time:	01:15

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	21:15	74°F	0	25%	23:30	70°	0	0	01:00	70	0	25

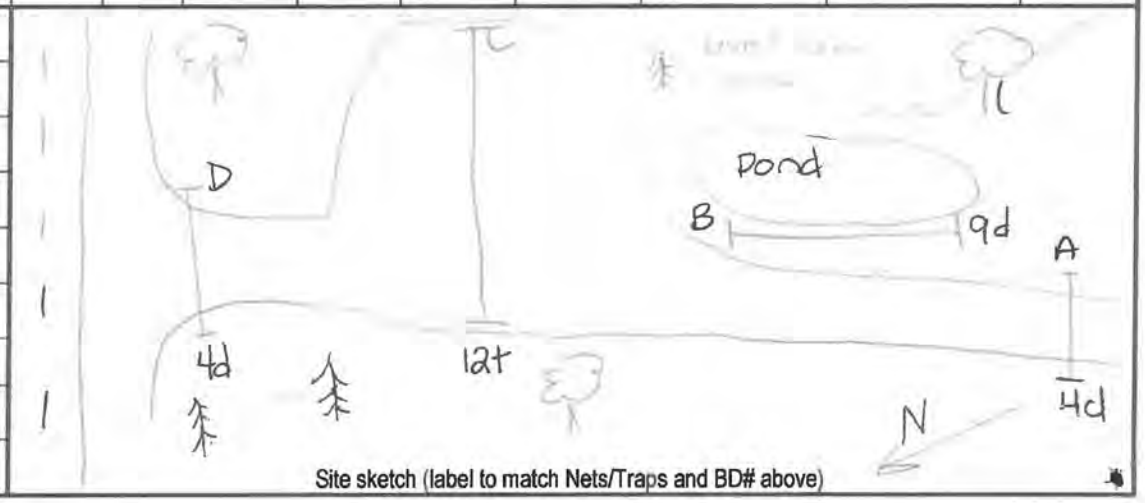
Moon Effect: Wan-Cres	Start: —	**Land Use:** Urban / Agriculture / Forest (Mixed) / Water / Wetland (Forested) / Barren *(describe)*:	
	Stop: —		

NETS/TRAPS:	**A:** 1x2H-4m	**B:** 1x2H-9m	**C:** 1x2H-12m	**D:** 1x2H-4m	**E:**	**F:**
Pool size WxL	—	9m x 4m	—	—		
Swoop WxL	—	7m x 3m	—	—		
Photo? or #	Y			Y		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: Acer rubrum, Platanus occidentalis, Carpinus caroliniana, Vitis sp., Pinus taeda, Quercus michauxii, Nyssa aquatica

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2130	LABO	F	A	P	40	-	14.0	C	2.5	1053/0	
2	2305	MYAU	F	A	NR	39	-	9	A	1.5	1054/0	
3												
4												
5												
6												
7												
8												
9												
10												
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16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E. Research	**County:**	Gates	**Site#:**	MM-17	**Night#:**	1	**Site Name:**	Coleman Trail	**Date:**	5/1/19
Latitude: 36.430646		Longitude: -76.697321						Datum: NAD83	Elevation: 12'	ID By:	K. Cunningham
Observers: D. Dilandro								Start Time: 20:00		End Time: 01:00	

Conditions:	Time 22:00	Temp 73°F	Wind 0	Clouds 0	Time 23:30	Temp 71°F	Wind 0	Clouds 0	Time 01:00	Temp 69°F	Wind 0	Clouds 0

Moon Effect: Waning Crescent — Start: / Stop: /

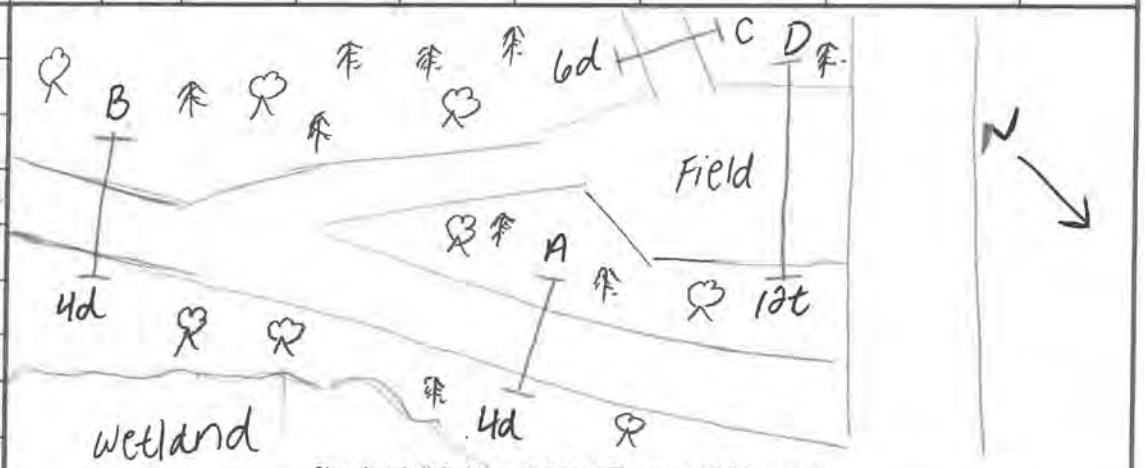
Land Use: Urban / Agriculture / Forest (Mixed) / Water / Wetland (Forested) / Barren (*describe*):

NETS/TRAPS:	**A:** 1x2H-4m	**B:** 1x2H-4m	**C:** 1x2H-6m	**D:** 1x3H-12m	**E:**	**F:**
Pool size WxL	/	/	/	/		
Swoop WxL	/	/	/	/		
Photo? or #	Y	Y	Y	Y		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: Quercus rubra, Q. falcata, Q. laurifolia, Q. nigra, Acer rubrum, Prunus serotina, Platanus occidentalis, Liquidambar styraciflua, Liriodendron tulipifera, Pinus taeda, Sassafras albidum

Remarks: Ulmus americana, Ilex opaca



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2115	MYLU	M	A	NR	36	—	7.0	B	1.5	1055/0	minimal scarring on both wings, bruising on (L) FA
2	0015	CORA	M	A	TD	42	—	9.0	B	1.5	1056/0	
3												
4												
5												
6												
7												
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18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E. Research	**County:**	Gates	**Site#:**	MM-20	**Night#:**	1	**Site Name:**	Visitor's Center	**Date:**	5-7-19
Latitude: 36.436064		Longitude: -76.699507						Datum: NAD 83	Elevation: 27	ID By: K Cunningham	
Observers: D. DiLandro, F. Wilkins								Start Time: 2000		End Time: 0100	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2100	68	0	0	2300	62	0	0	0100	55	0	0

Moon Effect: Wax Cres.	Start: — Stop: —	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 52

NETS/TRAPS:	**A:** 1×2H-6m	**B:** 1×3H-6m	**C:** 1×2H-4m	**D:** 1×3H-12m	**E:** 1×2H-6m	**F:**
Pool size WxL	—	—	—	—	—	
Swoop WxL	—	—	—	—	—	
Photo? or #	✓	✓	✓	✓	✓	

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: Q nigra, Q rubra, Liriodendron tulipifera, Liquidambar styraciflua, Ilex opac, Q alba

Remarks:

European tarnet in Net

Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2100	NYHU	M	A	NR	37	–	8	D	2.5	1057/0	
2												
3												
4												
5												
6												
7												
8												
9												
10												
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19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-13	**Night#:**	02	**Site Name:**	Bennetts Creek Trail	**Date:**	05/07/2019
Latitude: 36.43055°		Longitude: -76.70090°						Datum: NAD83	Elevation: 6'	ID By: Dylan Brooks	
Observers: Jacob Anderson								Start Time: 20:00		End Time: 01:00	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:00	75	1	50%	22:30	68°F	0	50	01:00	63	1	25

Moon Effect:		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Waxing Crescent	Start: 08:10 Stop: 22:51	43 61

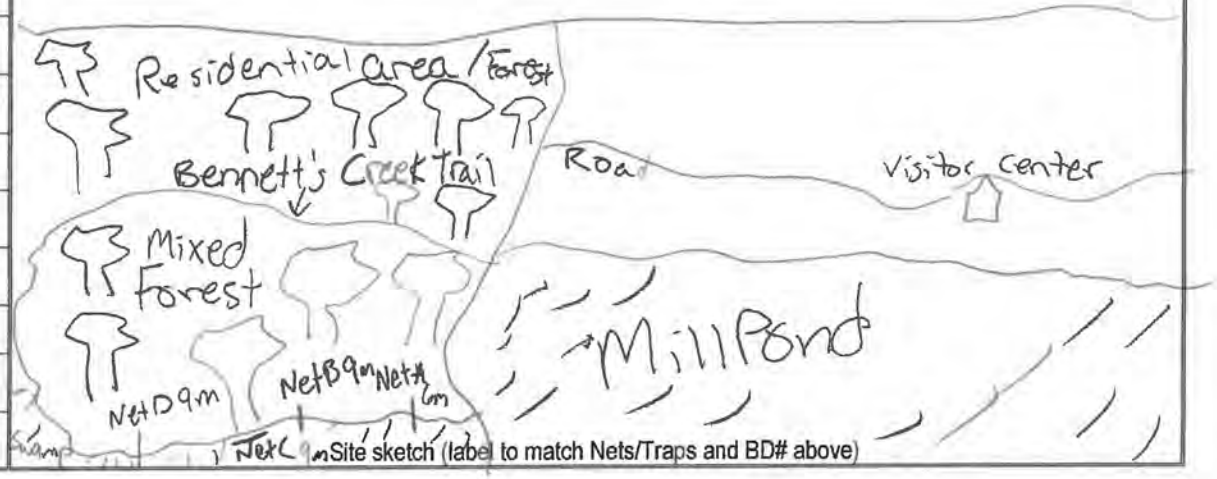
NETS/TRAPS:	A: 1x24-6m	B: 1x24-9m	C: 1x24-9m	D: 1x24-9m	E:	F:
Pool size WxL	—	—		—		
Swoop WxL	—	—	UNLIM	—		
Photo? or #	DB01	DB02	DB03	DB04		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Taxodium distichum
Nyssa biflora
Nyssa aquatica
Taxodium ascendens
Liquidambar styraciflua

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Project: 2019 Eastern Research County: Gates Site# MM-13 Night# 1 Site Name: Bennetts Creek Trail Date: 05/07/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	23:20	PESU	M	Ad	NR	33	9	4.75	B	1.5m	CALYX 1141 / 0	
2	00:00	LANO	M	Ad	NR	41	10	11.5	D	3m	CALYX 1142 / 0	
3												
4												
5												
6												
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19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	19 E. Research	**County:**	Gates	**Site#:**	MM-21	**Night#:**	1	**Site Name:**	Campground Trails	**Date:**	5/8/19
Latitude: 36.424618		Longitude:	-76.703301					Datum: NAD 83	Elevation: 30	ID By: K Cunningham	
Observers: D. DiLandro								Start Time: 2000		End Time: 0100	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2100	69	0	25	2300	67	0	50	0030	65	0	75

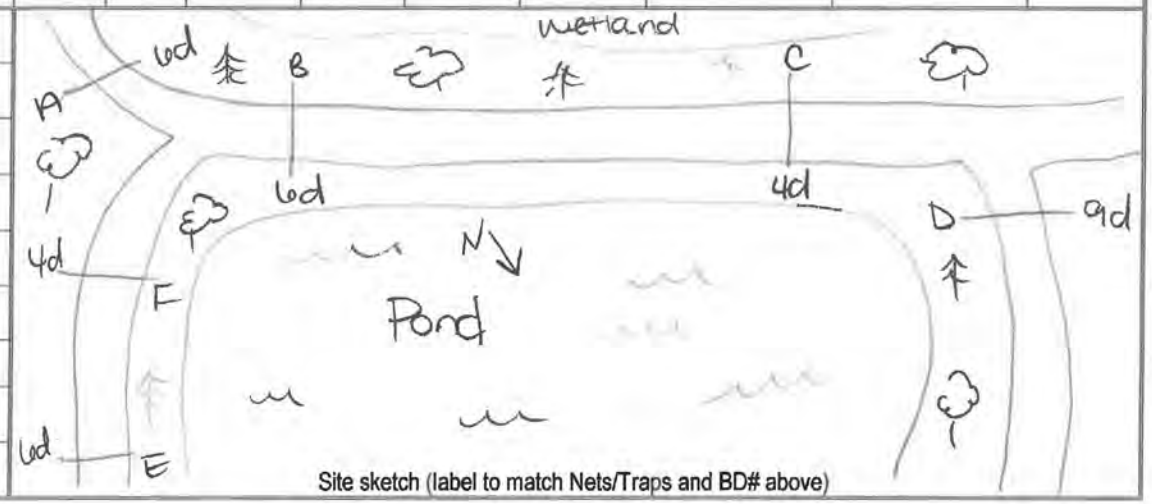
Moon Effect:	Start:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wax - Cres	Stop:	43 52 61

NETS/TRAPS:	A: 1x2H - 6m	B: 1x2H - 6m	C: 1x2H - 4m	D: 1x2H - 9m	E: 1x2H - 6m	F: 1x2H - 4m
Pool size WxL	—	—	—	—	—	—
Swoop WxL	—	—	—	—	—	—
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: A. rubrum, Carpinus caroliniana, Carya sp., Fagus grandifolia, Fraxinus americana, Ilex opaca, Liquidambar styraciflua, Liriodendron tulipifera, Ostrya virginiana, P. taeda, Q. alba

Remarks: Q. michauxii, Q. nigra, Q. rubra



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2100	MYSE	M	A	NR	35	—	5.0	B	2.0	1058 / 0	Wing punch
2												
3												
4												
5												
6												
7												
8												
9												
10												
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14												
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17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-09	**Night#:**	1	**Site Name:**	Fire Trail	**Date:**	05/08/2019
Latitude: 36.42909°		Longitude: -76.68130°						Datum: NAD 83	Elevation: 31'	ID By: Dylan Brooks	
Observers: Jacob Anderson								Start Time: 20:02		End Time: 01:02	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:00	74°F	0	0	22:30	69°F	.5	0	01:00	67°F	0	0

Moon Effect:		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Waxing crescent	Start: 09:05 N/A Stop: 23:57 N/A	43

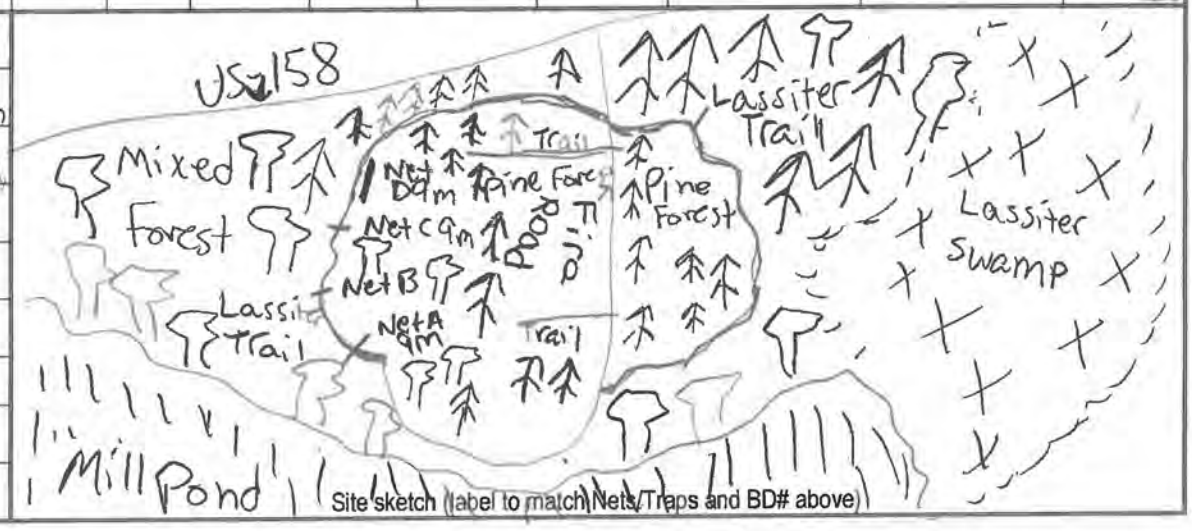
NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-9m	C: 1x2H-9m	D: 1x2H-9m	E:	F:
Pool size WxL	—	8"x8'	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB05	DB06	DB07	DB08		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Liquidambar styraciflua, Acer saccharum, Liriodendron tulipifera, Fagus grandifolia, Pinus taeda,

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Project: 2019 Eastern Research County: Gates Site# MM-09 Night# 1 Site Name: Fire Trail Date: 05/08/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	00:21	LABO	F	AD	NR	43		9	B	2.5m	1140/0	
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-04	**Night#:**	1	**Site Name:**	Far Fire Trail	**Date:**	05/09/2019
Latitude: 36.43648°		Longitude: -76.62658						Datum: NAD83	Elevation: 13'	ID By: Dylan Brooks	
Observers: Jacob Anderson								Start Time: 20:03		End Time: 01:03	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:00	74°F	2	0	22:30	69°F	1	25	01:00	65°F	0	0

Moon Effect:		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Waxing Crescent	Start: ~~10:01~~ N/A Stop: N/A	43

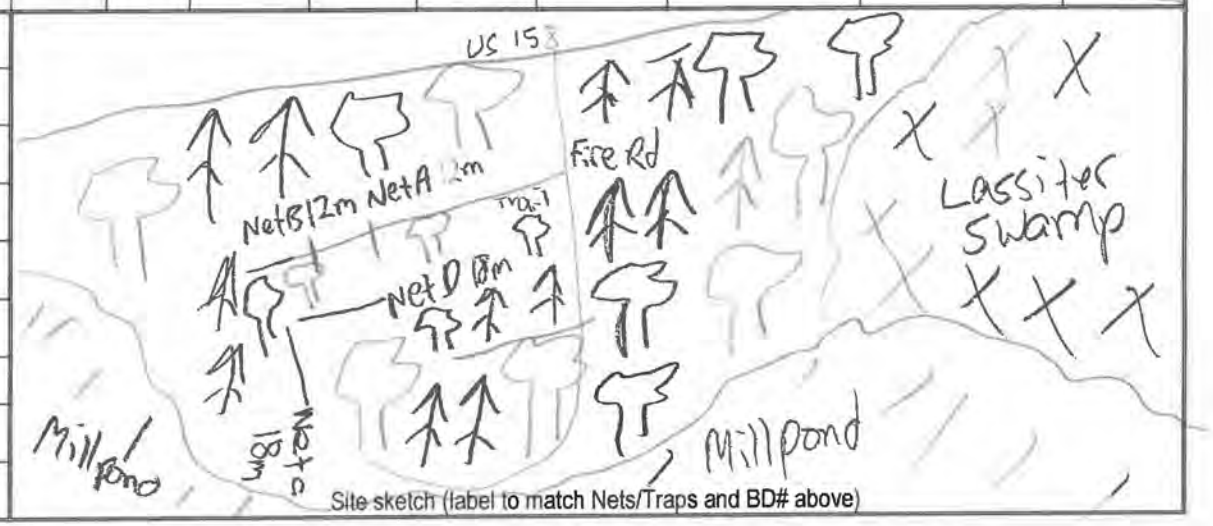
NETS/TRAPS:	A: 1x3H-12m	B: 1x2H-12m	C: 1x2H-18m	D: 1x3H-18m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB09	DB10	DB11	DB12		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Quercus alba
Pinus taeda
Fagus grandifolia
Acer saccharum
Liquidambar Styraciflua

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Project: 2019 Eastern Research County: Gates Site# MM-04 Night# 1 Site Name: Far Fire Trail Date: 05/09/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:45	PESU	M	AD	NR	34	11	5.5	A	1.5m	1143/0	
2	21:00	LABO	M	AD	NR	36	N/A	8.75	A	3	1144/ PD	Physical Damage on wing
3	21:40	LABO	F	AD	P	39	N/A	14	A	2.5	1145/0	
4												
5												
6												
7												
8												
9												
10												
11												
12												
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14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'11 E. Research	**County:**	Gates	**Site#:**	MM-21	**Night#:**	2	**Site Name:**	Campground Trails	**Date:**	5/13/19
Latitude: 36.424618		Longitude: -76.703301						Datum: NAD 83	Elevation: 30'	ID By:	JC. Cunningham
Observers: D. DiLandro, M. DeS Champs								Start Time: 20:00		End Time: 01:00	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:30	62°F	0	0	22:30	57°F	0	0	01:00	54°F	0	0

Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (*describe*):
Wax-Gib	/	/	Mixed Forest

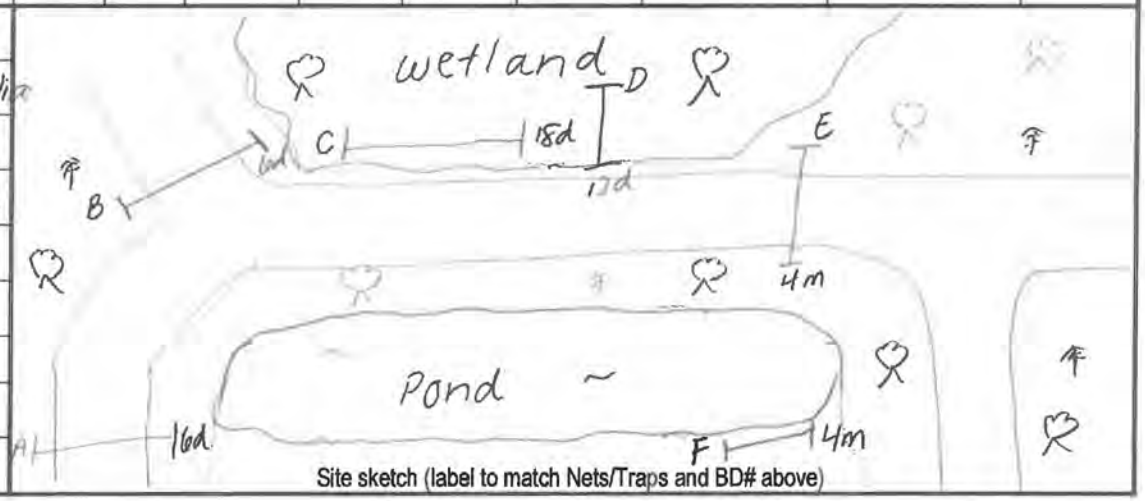
NETS/TRAPS:	A: 1x2H-6m	B: 1x2H-6m	C: 1x2H-18m	D: 1x2H-12m	E: 1x2H-4m	F: 1x2H-4m
Pool size WxL	/	/	18m x 10m	12m x 20m	/	/
Swoop WxL	/	/	18m x 10m	12m x 20m	/	/
Photo? or #	Y	Y	Y	Y	Y	Y

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Q. alba, Q. rubra, Q. nigra, Fagus grandifolia, Liriodendron tulipifera, Ilex opaca, Carpinus caroliniana, Fraxinus americana, Carya sp., Oxydendrum arboreum, Acer rubrum, Q. michauxii, Liquidambar

Remarks: Styraciflua, P. taeda, Nyssa aquatica



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	23:55	MYSE	M	A	NR	36	—	6.0	C	1.5	1059/0	Minimal scaring on (R)(L) wings - samples - photos
2	00:50	PESU	F	A	NR	35	-	7.0	F	1.5	1060/0	
3												
4												
5												
6												
7												
8												
9												
10												
11												
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18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-2	**Night#:**	2	**Site Name:**	MM-Lassiter Trail Cypress Pond	**Date:**	05/13/2019
Latitude: 36.436085°		Longitude: -76.69296°						Datum: NAD 83	Elevation: 12'	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:06		End Time: 01:06	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:06	64°F	1	50	22:36	55°F	1	25	01:06	54°F	0	25

Moon Effect:	Start:	Stop:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
WAX-GIB	20:21	01:06	43 61 62

NETS/TRAPS:	**A:** 1x2H-6m	**B:** 1x2H-12m	**C:** 1x2H-18m	**D:** 1x2H-18m	**E:**	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #						

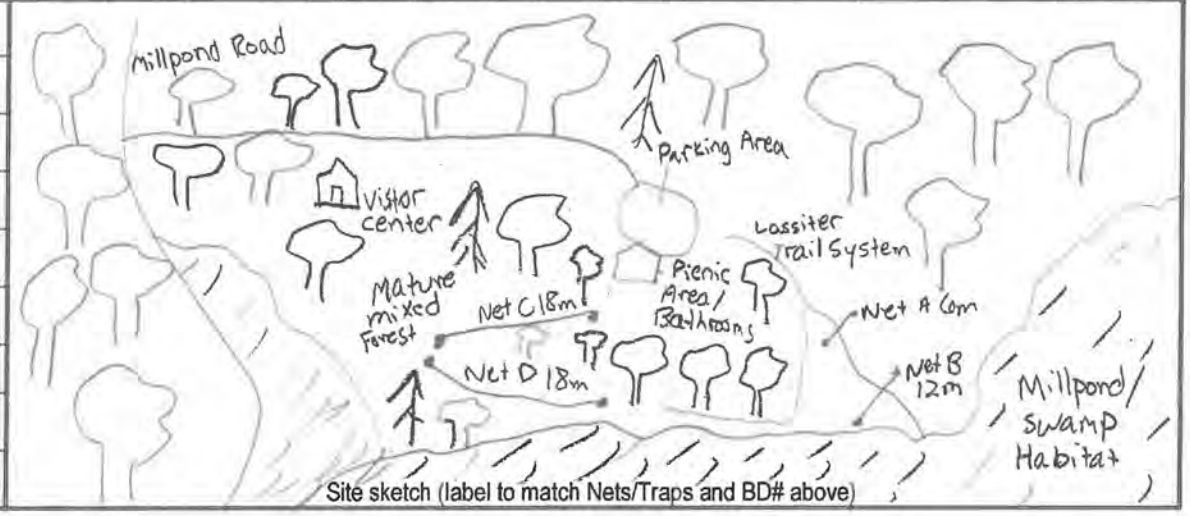
BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Fagus grandifolia
Acer Saccharum
Taxodium ascendens
Ilex opaca
Liquidambar styraciflua

Remarks:

Cold weather appeared to effect insect and wildlife activity.



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# MM-2 Night# 2 Site Name: MM Lassiter trail Cypress Pond Date: 5/13/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1		No bats captured										
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
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18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Region	**County:**	Gates	**Site#:**	MM-19	**Night#:**	2	**Site Name:**	Boat Access Trail	**Date:**	05/16/2019
Latitude: 36.43864°		Longitude: -76.69725						Datum: NAD 83	Elevation: 11'	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:08		End Time: 01:08	

Conditions:	Time 20:08	Temp 76°F	Wind 0	Clouds 0	Time 22:38	Temp 60°F	Wind 0	Clouds 25	Time 01:08	Temp 61	Wind 0	Clouds 25

Moon Effect: Waxing Gibbous — Start: 22:10 — Stop: 01:08

Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 61+62

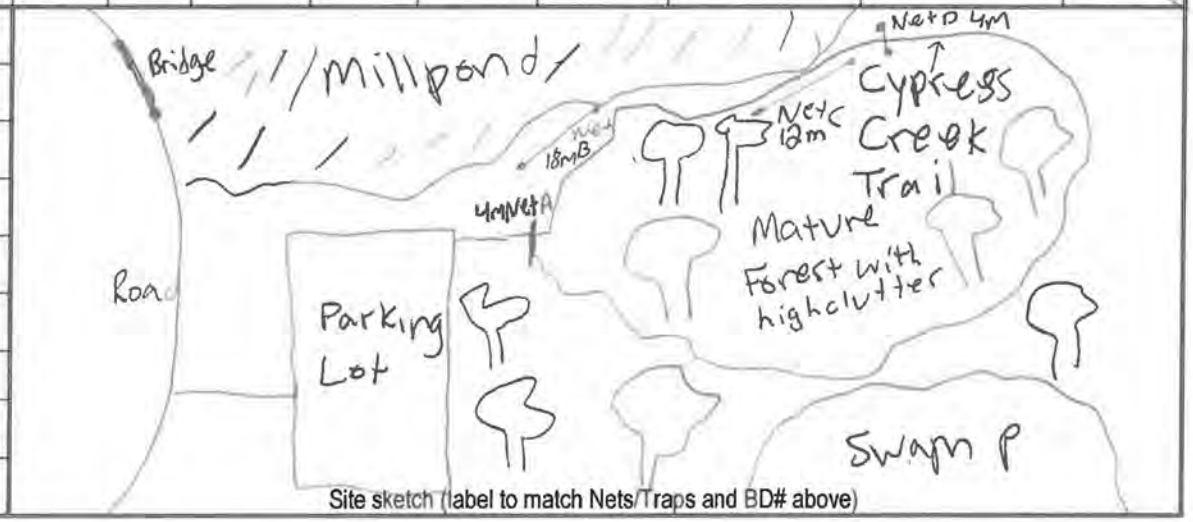
NETS/TRAPS:	**A:** 1x3H-4m	**B:** 1x2H-18m	**C:** 1x2H-12m	**D:** 1x2H-4m	**E:**	**F:**
Pool size WxL	—	UNLIM	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	—	—	—	—		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Taxodium Ascendens
Ilex opaca
Nyssa Aquatica
Acer Saccharum
Nyssa biflora

Remarks: Area needs invasive species treatments.



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# MM-19 Night# 2 Site Name: Boat Access trail Date: 05/16/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:09	PESU	F	Ad	NR	34	13	5.5	D	2m	1146/0	
2	22:21	MYSE	M	Ad	NR	36	16	7	C	1.5m	1147/0	
3	23:46	MYAU	M	Ad	NR	37	13	7.5	D	1.5m	1148/0	
4	00:53	CORA	M	Ad	NR	43	34	9.5	C	3m	1149/0	
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 EasternRe	**County:**	Gates	**Site#:**	MM-22	**Night#:**	1	**Site Name:**	Bennetts Canoesite	**Date:**	05/17 2019
Latitude: 36.426944°		Longitude: -76.704894						Datum: NAD83	Elevation: 2'	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:08		End Time: 01:08	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:08	82°F	1	25	22:38	70°F	0	50	01:08	66	0	50

Moon Effect: Waxing Gibbous — Start: 21:20 — Stop: 01:08

Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 51 61

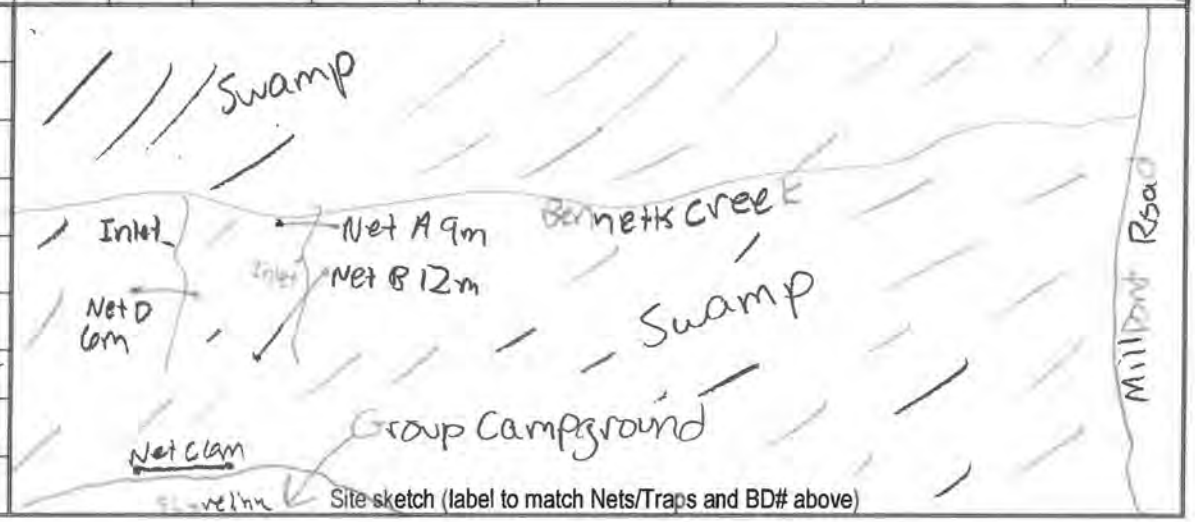
NETS/TRAPS:	**A:** 1x2H-9m	**B:** 1x2H-12m	**C:** 1x2H-6m	**D:** 1x2H-6m	**E:**	**F:**
Pool size WxL	UNLIM	UNLIM	UNLIM	UNLIM		
Swoop WxL	—	—	—	—		
Photo? or #	—	—	—	—		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Nyssa aquatica
Taxodium ascendens
Taxodium distichum
Nyssa biflora

Remarks: Moon was covered by clouds for 15 minutes and 7 bats were captured during this time.



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# MM-22 Night# 01 Site Name: Bennett's Canoe Site Date: 5/17/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:58	MYAU	M	A	NR	35	12	7	A	2m	1150/0	
2	23:02	CORA	F	A	P	44		11.5	A	.5m	1131/0	
3	23:02	CORA	F	A	P	45		12	A	[illegible]	1132/0	
4	23:02	CORA	M	A	NR	45		10.5	A	[illegible]	1133/0	
5	23:02	CORA	F	A	P	43		12	A	1.5m	1134/0	
6	23:02	MYAU	M	A	NR	37	13	6.5	A	2m	1135/0	
7	23:02	NYHU	F	A	P	36		14.5	B	2.5m	1137/0	
8	23:02	NYHU	F	A	P	36		12.5	A	1.5m	1138/0	
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-22	**Night#:**	2	**Site Name:**	Bennetts Canoe Site	**Date:**	5/18/2019
Latitude: 36.426944°		Longitude: -76.704897°						Datum: NAD83	Elevation: 2'	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:09		End Time: 01:09	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:09	84°F	0	0	22:39	75°F	0	0	01:09	72°F	0	0

Moon Effect: Full	Start: 21:15 Stop: 01:09	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 51 61

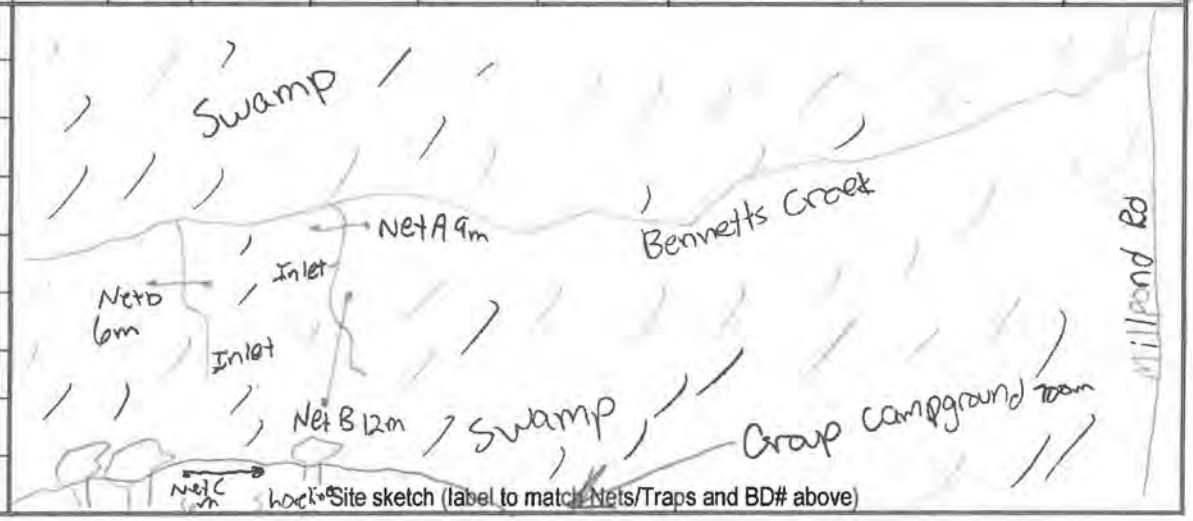
NETS/TRAPS:	**A:** 1x2H-9m	**B:** 1x2H-12m	**C:** 1x2H-6m	**D:** 1x2H-6m	**E:**	**F:**
Pool size WxL	UNLIM	UNLIM	UNLIM	UNLIM		
Swoop WxL	—	—	—	—		
Photo? or #	—	—	—	—		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Nyssa aquatica
Taxodium ascendens
Taxodium distichum
Nyssa biflora

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# MM-22 Night# 2 Site Name: Bennetts canoe site Date: 5/18/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:45	MYSE	M	A	NR	36	18	6	A	2m	1101/0	
2	20:50	LABO	F	A	P	39		14	B	3m	1102/0	
3	[illegible]	CORA	M	A	NR	42		9	C	1m	1103/0	
4	00 58	MYAU	M	A	NR	37	14	8	D	2m	1104/1	Flaking Forearm [illegible] spots
5	01:20	MYAU	M	A	NR	37	12	7.5	A	0.5m	1106/0	
6	01:21	MYAU	M	A	NR	37	13	7	A	1m	1107/0	
7	01:21	MYAU	F	A	P	36	13	7.5	A	1.5	1105/0	
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-22	**Night#:**	3	**Site Name:**	Bennett's Canoe Site	**Date:**	5/19/2019
Latitude: 36.426944°		Longitude: -76.704897						Datum: NAD 83	Elevation: 2'	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:09		End Time: 01:09	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:09	86°F	3	0	22:39	77°F	3	0	01:09	73°F	3	0

Moon Effect:	Start: 20:45	Land Use: Urban / Agriculture / Forest / ~~Water~~ / Wetland / Barren *(describe)*:
WAN GIB	Stop: 01:09	5 6

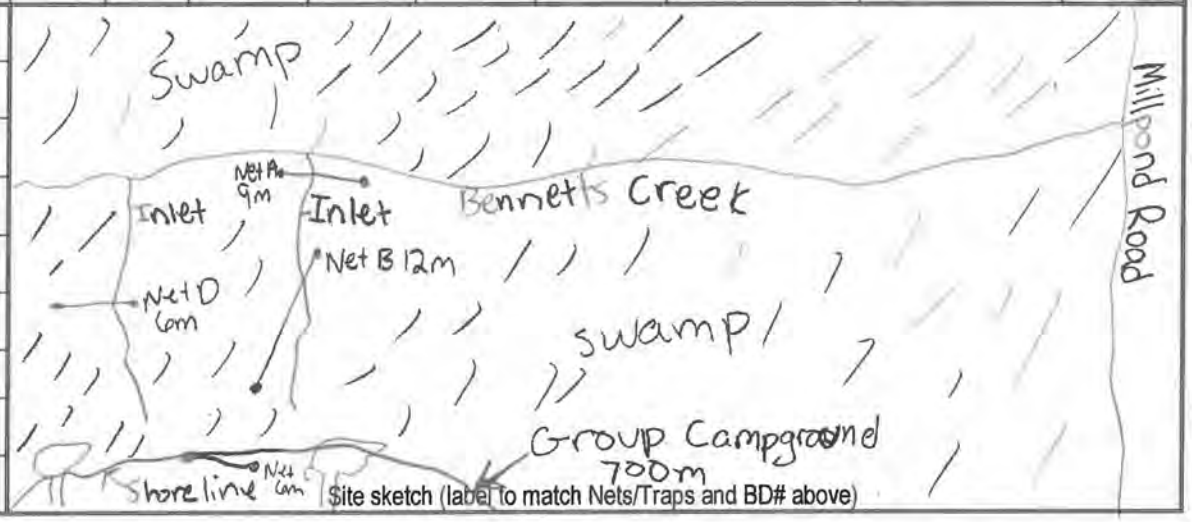
NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-12m	C: 1x2H-6m	D: 1x2H-6m	E:	F:
Pool size WxL	UNLIM	UNLIM	UNLIM	UNLIM		
Swoop WxL	—	—	—	—		
Photo? or #	—	—	—	—		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Nyssa aquatica
Taxodium ascendens
Taxodium distichum

Remarks: Low overall insect and wildlife activity during survey.



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# MM-22 Night# 3 Site Name: Bennett's Canoe Site Date: 5/19/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1		No bats Captured										
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: 119 E Research	**County:** Gates	**Site#:** [illegible]	**Night#:** 2	**Site Name:** Coleman Trail		**Date:** 5-21-19			
Latitude:	Longitude:			Datum: NAD 83	Elevation: 12	ID By: K. Cunningham			
Observers: D. DiLandro, T. Hall				Start Time: 2000		End Time: 0100			

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2030	68	1	0	2245	63	0	0	0100	57	0	25

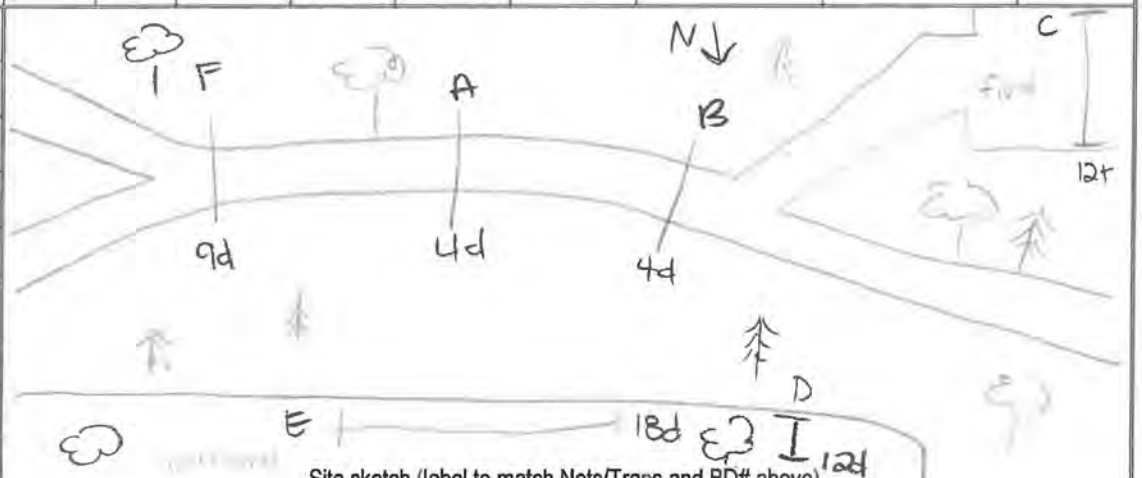
Moon Effect: WAN-Gib	Start: —	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 41
	Stop: —	

NETS/TRAPS:	**A:** 1x2H - 4m	**B:** 1x2H - 4m	**C:** 1x3H - 12m	**D:** 1x2H - 12m	**E:** 1x2H - 18m	**F:** 1x2H - 9m
Pool size WxL	—	—	—	20m x 9m	18m x 10m	—
Swoop WxL	—	—	—	20m x 9m	18m x 10m	—
Photo? or #	✓	✓	✓	✓	✓	✓

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: A. rubrum, Ilex opaca, Liquidambar styraciflua, Liriodendron tulipifera, P. Taeda, Prunus serotina, Q. falcata, Q. laurifolia, Q. nigra, Q. rubra, Sassafras albidum, Ulmus americana

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	0025	MYSE	M	A	NR	35	–	6	A	1.5	1061 / 0	Wing Punch, Hair sample minor scaling on both wings
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-13	**Night#:**	3	**Site Name:**	MM-Bennetts Creek Trail	**Date:**	05/21/2019
Latitude: 36.43121°		Longitude: -76.70074°						Datum: NAD83	Elevation: 6'	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:11		End Time: 01:11	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:11	74°F	0	25	22:41	64°F	1	0	01:11	61	0	0

Moon Effect: WAN-GIB	Start: N/A Stop: N/A	**Land Use:** Urban / Agriculture / Forest (73) / Water / Wetland (61) / Barren *(describe)*:

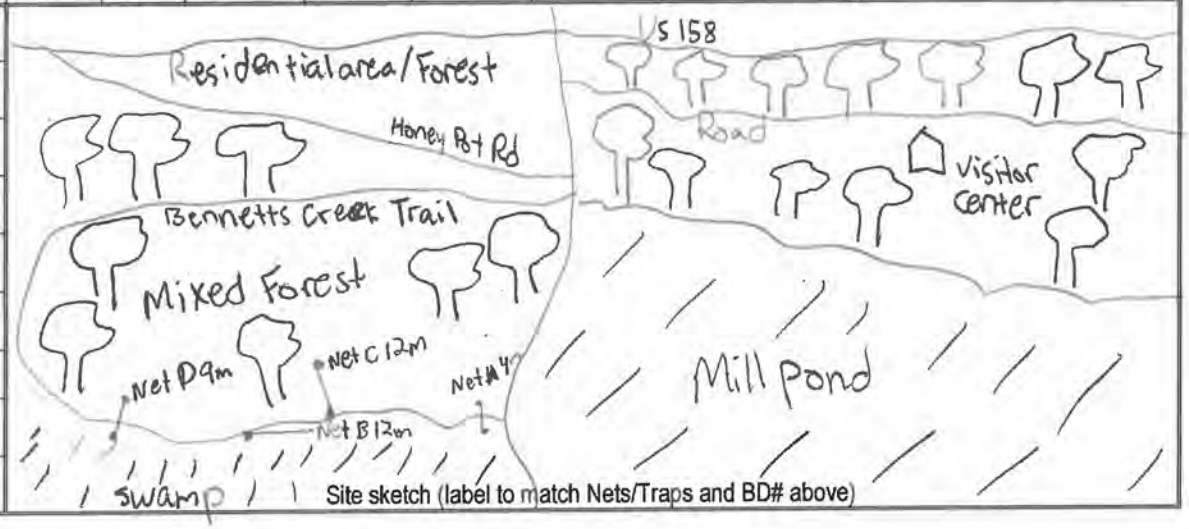
NETS/TRAPS:	A: 1x2H-4m	B: 1x3H-12m	C: 1x2H-12m	D: 1x2H-9m	E:	F:
Pool size WxL	—	UNLIM	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB41	DB42	DB43	DB44		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Taxodium distichum
Nyssa biflora
Nyssa aquatica
Taxodium ascendens
Liquidambar styraciflua

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Project: 2019 Eastern Research County: Gates Site# MM-13 Night# 3 Site Name: MM-Bennett's Creek Trail Date: 05/21/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21:47	CORA	M	A	NR	44		9.5	D	3.5m	1137/0	
2	21:58	LABO	F	A	P	40		15.5	D	2.5m	1136/0	
3	22:11	MYAU	M	A	NR	37	14	7.5	C	3m	1130/0	
4	00:22	LABO	F	A	P	42		17	C	2.5m	1108/0	
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E Research	**County:**	Gates	**Site#:**	MN-B	**Night#:**	1	**Site Name:**	Cottonmouth Culvert	**Date:**	5-22-19
Latitude:		Longitude:						Datum: NAD83	Elevation: 10	ID By: K. Cunningham	
Observers: D. L. Landro, T. Hall								Start Time: 20:10		End Time: 01:10	

Conditions:	Time 2130	Temp 68	Wind 0	Clouds 0	Time 2320	Temp 60	Wind 0	Clouds 0	Time 0100	Temp 58	Wind 0	Clouds 0

Moon Effect: Wan-Gib	Start: —	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 61
	Stop: —	

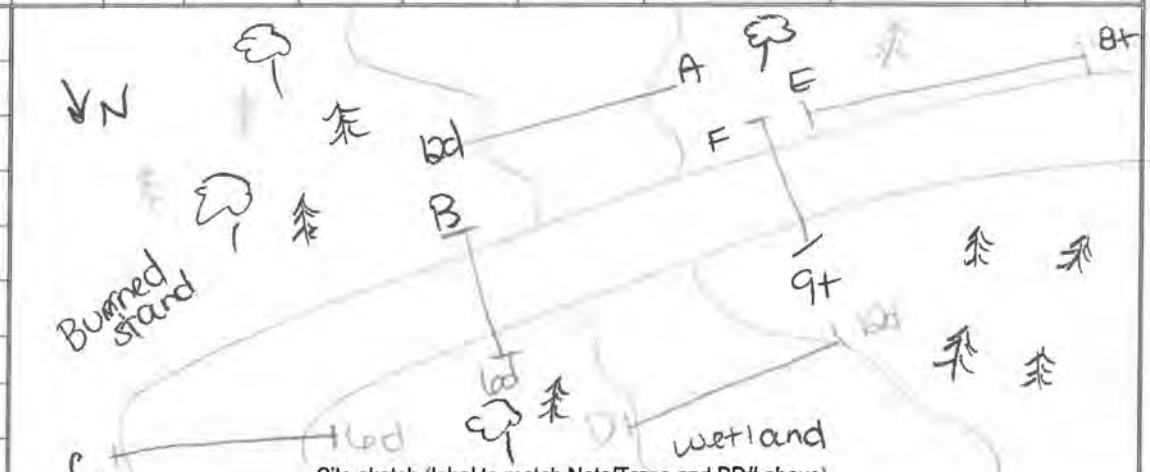
NETS/TRAPS:	**A:** 1x2H-12m	**B:** 1x2H-6m	**C:** 1x2H-6m	**D:** 1x2H 12m	**E:** 1x3H-18m	**F:** 1x3H-9m
Pool size WxL	10m x 10m	—	—	9m x 20m	—	—
Swoop WxL	9m x 9m	—	—	7m x 5m	—	—
Photo? or #	✓	✓	✓	✓	✓	✓

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Acer rubrum, Carya sp, Fagus grandifolia, Ilex opaca, Juniperus virginiana, Liquidambar styraciflua, Liriodendron tulipifera, Morella cerifera, Nyssa aquatica, Pinus palustris

Remarks: P. taeda, Q. nigra, Q. rubra, Sassafras albidum, Taxodium distichum



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2120	LABO	m	A	NR	39.5	–	9.5	C	3.5	1062/0	minimal scurring on R wing
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-03	**Night#:**	1	**Site Name:**	MM-Fire Road 1	**Date:**	05/22/2019
Latitude: 36.447666°		Longitude: -76.68147°						Datum: NAD 83	Elevation: 37'	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:12		End Time: 01:12	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:12	73°F	1	25	22:42	62°F	0	0	01:12	59°F	0	25

Moon Effect:	Start:	Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*:
WAN-GIB	Stop: N/A	43

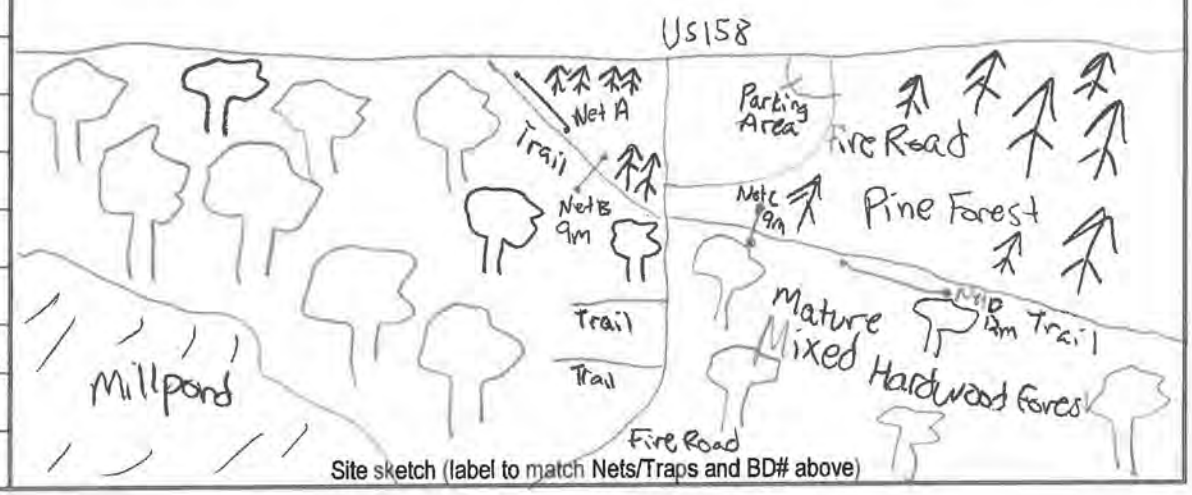
NETS/TRAPS:	**A:** 1x2H-18m	**B:** 1x2H-9m	**C:** 1x2H-9m	**D:** 1x2H-12m	**E:**	**F:**
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB45	DB46	DB47	DB48		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Pinus taeda
Quercus alba
Liquidambar Styraciflua
Quercus falcata
Ilex opaca

Remarks: Site located at hard transition between young loblolly pine stand and mature mixed hardwood stand.



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Project: 2019 Eastern Research County: Gates Site# MM-03 Night# 1 Site Name: MM-Fire Road 1 Date: 05/22/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:36	LABO	F	A	P	41		15	C	3.5	1129/0	
2	20:36	LABO	F	A	P	42		14.5	C	3	1128/0	
3	20:56	MYAU	F	A	L	38	14	7.5	C	3	1127/0	
4	21:00	LABO	F	A	P	42		14	B	2	1125/0	
5	21:40	MYAU	F	A	L	38	13	8	C	2.5	1124/0	
6	22:29	EPFU	M	A	NR	47		15	B	3.5	0794/0	
7	22:50	EPFU	M	A	NR	44		14	B	.25	0795/0	
8	00:43	MYSE	F	A	P	36	17	8.5	B	1.5m	1123/0	150.660 / 006
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	119 E. Research	**County:**	Gates	**Site#:**	MM-03	**Night#:**	2	**Site Name:**	Fire Road 1	**Date:**	6/11/19
Latitude:	36.430550	Longitude:	-76.700910	Datum:	NAD83	Elevation:	6	ID By:	K. Cunningham		
Observers:	D. DiLandro, T. Hall			Start Time:	20:15			End Time:	01:15		

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:30	70°F	0	25%	23:00	60°F	0	0%	01:00	58°F	0	0%

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (*describe*):
Wax-Gib	Stop: —	43

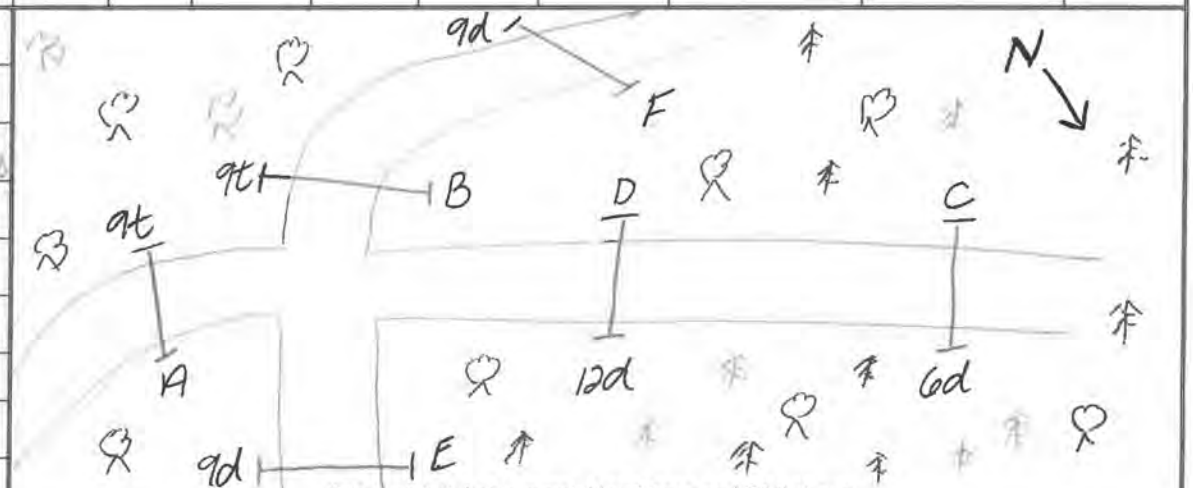
NETS/TRAPS:	A: 1x3H-9m	B: 1x3H-9m	C: 1x2H-6m	D: 1x2H-12m	E: 1x2H-9m	F: 1x2H-9m
Pool size WxL	/	/	/	/	/	/
Swoop WxL	/	/	/	/	/	/
Photo? or #	Y	Y	Y	Y	Y	Y

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Taxodium distichum, Nyssa biflora, N. aquatica, T. ascendens, Liquidambar styraciflua

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2030	LABO	F	A	L	39	–	10.0	D	5.0	1073 / 0	Sues a pretty girl! recap @ 21:15 (Net A) @ 22:00 (Net B) 22:50 (Net F) RECAP 2.15 Net A
2	21:00	CORA	F	A	L	43	–	9.5	E	0.5	1074 / 0	
3	21:00	EPFU	M	A	NR	46	–	15.0	B	5.0	0630 / 0	
4	2125	LABO	M	A	NR	40	–	9.5	D	4.5	1075 / 0	
5	2135	MYAU	F	A	L	36	–	8.0	E	3.0	1076 / 0	Pics
6	2135	MYAU	F	A	L	38	–	8.0	B	6.0	1077 / 0	[illegible]
7	2135	UNKN							A	4.0	—	EFN
8	2145	EPFU	M	A	NR	46	–	16.0	A	3.5	CMYK 0794 / 0	recapture
9	21:45	LABO	F	A	L				F	3.0	—	Escape from Net
10	21:45	LABO							A	6.5	—	Escape from Net
11	22:15	LABO	F	A	L	40	–	13.0	A	4.0	1078 / 0	Pinhole right W. Scrape on Right + L wrist
12	22:15	LABO	M	A	NR	38	–	11.0	C	3.0	1079 / 0	Pinhole in Left wing
13	22:15	LABO	F	A	L	41	–	16.0	B	3.5	1080 / 0	
14	23:25	LABO	F	A	L				A	4.0	—	EFN
15	00:30	LABO	F						A	3.0	—	EFN
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	[illegible]	**Night#:**	1	**Site Name:**	Fire Road Pull-off	**Date:**	06/11/2019
Latitude: 36.435002			Longitude: -76.676271					Datum: NAD 83	Elevation: 31'	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:26		End Time: 01:26	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:26	72°F	0	0	22:56	63°F	1	25	01:26	58°F	0	25

Moon Effect:	Start: 20:26	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wax-Gib	Stop: 00:13	43

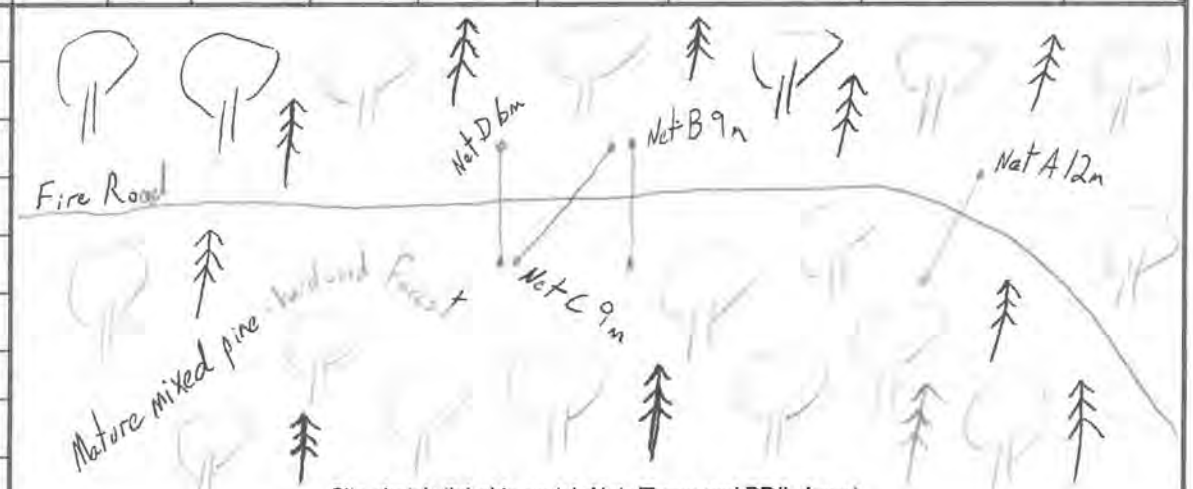
NETS/TRAPS:	A: 1x3H-12m	B: 1x2H-9m	C: 1x2H-9m	D: 1x2H-6m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB108	DB109	DB110	DB111		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Liquidambar styraciflua
Pinus taeda
Acer saccharum
Quercus alba
Ilex opaca

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Project: 2019 Eastern Research County: Gates Site# MM-23 Night# 1 Site Name: Fire Road Pull-off Date: 06/11/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2027	LABO	F	Ad	L	42		10	A	1.5	1122/0	
2	2131	LABO	F	Ad	L	40		12	B	1.5	1121/0	
3	21:15	MYAU	F	Ad	L	37	13	8	B	1.5	1109/0	
4	21:37	MYHU	M	Ad	NR	36		9.5	B	1	1111/0	
5	21:37	MYSE	M	Ad	NR	37	17	7	B	2.5	1110/0	
6	22:03	LABO	M	Ad	NR	41		11	D	4	1112/0	
7	22:08	LABO	M	Ad	TO	41		11	A	1.5	1113/0	
8	22:28	MYSE	M	Ad	NR	36	16	6.5	B	0.5	1114/0	
9	22:32	EPFU	M	Ad	NR	44		15.5	A	2.5	0790/0	
10	22:48	LABO	M	Ad	NR	41		11	D	1.5	1112/0	Recapture
11	22:48	MYAU	F	Ad	P	39	13	9.5	B	1.5	1115/0	
12	22:48	LABO	F	Ad	L	40		10.5	D	1.5	1116/0	
13	23:01	LABO	F	Ad	P	42		15	C	2	1117/0	
14	23:20	EPFU	M	Ad	NR	46		15	A	3.5	0796/0	
15	00:00	CORA	F	Ad	L	43		11	C	1.5	1118/0	
16	00:02	MYSE	F	Ad	L	35	17	7.75	C	1.5	1119/0	150.980
17	00:32	CORA	F	Ad	L	43		10	A	0.5	0800/0	
18	00:29	LABO	F	Ad	L	43		12.5	A	3.5	/0	
19	00:35	LABO	F	Ad	L	42		13	A	3	/0	
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: 19E Research	**County:** Gates	**Site#:** MM-16	**Night#:** 1	**Site Name:** Roundabout Campground 1	**Date:** 6/13/19				
Latitude: 36.443580	Longitude: -76.694649	Datum: NAD83	Elevation: 36	ID By: K. Cunningham					
Observers: D. Dilandro, T. Hall		Start Time: 20:20	End Time: 01:20						

Conditions:	Time 21:00	Temp 72°F	Wind 2	Clouds 100%	Time 23:00	Temp 68°F	Wind 1	Clouds 100%	Time 01:00	Temp 67°F	Wind 0	Clouds 100%

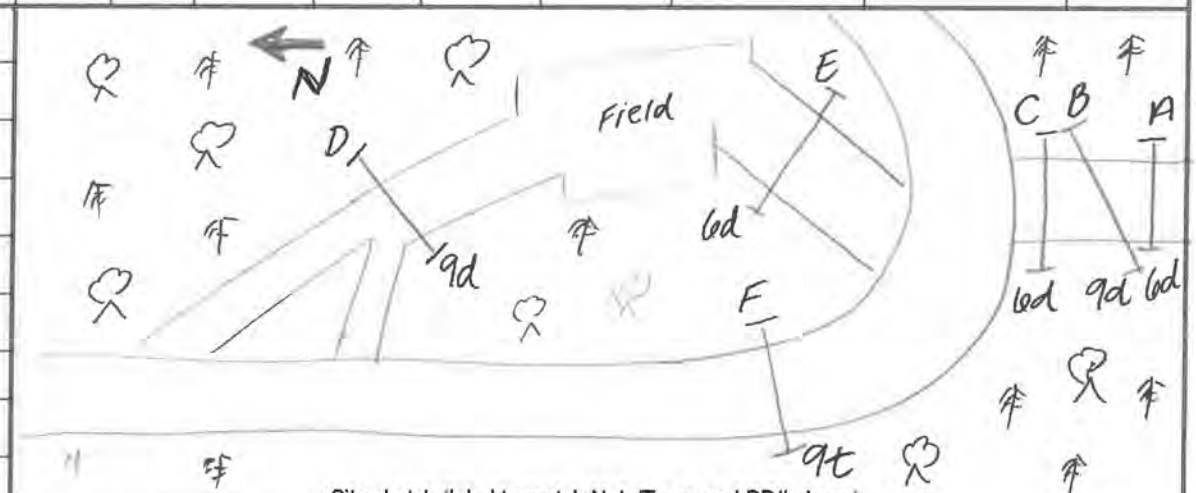
Moon Effect: Wax - Gib	Start:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43
	Stop:	

NETS/TRAPS:	**A:** 1x2H-6m	**B:** 1x2H-9m	**C:** 1x2H-6m	**D:** 1x2H-9m	**E:** 1x2H-6m	**F:** 1x3H-9m
Pool size WxL	/	/	/	/	/	/
Swoop WxL	/	/	/	/	/	/
Photo? or #	Y	Y	Y	Y	Y	Y

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: Q rubra Q alba Liriodendron tulipifera Liquidambar styraciflua Ulex opaca

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:52	PeSu	F	A	L	35	–	6.5	F	6	1081 / 0	bruising on R forearm
2	21:15	CoRa	F	A	L	44	–	12	A	0.5	1082 / 0	
3	21:30	NyHu	M	A	NR	34	–	8.5	F	6	1083 / 0	Pinhole LW
4	22:15	MyAu	F	A	L	38	–	8.0	C	1.5	1084 / 0	mites Photos
5	23.10	MyAu	M	A	NR	36	–	8.5	C	1.5	Calyx 1150 / 0	Scar on RW Photos Recapture
6	01:00	CoRa	F	A	L	42	–	12.0	A	.5	1085 / 0	
7	01:10	Lobo	F	A	L	–	–	–	–	5.5	–	EFN
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Resource	**County:**	Gates	**Site#:**	MM-24	**Night#:**	1	**Site Name:**	Middle Fire Road	**Date:**	06/14/2019
Latitude: 36.440982°		**Longitude:** -76.679281°						Datum: NAD83	Elevation: 18'	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:27		End Time: 01:27	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:27	71°F	0	0	22:57	59°F	0	0	01:27	54°F	0	0

Moon Effect: Wax-Gib	Start: 21:48 Stop: 01:27	**Land Use:** Urban / Agriculture / (Forest) Water / Wetland / Barren *(describe)*: 43

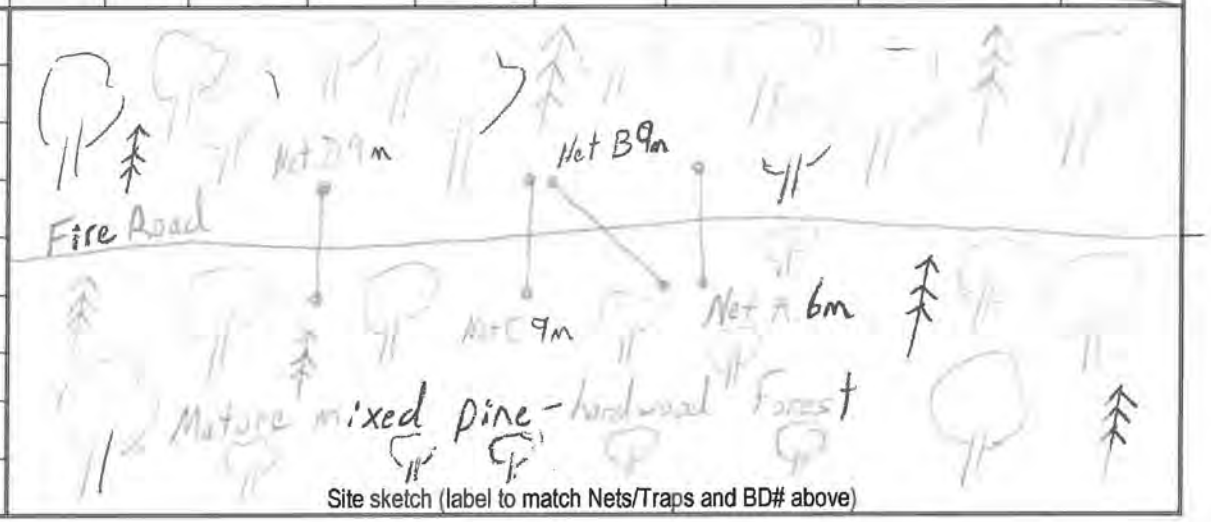
NETS/TRAPS:	A: 1x2H-6m	B: 1x2H-9m	C: 1x2H-9m	D: 1x2H-9m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB115	DB116	DB117	DB118		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Pinus taeda
Liquidambar styraciflua
Quercus alba
Fagus grandifolia
Ilex opaca

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Project: 2019 Eastern Research County: Gates Site# MM-24 Night# 1 Site Name: Middle Fire Road Date: 06/14/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:42	LABO	F	Ad	L	43		12.5	D	2	1241/0	
2	20:42	LABO	M	Ad	TD	41		11	D	2.5	1240/0	
3	21:15	MYAU	F	Ad	L	37	12	7	A	2.5	1239/0	
4	21:30	LABO	F	Ad	L	43		12	C	2	1238/0	
5	21:30	EPFU	M	Ad	NR	46		15	C	2.5	0796/0	Recapture
6	21:50	LABO	F	Ad	L	40		12	A	3	1121/0	Recapture
7	21:50	EPFU	M	Ad	NR	47	1	16	D	2.5	0797/0	
8	22:28	LABO	F	Ad	L	43		12	A	2.5	1238/0	Recapture
9	23:20	LABO	F	Ad	P	42		15	C	0.5	1242/0	
10	00:25	MYSE	F	Ad	L	36	17	7	B	2	1237/0	150.701
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E. Research	**County:**	Gates	**Site#:**	MM-25	**Night#:**	1	**Site Name:**	660 Roost Tree	**Date:**	6/16/19
Latitude: 36.438399		Longitude: -76.668702						Datum: NAD83	Elevation: 0'	ID By: H. Wallace	
Observers: K. Cunningham, D. DiLandro, J. Anderson, M. DeS Champs								Start Time: 20:30		End Time: 2300	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	21:00	82	0	0	2200	82	0	0	2330	79	0	0

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wax-Gib	Stop: —	4 / 60

NETS/TRAPS:	A: 1x5H-4m	B: 1x5H-4m	C:	D:	E:	F:
Pool size WxL	—	—				
Swoop WxL		—				
Photo? or #	Y	Y				

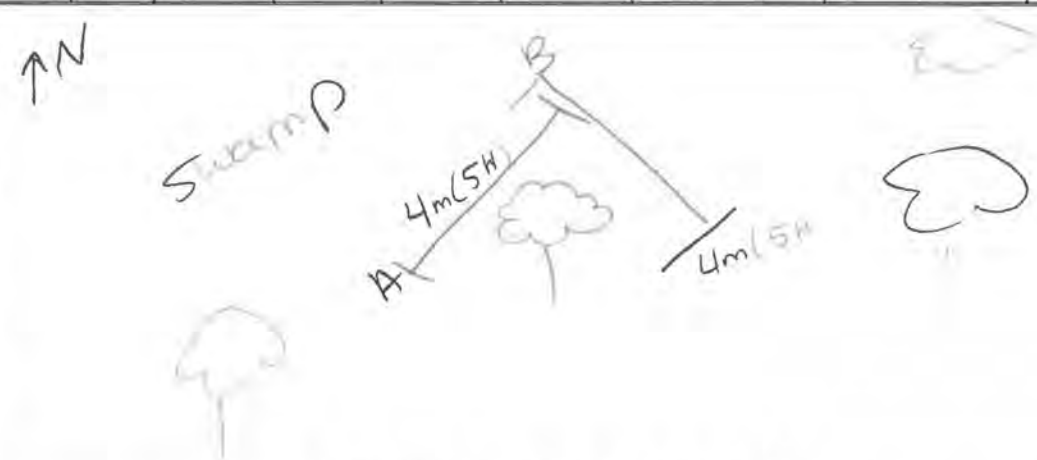
BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Taxodium disticum, Nyssa aquatica

Remarks:

"5H" have only 2 nets each



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21:50	NYHU	F	A	L	36	—	12	A	11.5	CALYX/1086	0 / N/A
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E. Research	**County:**	Gates	**Site#:**	MM-19	**Night#:**	3	**Site Name:**	Boat Ramp MM-19	**Date:**	6/17/19
Latitude:	36.431001	**Longitude:**	-76.697184					Datum: NAD 83	Elevation: 12'	ID By:	K. Cunningham
Observers:	D. Scandro							Start Time:	2015	End Time:	0

Conditions:	Time 2100	Temp 75	Wind 0	Clouds 50	Time 2300	Temp 75	Wind 0	Clouds 25	Time 0100	Temp 70	Wind 0	Clouds 0

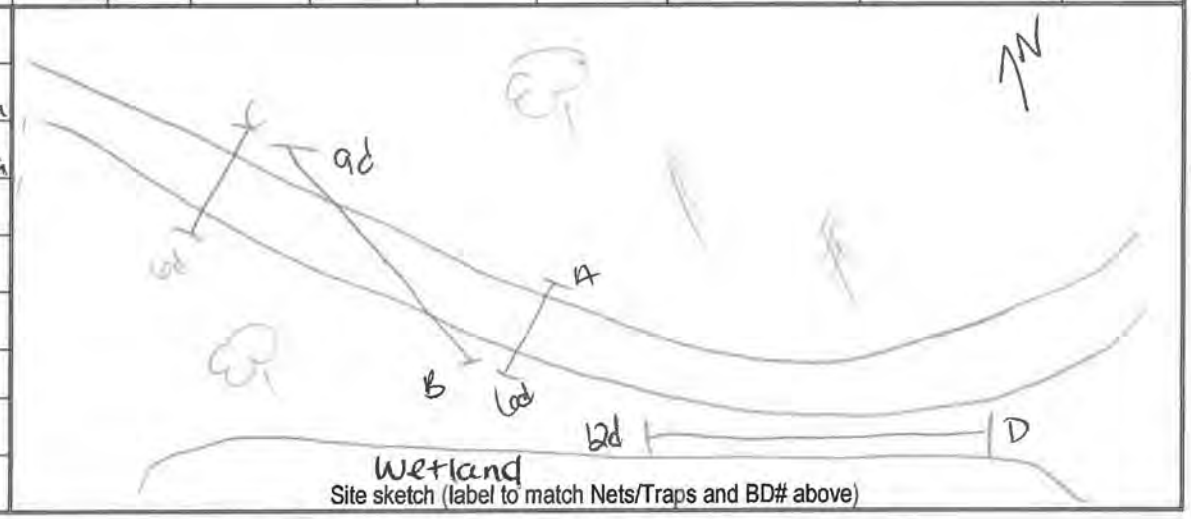
Moon Effect: Full	Start: —	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
	Stop: —	L2

NETS/TRAPS:	**A:**	**B:**	**C:**	**D:**	**E:**	**F:**
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	✓	✓	✓	✓		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: Quercus nigra, Q. rubra, Liquidambar styraciflua, Ilex opaca, Q. michauxii, Aria spinosa, P. taeda, A. rubrum, Prunus serotina, Liriodendron tulipifera

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2145	MYSE	M	A	TD	36	—	6.5	D	4.5	1087/0	mites all over body Photos + Samples Foot: 8
2	2305	MYSE	m	A	NR	35	—	6.0	C	1.5	1088/0	Foot: 9
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-23	**Night#:**	2	**Site Name:**	Fire Rd Pull off	**Date:**	06/24/2019
Latitude: 36.435002		Longitude: -76.676271						Datum: NAD83	Elevation: 31'	ID By: Dylan Brooks	
Observers: Jake Anderson, Ed Corey								Start Time: 20:29		End Time: 01:29	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:29	78	0	0	22:59	72	0	0	01:29	69°F	0	0

Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wan-Gib	N/A	N/A	43

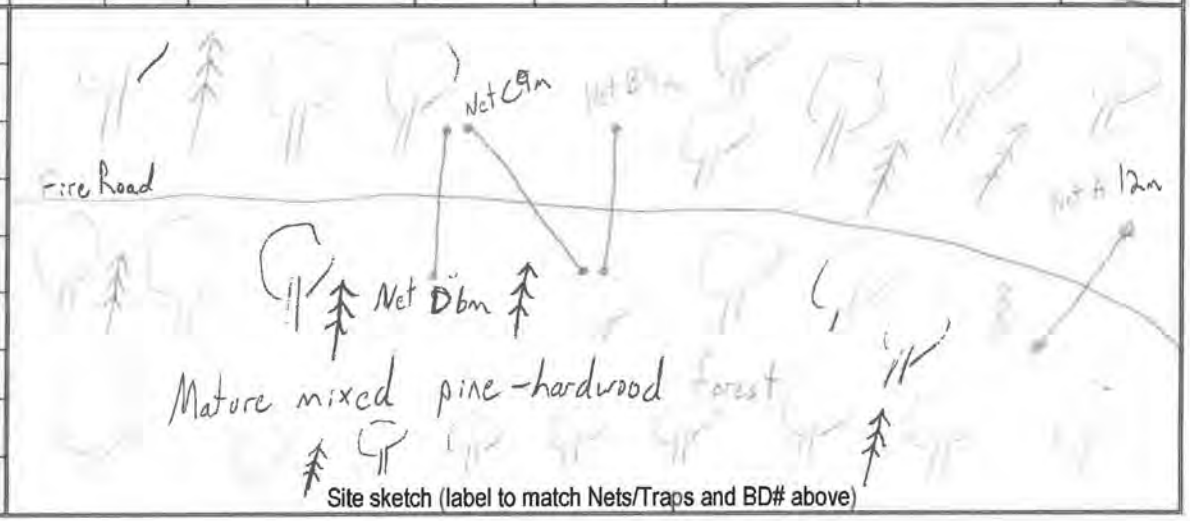
NETS/TRAPS:	A: 1x3H-12m	B: 1x2H-9m	C: 1x2H-9m	D: 1x2H-6m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB888	DB887	DB886	DB885		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Pinus taeda
Fagus grandifolia
Liquidambar styraciflua
Ilex opaca
Quercus alba

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Project: 2019 Eastern Research County: Gates Site# MM-23 Night# 2 Site Name: Fire Road Pulloff Date: 06/24/19

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:30	PESU	F	AD	L	33	13	5.5g	C	2.5m	1201/0	
2	21:02	CORA	M	AD	SC	42		9g	C	1.5m	1202/0	
3	23:20	LABO	M	AD	NR	39		13.5g	D	1.5m	1203/0	
4	23:20	CORA	F	AD	L	43		12g	B	2.5m	1204/0	
5	00:10	LABO	F	AD	L	42		15g	B	1.5m	1117/0	Recapture
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E-Research	**County:**	Gates	**Site#:**	MM-25	**Night#:**	2	**Site Name:**	Visitor's Center	**Date:**	6/25/19
Latitude: 36.436064			Longitude: -76.699507					Datum: NAD83	Elevation: 27	ID By: K. Cunningham	
Observers: D. DiLandro								Start Time: 20:30		End Time: 01:30	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2100	81	0	0	2300	78	0	0	0100	75	0	0

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Last Q	Stop:	Mixed

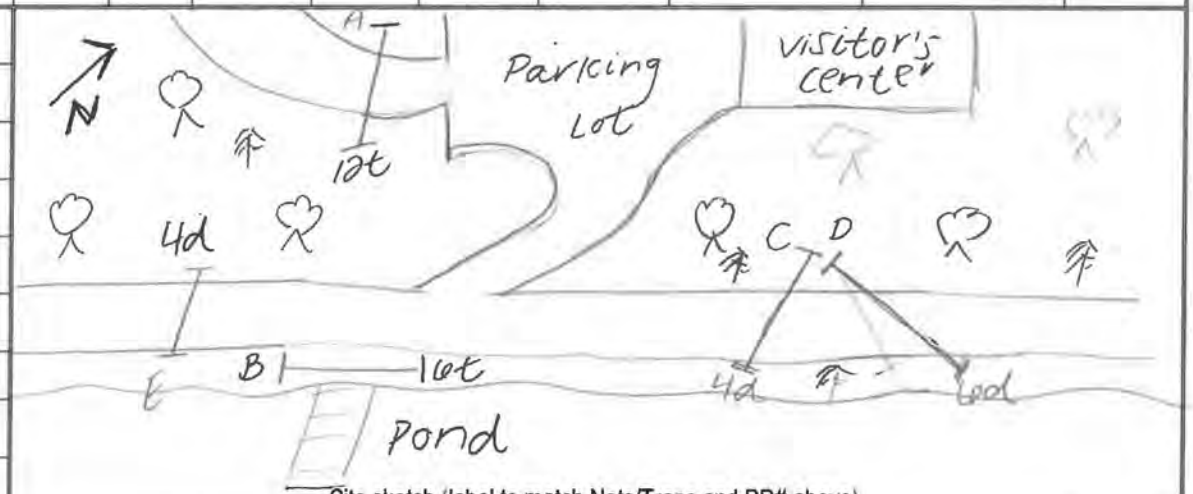
NETS/TRAPS:	A: 1x3H-12m	B: 1x3H-6m	C: 1x2H-4m	D: 1x2H-6m	E: 1x2H-4m	F:
Pool size WxL	/	/	/	/	/	
Swoop WxL	/	/	/	/	/	
Photo? or #	Y	Y	Y	Y	Y	

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: Q. nigra, Q. rubra, Liriodendron tulipifera, Liquidambar styraciflua, Ilex opaca, Q. alba

Remarks:

Bats flying - 01:15 at Net B + E



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	0130	NYHU	M	A	NR	37	—	10	B	6.0/0	1089	
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-2	**Night#:**	3	**Site Name:**	MM-Lassiter Trail cypress Pond	**Date:**	6-25-19
Latitude: 36.43685°		Longitude: -76.69296°						Datum: NAD83	Elevation: 12'	ID By:	
Observers: Jake Anderson								Start Time: 20:28		End Time: 01:28	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:28	80	0	25	22:58	75	0	0	01:28	73	0	0

Moon Effect: LAST QTR	Start: NA Stop: NA	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 / 62

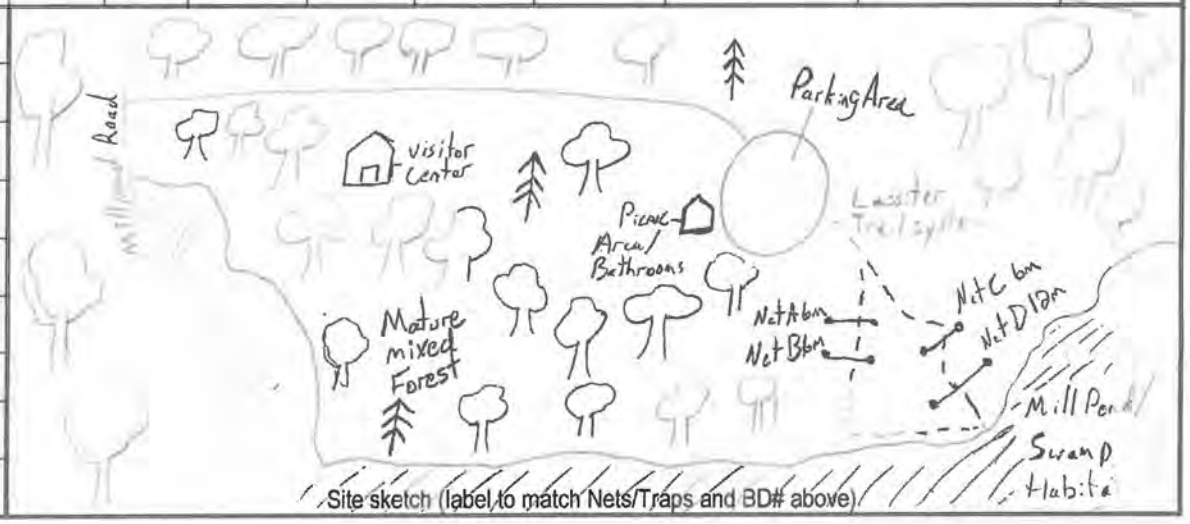
NETS/TRAPS:	**A:** 1x2H-6m	**B:** 1x2H-6m	**C:** 1x2H-6m	**D:** 1x2H-12m	**E:**	**F:**
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB346	DB347	DB348	DB349		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Fagus grandifolia
Acer saccharum
Taxodium ascendens
Ilex opaca
Liquidambar styraciflua

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Project: 2019 Eastern Research County: Gates Site# MM-2 Night# 4 Site Name: MM-Lassiter Trail Cypress Pond Date: 06/25/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21:41	MYSE	M	JV	NR	38	18	6.5g	D	4m	1122/0	
2	23:06	MYSE	F	JV	NR	37	17	8g	A	1m	1221/0	
3	23:30	PeSU	M	Ad	NR	32		7g	D	4m	1222/0	
4	23:30	MYAU	F	Ad	L	39	14	9g	D	3m	1223/0	
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E. Research	**County:**	Gates	**Site#:**	26	**Night#:**	1	**Site Name:**	Roundabout Campground Shed	**Date:**	6/26/19
Latitude:	36.448293	**Longitude:**	-76.694944	**Datum:**	NAD83	**Elevation:**	321	**ID By:**	K. Cunningham		
Observers:	D. Dilandro			**Start Time:**	20:30			**End Time:**	01:30		

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	21:30	73°F	0	0%	23:30	71°F	0	75%	01:15	70°F	0	75%

Moon Effect: Wan-Cres	**Start:** / **Stop:** /	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Mixed

NETS/TRAPS:	A: 1x3H-9m	B: 1x3H-18m	C: 1x3H-12m	D: 1x3H-9m	E: 1x2H-4m	F: 1x3H-9m
Pool size WxL	/	/	/	/	/	/
Swoop WxL	/	/	/	/	/	/
Photo? or #	Y	Y	Y	Y	Y	Y

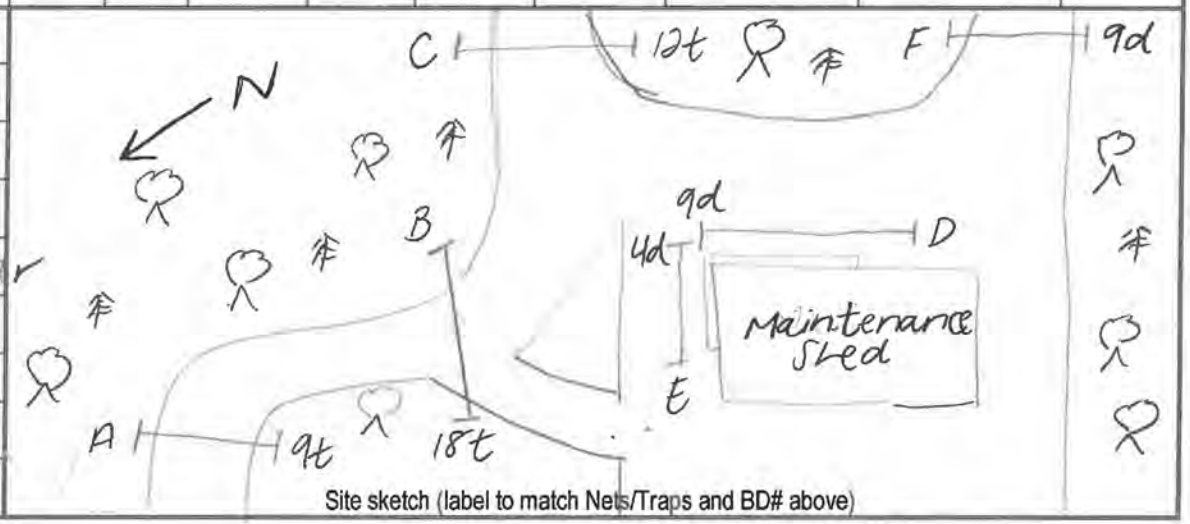
BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Acer rubrum, Acer sacharinum, Fagus grandifolia, Prunus serotina, Ilex opaca, Quercus alba, Quercus nigra, Liriodendron tulipifera, Liquidambar Styraciflua, Oxydendrum arboreum, Pinus taeda

Remarks:

Nets D+E along Maintenance Shed porch - Evidence (guano) that bats are using porch



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21:10	EPFU	M	A	NR	44	/	14	B	5.0	0633/0	Recapture: 22:15 (F-lom)
2	21:45	LABO	—	—	—	—	—	—	C	4.0	—	EFN
3	22:15	UNFN	—	—	—	—	—	—	F	5.5	—	EFN
4	23:15	NYHU	M	A	NR	34	/	8.5	C	6.0	1090/0	
5	00:15	EPFU	F	J	NR	44	/	11	C	6.0	0634/0	
6	00:15	EPFU	F	A	L	46	/	18	C	4.0	0635/0	
7												
8												
9												
10												
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12												
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17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Easton Research	**County:**	Gates	**Site#:**	MN-27	**Night#:**	1	**Site Name:**	Family Camp Trail	**Date:**	06-26-19
Latitude:	36.43932	Longitude:	-76.69303					Datum: NAD 83	Elevation: 12'	ID By:	Dylan Brooks
Observers:	Jake Anderson							Start Time:	20:29	End Time:	01:29

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:29	78°	0	.25	22:59	72°	0	0	01:29	70°	0	0

Moon Effect: WAN-CRES	Start: NA Stop: NA	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43

NETS/TRAPS:	A: 1x 2½-9m	B: 1x 2½-6m	C: 1x 2½-9m	D: 1x 2½-12m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL		—	—	—		
Photo? or #	DB441	DB442	DB443	DB444		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Fagus grandifolia

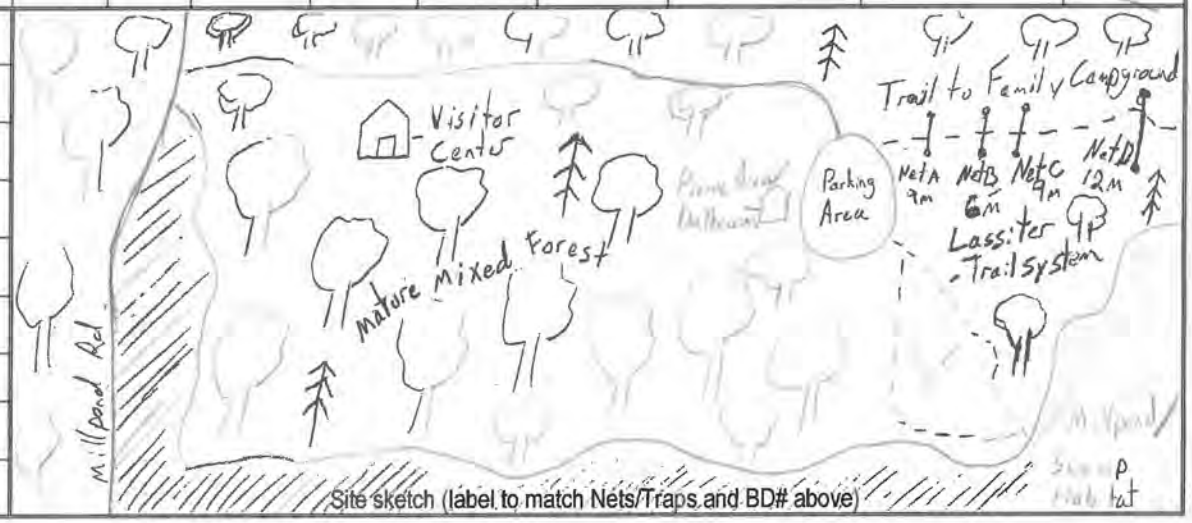
Ilex opaca

Liquidambar styraciflua

Pinus taeda

Sassafras sassafras

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# NM-27 Night# 1 Site Name: Family Camp Trail Date: 06/26/19

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	22:40	MYAU	F	Ad	NR	38	13	8g	D	3m	1220/0	
2	23:11	MYAU	M	Jv	NR	36	15	6.5g	C	2.5m	1219/0	
3												
4												
5												
6												
7												
8												
9												
10												
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18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E. Research	**County:**	Gates	**Site#:**	MM-10	**Night#:**	1	**Site Name:**	Fire Road Boardwalk	**Date:**	6/27/19
Latitude: 36.427105			Longitude: -76.683198					Datum: NAD83	Elevation: 12'	ID By: E. Cunningham	
Observers: D. DiLandro								Start Time: 20:30		End Time: 01:30	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	21:00	83°F	0	0%	23:30	71°F	0	0%	01:00	73°F	0	0%

Moon Effect: wan-cres	Start: /	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Mixed Forested
	Stop: /	

NETS/TRAPS:	A: 1×2H-6m	B: 1×3H-18m	C: 1×3H-12m	D: 1×2H-4m	E:	F:
Pool size WxL	/	/	/	/		
Swoop WxL	/	/	/	/		
Photo? or #	Y	Y	Y	Y		

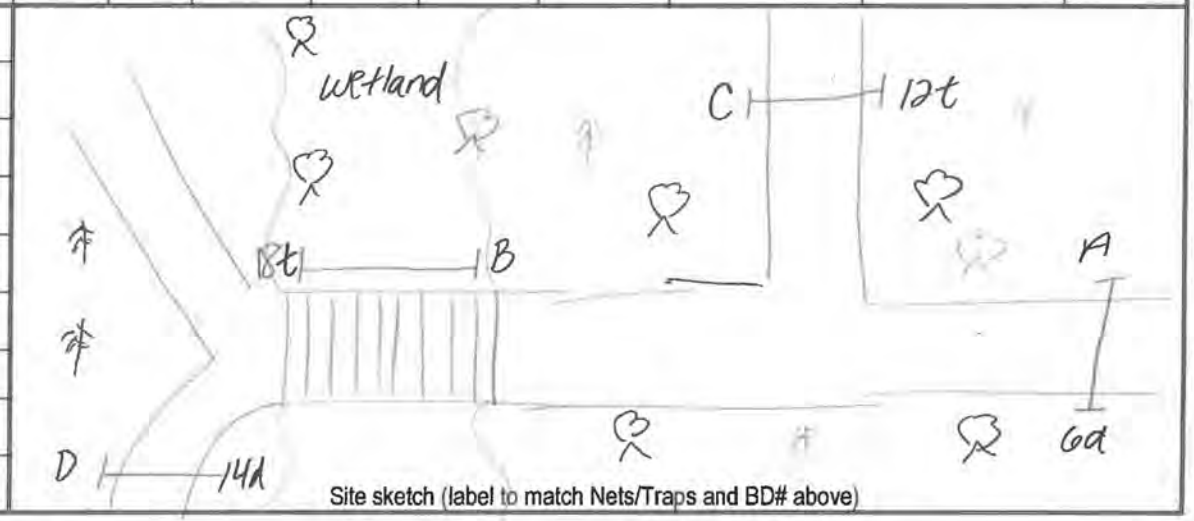
BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Liquidambar styraciflua, Ilex opaca, Pinus taeda, Fagus grandifolia, Taxodium distichum, Acer rubrum, Liriodendron tulipifera, Sassafras albidum, Quercus nigra, Carpinus caroliniana

Remarks:

Net B has only top 2 nets - Right alongside boardwalk so bottom net wasn't needed



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2300	EPFU	M	A	NR	46	—	18.5	C	1.5	0636/0	2 pin holes in ⓓ wing minimal scarring on both wing
2	0000	NYHU	M	J	NR	36	—	7.5	B	6.5	1091/0	Mites All over
3	0000	EPFU	F	A	L	46	—	18.5	C	3.5	0637/0	
4												
5												
6												
7												
8												
9												
10												
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18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: 2019 Eastern Research	**County:** Gates	**Site#:** MM-03	**Night#:** 3	**Site Name:** MM-Fire Road 1		**Date:** 6-27-19			
Latitude: 36.44766°	Longitude: -76.68147°			Datum: NAD83	Elevation: 15'	ID By: Dylan Brooks			
Observers: Jake Anderson				Start Time: 20:29		End Time: 01:29			

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:29	8[illegible]	[illegible]	0	22:59	74°	[illegible]	0	01:29	71	0	25

Moon Effect: WAN-CRES	Start: NA Stop: NA	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43

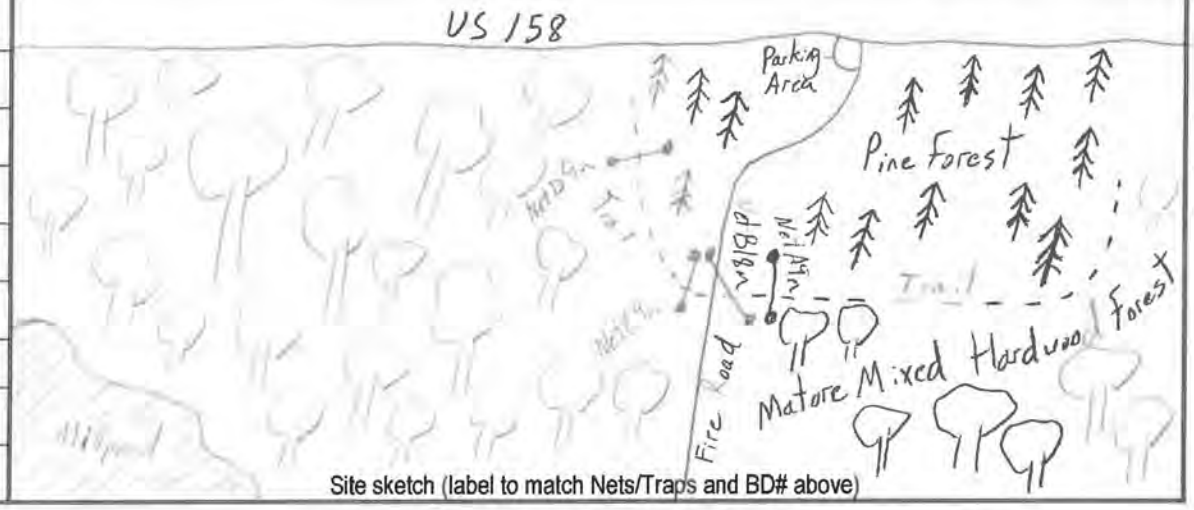
NETS/TRAPS:	**A:** 1x2H-9m	**B:** 1x2H-18m	**C:** 1x2H-9m	**D:** 1x2H-9m	**E:**	**F:**
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB552	DB553	DB554	DB555		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

[illegible] tuda
Quercus alba
Liquidambar styraciflua
Quercus falcata
Ilex opaca

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# MM-03 Night# 3 Site Name: MM - Fire Road 1 Date: 6-27-19

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21:49	MYSE	F	Ad	L	37	19	7.5g	A	2.5m	1218/0	150.939
2	00:01	MYAU	F	Ad	L	38	14	7.5g	A	3m	1217/0	
3	00:50	LABO	M	Ad	NR	38		11g	B	1.5m	1224/0	
4	00:50	LABO	F	Jv	NR	37		8g	B	1.5m	1225/0	
5	01:29	LABO	F	A	L	39		10g	B	3.5m	1073/0	Recapture
6												
7												
8												
9												
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11												
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14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-24	**Night#:**	2	**Site Name:**	Middle Fire Road	**Date:**	6-29-19
Latitude:	36.440982°	Longitude:	-76.679281°					Datum: NAD83	Elevation: 18'	ID By:	Dylan Brooks
Observers:	Jake Anderson							Start Time:	20:29	End Time:	01:29

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:29	82°	0	0	22:59	77°	1	0	0:29	75°	0	25

Moon Effect: WAN-CRES	Start: NA Stop: NA	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43	

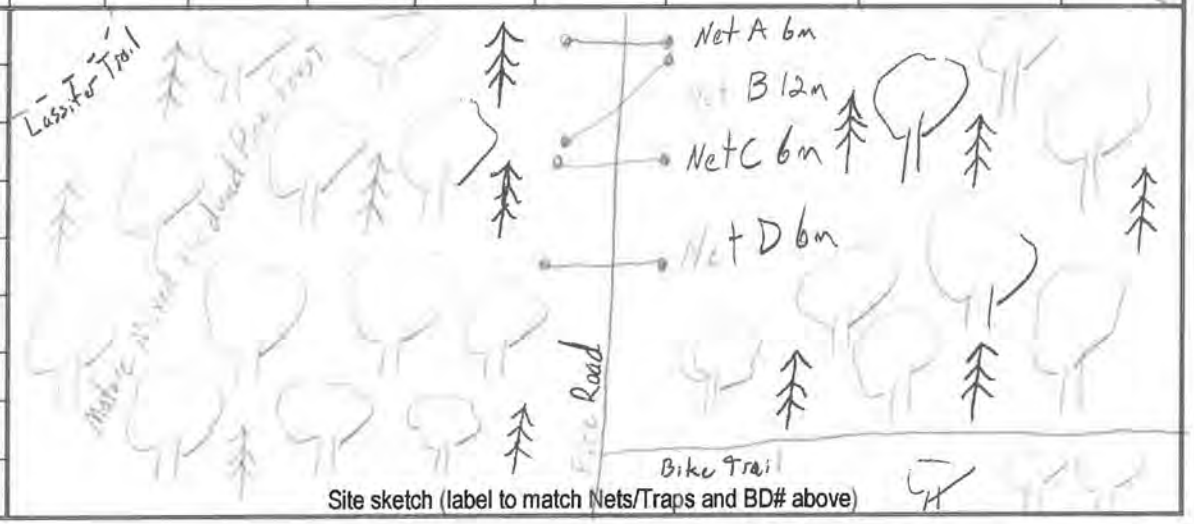
NETS/TRAPS:	**A:** 1x2H-12m	**B:** 1x2H-12m	**C:** 1x2H-6m	**D:** 1x2H-6m	**E:**	**F:**
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB643	DB644	DB645	DB646		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Pinus taeda
Liquidambar styraciflua
Quercus alba
Ilex opaca
Fagus grandifolia

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# MN-24 Night# 2 Site Name: Middle Fire Road Date: 6-29-19

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	22:05	EPFU	M	A	NR	46		16 g	D	3m	0770/0	
2	22:05	EPFU	M	A	NR	46		16.5g	C	2.5m	0754/0	
3	00:40	LABO	F	A	L	43		14g	A	2.5m	1216/0	very cute
4	01:20	EPFU	M	A	NR	44		15.5	A	3m	0790/0	recapture
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	419 E. Research	**County:**	Gates	**Site#:**	mm-28	**Night#:**	1	**Site Name:**	701 Roost Tree	**Date:**	7/1/2019
Latitude: 36.434780		Longitude: -76.670490						Datum: NAD 83	Elevation: 2'	ID By: K. Cunningham	
Observers: D. DiLandro, M. Des Champs, E. Corey								Start Time: 2000		End Time: 0000	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2045	77	0	0	2100	72	0	0	0000	68	0	0

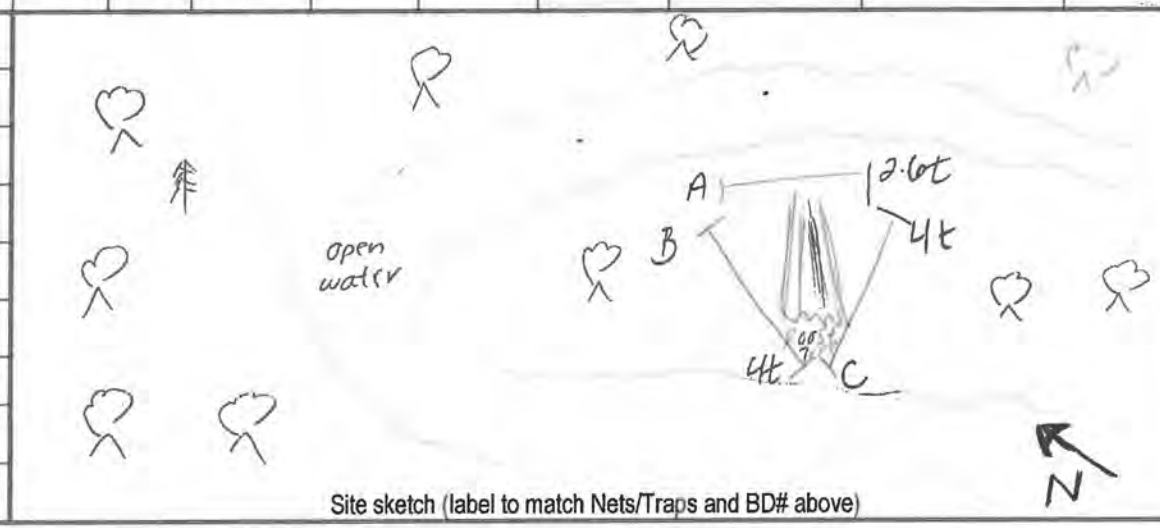
Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wan. Cres.	Stop:	

NETS/TRAPS:	A: 1×3m-8.6	B: 1×3m×4m	C: 1×3m×4m	D:	E:	F:
Pool size WxL	—	—	—			
Swoop WxL	—	—	—			
Photo? or #	✓	✓	✓			

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: Nyssa aquatica, A. rubrum, Pinus taeda, Taxodium distichum,

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	22:41	PESU	F	A	L	35	—	7	C	4	CALYX 1092	minimal scarring left wing bruising left ear
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E. Research	**County:**	Gates	**Site#:**	NM-2	**Night#:**	3	**Site Name:**	Group Campground Trails	**Date:**	7/2/19
Latitude: 36.424618		Longitude: -76.703301						Datum: NAD 83	Elevation: 30'	ID By: K. Cunningham	
Observers: D. DiLandro								Start Time: 20:20		End Time: 01:20	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2100	86	0	0	2300	84	0	0	2300	80	0	0

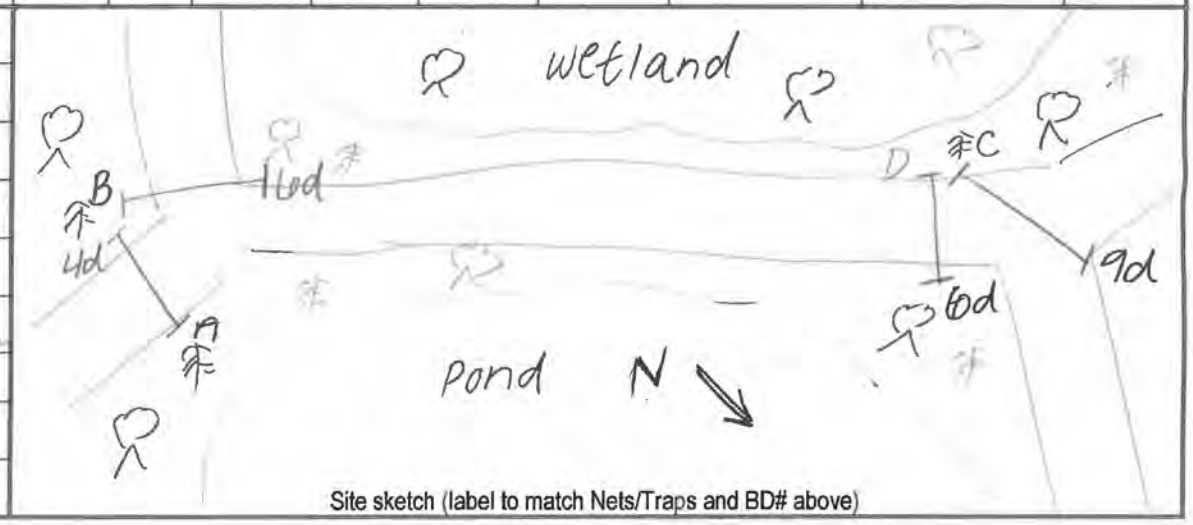
Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
New	Stop: —	

NETS/TRAPS:	A: 1x2H-4m	B: 1x2H-6m	C: 1x2H-9m	D: 1x2H-6m	E:	F:
Pool size WxL	/	/	/	/		
Swoop WxL	/	/	/	/		
Photo? or #	Y	Y	Y	Y		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: Q. alba, Q. rubra Q. nigra Fagus grandifolia Liriodendron tulipifera Ilex opaca, Carpinus caroliniana, Fraxinus americana, Carya sp., Oxydendron arboreum Liquidambar styraciflua P. taeda, Nyssa aquatica

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2200	NYHU	M	A	TD	35	–	10.5	D5	1.5	1093/0	
2	2210	NYHU	F	J	NR	36	–	8.0	D1	5.0	1094/0	
3	2245	LABO	F	A	L	41	–	13	D	1.0	1095/0	small scrape on both wrists, 1 small [illegible]
4	0020	MYSE	M	A	NR	35	–	6	A	4.0	1096/0	
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	119.E.Research	**County:**	Gates	**Site#:**	MM-06	**Night#:**	1	**Site Name:**	Five Rd Bike intersection	**Date:**	7/3/19
Latitude: 36.440690		Longitude: -76.680400						Datum: NAD83	Elevation: 78'	ID By: K. Cunningham	
Observers: D. Dilandro								Start Time: 20:20		End Time: 01:20	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2100	83	1	25	2300	81	0	25	0100	79	0	0

Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wax-Cres	/	/	Mixed

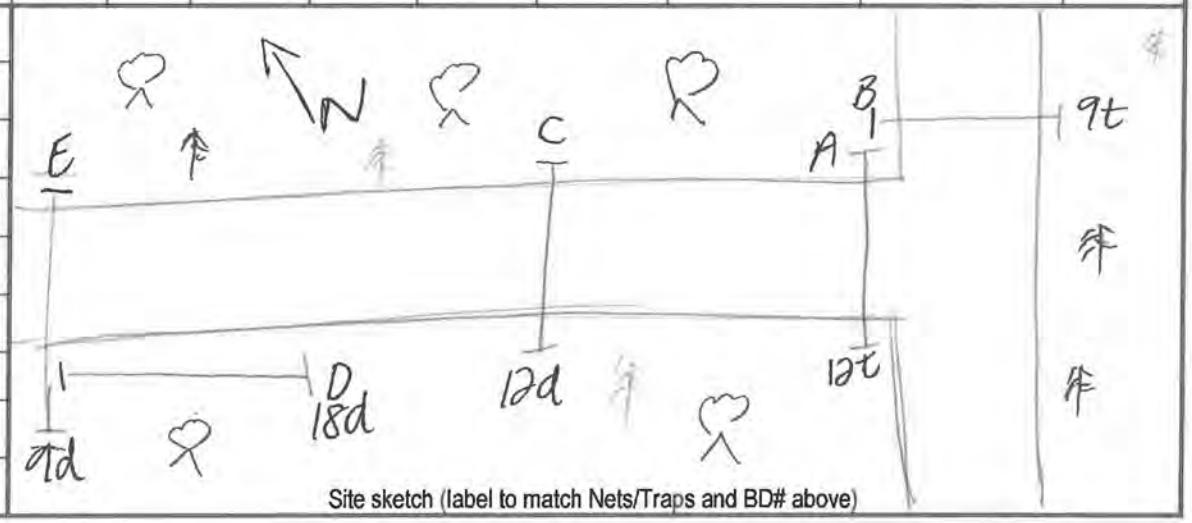
NETS/TRAPS:	A: 1x3H-12m	B: 1x3H-9m	C: 1x2H-12m	D: 1x2H-18m	E: 1x2H-9m	F:
Pool size WxL	/	/	/	/	/	
Swoop WxL	/	/	/	/	/	
Photo? or #	Y	Y	Y	Y	Y	

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Pinus taeda, Liquidambar styraciflua, Acer rubrum, Quercus alba

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4					NO BATS							
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM29	**Night#:**	1	**Site Name:**	Byrd Property - 1	**Date:**	07/03/19
Latitude: 36.4489840°		Longitude: -76.665321°						Datum: NAD 83	Elevation: 37'	ID By: Dylan Brook	
Observers: Jake Anderson								Start Time: 20:28		End Time: 01:28	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:28	84°F	0	50	22:58	77°F	0	25	01:28	72°F	0	25

Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
NEW MOON	N/A	N/A	43 62

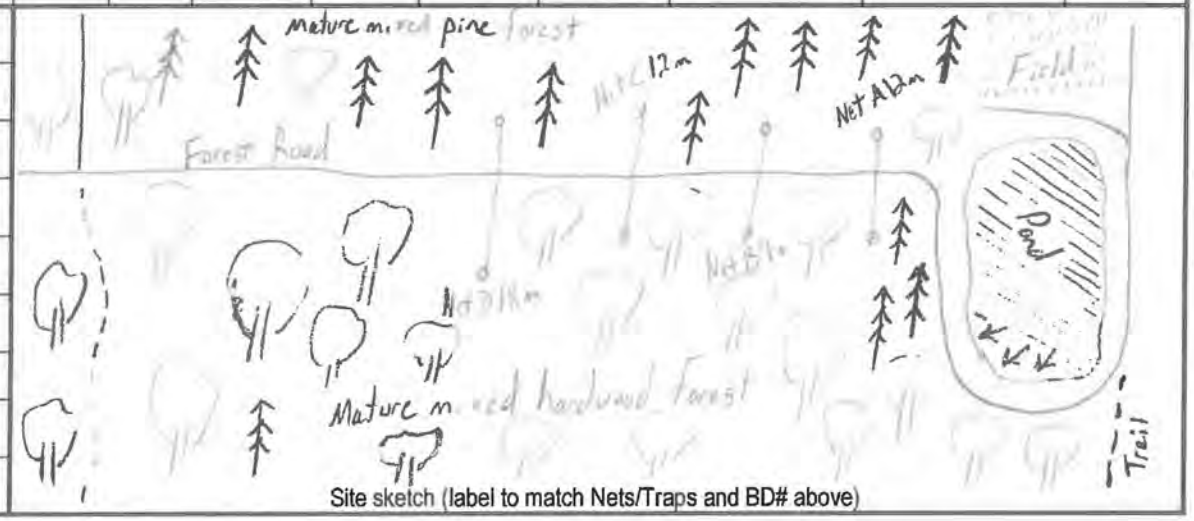
NETS/TRAPS:	A:	B:	C:	D:	E:	F:
	1x2H-12m	1x2H-9m	1x2H-12m	1x2H-18m		
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB 240	DB 241	DB 242	DB 243		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Liquidambar styraciflua
Pinus elliotti
Quercus nigra
Platanus occidentalis
Fagus grandifolia

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Project: 2019 Eastern Research County: Gates Site# MM-29 Night# 1 Site Name: Byrd Property - 1 Date: 07-03-19

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21.32	LABO	F	A	L	41		10	A	2m	1211/0	
2	23.15	LABO	F	Jv	NR	39		8	C	2.5m	1247/0	
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E Research	**County:**	Gates	**Site#:**	MM-19	**Night#:**	4	**Site Name:**	Boat Ramp	**Date:**	7/5/19
Latitude: 36.431001				Longitude: -76.697484				Datum: NAD83	Elevation: 12	ID By: E. Cunningham	
Observers: D. Dilandro								Start Time: 21:30		End Time: 01:30	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	21:00	78°	0	0%	23:30	75°	0	0	01:15	74°	0	25%

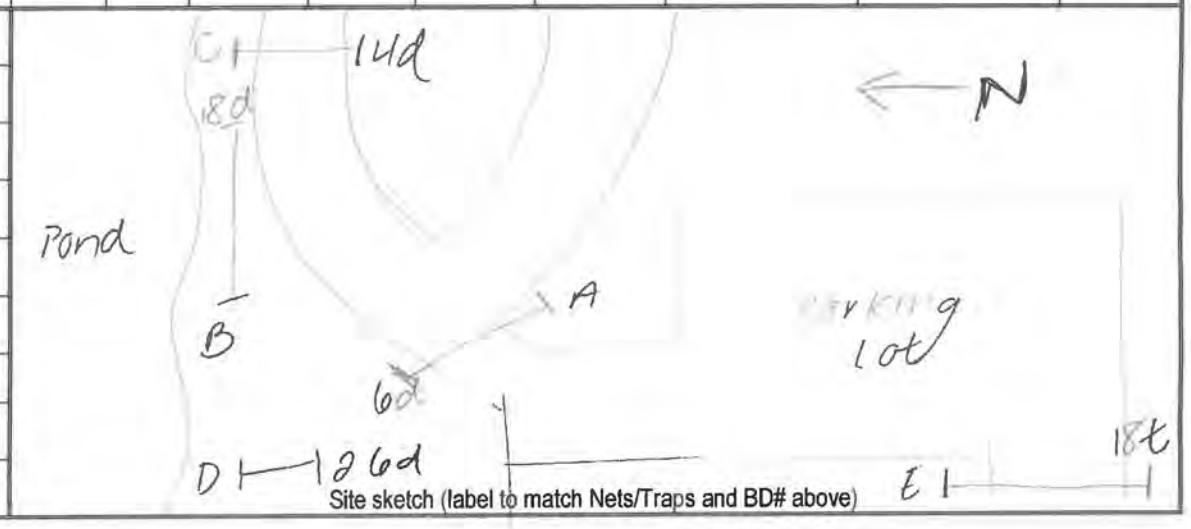
Moon Effect: Wax-Cres	Start:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 62
	Stop:	

NETS/TRAPS:	**A:** 1x24-6m	**B:** 1x24-18m	**C:** 1x24-4m	**D:** 1x24-26m	**E:** 1x24-12m	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #	Y	Y	Y	Y	Y	

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: Q. nigra, Q. rubra, Liquidambar styraciflua, Ilex opaca, Q. michauxii, Aria spinosa, Pinus taeda, A. rubrum, Prunus serotina, Liriodendron tulipifera

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2140	NYHU	M	A	TD	36	-	10	B	5.0	1097/0	
2	2150	NYHU	M	J	NR	34	-	7	E	6.5	1098/0	
3	2150	NYHU	M	J	NR	34	-	8	E	3.5	1099/0	
4	0130	NYHU	M	A	NR	34	-	8.5	E	4.0	1100/0	
5												
6												
7												
8												
9												
10												
11												
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18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-28	**Night#:**	2	**Site Name:**	Bird Property-2	**Date:**	07/05/2019
Latitude: 36.448984°		Longitude: -76.665321°						Datum: NAD83	Elevation: 37'	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:28		End Time: 01:28	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:28	80°F	0	25	22:58	75°F	0	0	01:28	73°F	0	0

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wax-Cres	Stop: N/A	43 53

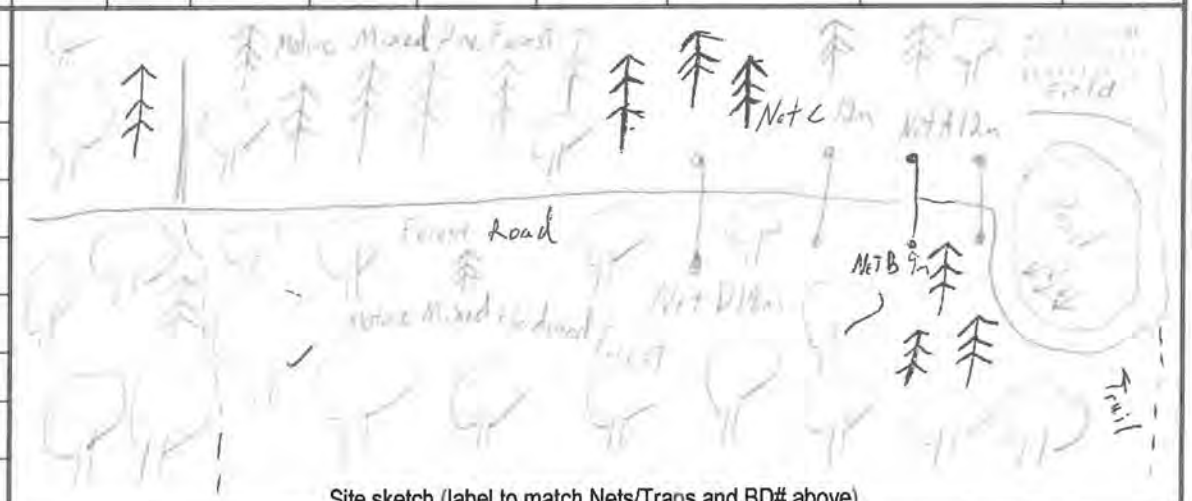
NETS/TRAPS:	A: 1x2H-12m	B: 1x2H-9m	C: 1x2H-12m	D: 1x2H-18m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB240	DB241	DB242	DB243		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Liquidambar styraciflua
Pinus elliottii
Quercus nigra
Platanus occidentalis
Fagus grandifolia

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# MM-29 Night# 2 Site Name: Bird Property-1 Date: 07/05/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21:20	MYSE	F	A	NR	38	18	7g	D	1.5m	1250/0	
2	01:03	LABO	F	Jv	NR	41		11g	D	2.5m	1249/0	
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	'19 E. Research	**County:**	Gates	**Site#:**	MM-03	**Night#:**	4	**Site Name:**	Fire Rd Intersect.	**Date:**	7/6/19
Latitude:	36.447660	Longitude:	-76.681470					Datum: NAD 83	Elevation: 37	ID By:	F Cunningham
Observers:	D. DiLandro							Start Time:	2015	End Time:	0130

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2100	87	0	0	2300	83	0	2	0130	80	0	0

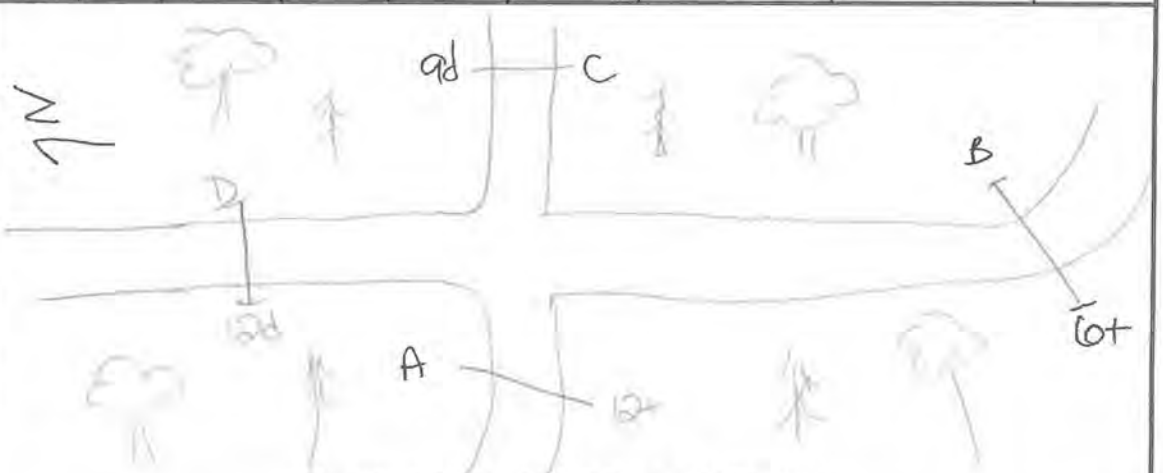
Moon Effect: Wax Cres	Start: — Stop: —	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 42

NETS/TRAPS:	**A:** 1x3H - 12m	**B:** 1x3H - 6m	**C:** 1x2H - 9m	**D:** 1x2H - 12m	**E:**	**F:**
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	✓	✓	✓	✓		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: P. Taeda, Q alba, Liquidambar styraciflua, Q falcata, Ilex opaca

Remarks: Juvenile LABO wouldn't initially fly off. Would go land on tall grass. Behavior otherwise seemed normal (Fresty) Eventually flew to the branch flew off by end of night



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2115	MYAU	F	A	L	37.0	—	7.0	C	4.5	1151/0	mite Photos
2	2115	PESU	M	J	NR	34.0	—	5.0	B	4.0	1152/0	
3	2145	NYHU	F	J	NR	37.0	—	10.0	B	2.0	1153/0	
4	2145	LABO	M	J	NR	37.0	—	7.0	B	3.5	1154/0	
5	2145	LABO	F	J	NR	33.5	—	7.5	B	4.0	~~1155~~/0	Removed band Appeared healthy but flew off in perch on tall grass.
6	2145	LABO	M	J	NR	39	—	9.5	B	6.5	1156/0	
7	22:30	LABO	M	A	TD	41	—	12.0	D	3.0	1157/0	Bruise on right shoulder
8	2350	EPFU	M	A	NR	44	—	15.5	B	1.5	0638/0	
9	0145	PESU	M	J	NR	34.0	—	5.0	B	3.0	1058/0	
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Fortson Road	**County:**	Gates	**Site#:**	MN-30	**Night#:**	1	**Site Name:**	Byrd Property - 2	**Date:**	7-6-19
Latitude:	36.449487	Longitude:	-76.667453	Datum:	NAD 83	Elevation:	37'	ID By:	Dylan Brooks		
Observers:	Jake Anderson			Start Time:	20:28			End Time:	01:28		

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:28	84°F	0	25	22:28	78°F	0	25	01:28	76°F	0	25

Moon Effect: WAX-CRES — Start: N/A — Stop: N/A

Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43

NETS/TRAPS:	**A:**	**B:**	**C:**	**D:**	**E:**	**F:**
	1x2H-9m	1x2H-9m	1x2H-12m	1x2H-12m		
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB 905	DB 906	DB 907	DB 908		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Liquidambar styraciflua
Pinus elliotti
Quercus nigra
Platinus occidentalis
Fagus grandifolia

Remarks:

Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# MM-30 Night# 1 Site Name: Byrd Property 2 Date: 7-6-19

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	00:14	LABO	F	Jv	NR	40		10.5g	C	2.5m	1243/0	
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	E. Research '19	**County:**	Gates	**Site#:**	MM-02	**Night#:**	4	**Site Name:**	Lassiter Trail	**Date:**	7/7/19
Latitude: 36.436850		Longitude: -76.692960						Datum: NAD 83	Elevation: 6'	ID By: K. Cunningham	
Observers: D. DiLandro								Start Time: 20:15		End Time: 01:15	

Conditions:	Time 2100	Temp	Wind	Clouds	Time 2300	Temp	Wind	Clouds	Time 0100	Temp	Wind	Clouds

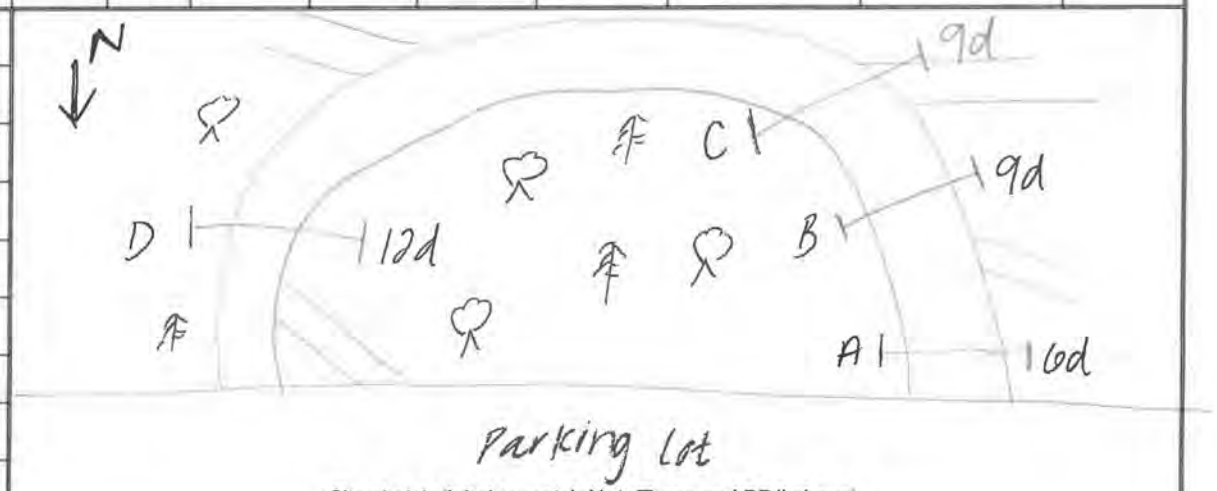
Moon Effect: Wax. Cres	Start: —	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 62
	Stop: —	

NETS/TRAPS:	A: 1x2H-6m	B: 1x2H-9m	C: 1x2H-9m	D: 1x2H-12m	E:	F:
Pool size WxL		/		/		
Swoop WxL	/	/	/	/		
Photo? or #	Y	Y	Y	Y		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: A. rubrum Liquidambar styraciflua, Liriodendron tulipifera, Fagus grandifolia, Q. michauxii, Ilex opaca, P. taeda, Taxodium distichum

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2230	MYSE	F	J	NR	35	—	6.0	3.0	B	1159 / 6	Hair sample
2	0005	PESU	B	J	NR	33	—	5.5	2.0	B	1160 / 0	Body & dry [illegible]
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	2019 Eastern Bat	**County:**	Gates	**Site#:**	MM-30	**Night#:**	2	**Site Name:**	Byrd Property-2	**Date:**	7-7-19
Latitude:	36.449487	**Longitude:**	-76.667453					Datum: NAD83	Elevation: 37'	ID By:	Dylan Brooks
Observers:	Jake Anderson							Start Time: 20:28		End Time:	01:28

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:28	75°	0	75	22:58	74°	0	75	01:28	74°	0	75

Moon Effect: WAX-CRES	Start: N/A Stop: N/A	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43	

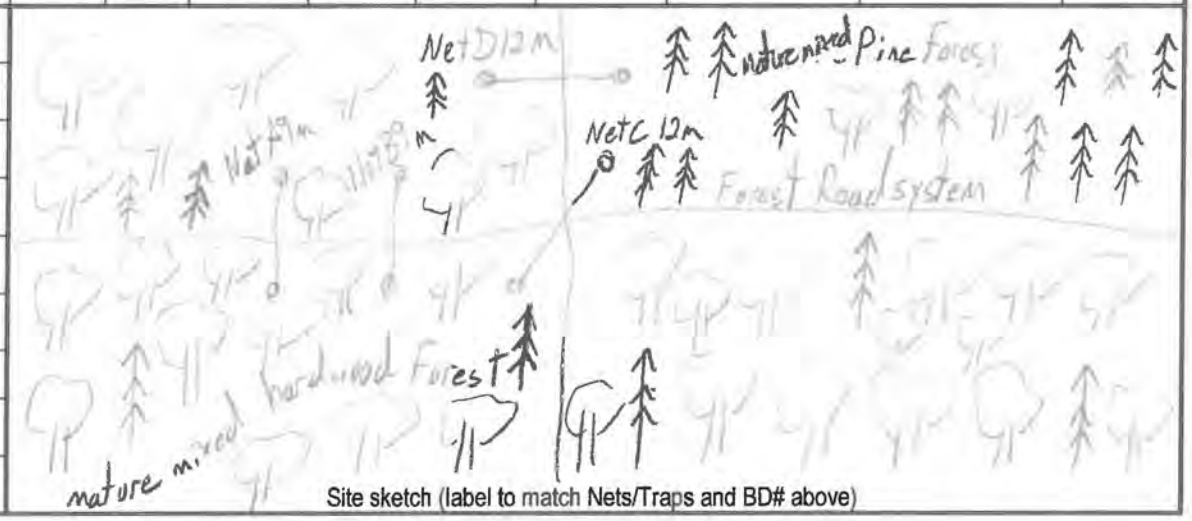
NETS/TRAPS:	A: 1x2H-9m	B: 1x-2H-9m	C: 1x2H-12m	D: 1x2H-12m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB905	DB906	DB907	DB908		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Liquidamber styraciflua
Pinus elliotti
Quercus nigra
Platinus occidentalis
Fagus grandifolia

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# MM-30 Night# 2 Site Name: Byrd Property - 2 Date: 7-7-19

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1		No bats captured										
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NE Research	**County:**	Gates	**Site#:**	MM13	**Night#:**	4	**Site Name:**	Bennett Creek	**Date:**	7/8/19
Latitude: 36.431409			Longitude: -76.700728					Datum: NAD83	Elevation: 231	ID By: K. Cunningham	
Observers: D. DiLandro								Start Time: 2015		End Time: 0115	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2030	76	1	0	2200	73	1	0	0100	73	0	0

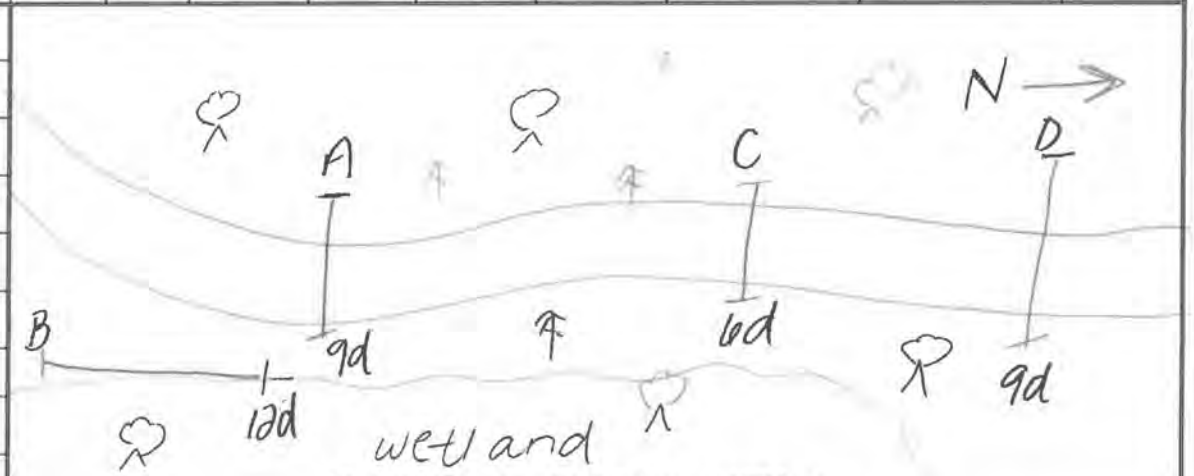
Moon Effect: First Quarter	Start: —	**Land Use:** Urban / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*: 43
	Stop: —	

NETS/TRAPS:	**A:** 1×2m-9m	**B:** 1×2H-12m	**C:** 1×2H-6m	**D:** 1×2H-9m	**E:**	**F:**
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	✓	✓	✓	✓		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description: A. rubrum, Platanus occidentalis, Carpinus caroliniana, Vitus sp. P. taeda @ michuxii, Nyssa aquatica

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: County: Site# Night# Site Name: Date:

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2115	CORA	F	A	L	42	—	10.0		1.5	1161 /	Small pinhole in (L) wing
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

MM-31

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-32	**Night#:**	1	**Site Name:**	Byrd Property 3	**Date:**	07/08/2019
Latitude: 36.448614°		Longitude: -76.6675240°						Datum: NAD83	Elevation: 31	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:27		End Time: 01:27	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:27	76°F	1	75	22:57	74°F	1	75	01:27	73°F	1	75

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
First-Qtr	21:56	43
	Stop: 01:27	

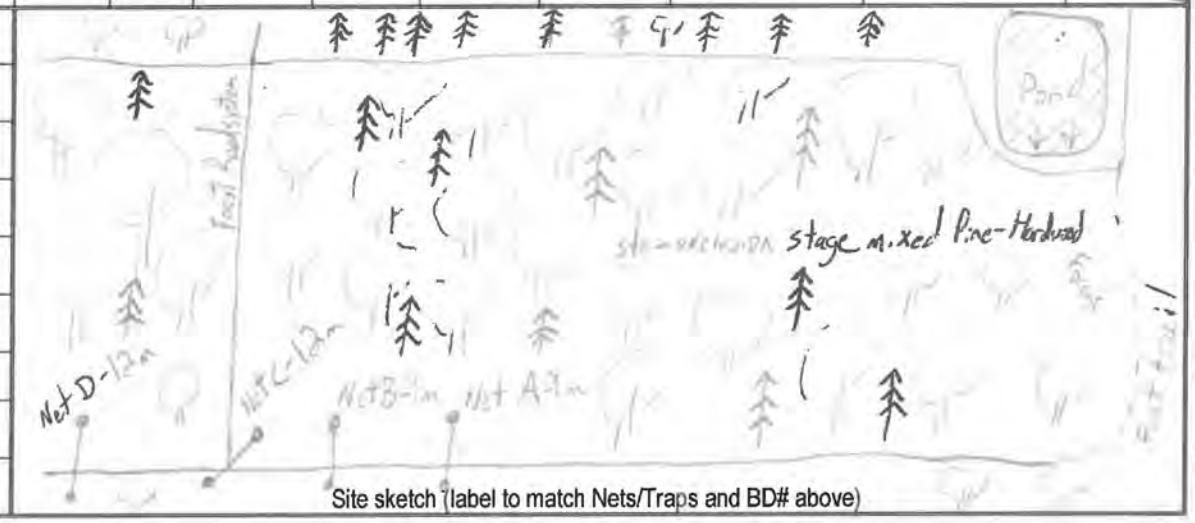
NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-9m	C: 1x2H-12m	D: 1x2H-12m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB 901	DB 902	DB 903	DB 904		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Fagus grandifolia
Liquidambar styraciflua
Quercus alba
Pinus taeda
Liriodendron tulipifera

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

31

Project: 2019 Eastern Research County: Gates Site# MM-32 Night# 1 Site Name: Burd Property-3 Date: 7/8/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21:06	MYAU	F	A	NR	38	13	8	C	2.5m	1226/0	
2	21:28	MYAU	F	A	L	38	14	7.5	D	2m	1217/0	Recapture 6/27/19
3	22:27	LABO	F	A	L	42		14.5	B	1.5m	1227/0	
4	22:50	MYAU	F	A	L	37	14	8	A	1m	1228/0	
5	00:45	CORA	F	A	L	44		10.5	C	2m	1229/0	
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

31

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM32	**Night#:**	2	**Site Name:**	Byrd Property 3	**Date:**	07/09/19
Latitude: 36.448614°		Longitude: −76.667524°						Datum: NAD83	Elevation: 39'	ID By: Dylan Brooks	
Observers: Jake Anderson								Start Time: 20:27		End Time: 01:27	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:27	81°	3	0	22:57	74°	0	0	01:27	68°	0	0

Moon Effect: First-Qtr	Start: N/A Stop: N/A	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43

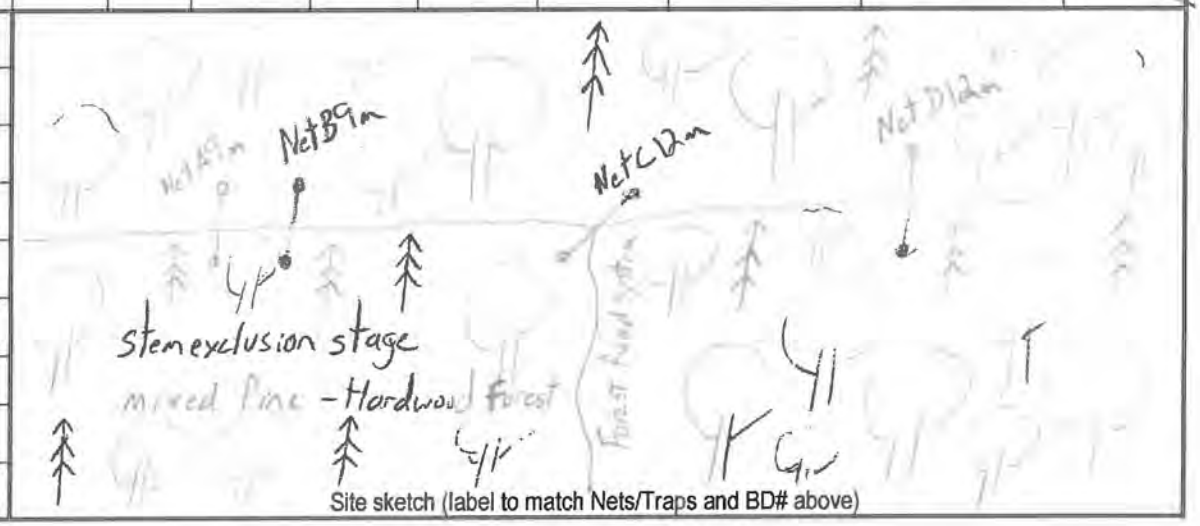
NETS/TRAPS:	**A:**	**B:**	**C:**	**D:**	**E:**	**F:**
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB 901	DB 902	DB 903	DB 904		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Fagus grandifolia
Liquidambar styraciflua
Quercus alba
Pinus taeda
Liriodendron tulipifera

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Project: 2019 Eastern Research County: Gates Site# MM 32 Night# 2 Site Name: Byrd Property 3 Date: 07/09/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21:12	MYAU	F	JV	NR	37	13	7	B	2.5	1248/0	
2	00:00	PESU	F	JV	NR	33		5.75	B	3	1215/0	
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

32

Project:	2019 Eastern Research	**County:**	Gates	**Site#:**	MM-33	**Night#:**	1	**Site Name:**	Fire Road Hidden Trail	**Date:**	07/10/2019
Latitude: 36.448199°		Longitude: -76.67805°						Datum: NAD83	Elevation: 27'	ID By: Dylan Brooks	
Observers: Jake Anderson, Cheryl Gregory								Start Time: 20:27		End Time: 01:27	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:27	85°F	0	0	22:57	77°F	0	0	01:27	75°F	0	0

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wax-Gib	Stop: 01:27	45

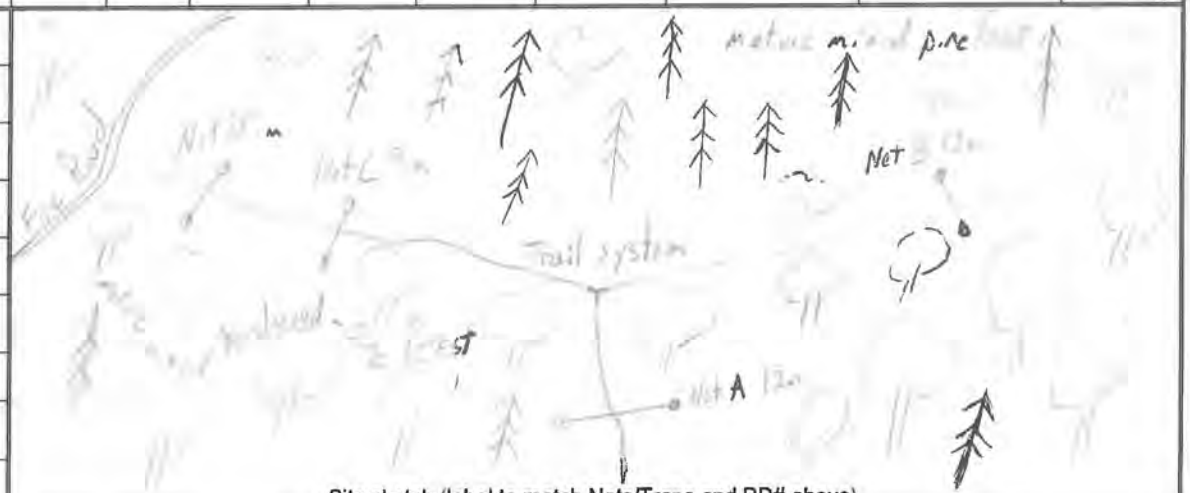
NETS/TRAPS:	A: 1x2H-12m	B: 1x2H-12m	C: 1x2H-9m	D: 1x2H-9m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB774	DB775	DB776	DB777		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Quercus alba
Quercus velutina
Pinus taeda
Fagus grandifolia
Acer saccharum

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page 1 of ____

Project: 2019 Eastern Rescard County: Gates Site# MM-33 Night# 1 Site Name: Fire Road Hidden Trail Date: 7/10/2019

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:27	LABO	F	A	L	39		10	A	2m	1073/0	recapture
2	20:55	LABO	F	Jv	NR	40		10.5	A	2.5m	1230/0	
3	21:52	LABO	F	Jv	NR	41		9.5	B	1.5m	1214/0	
4	00:26	LABO	M	Jv	NR	40		12	A	2	12/B/0	
5	1:04	CORA	F	A	L	43		12	C	2	1212/0	
6												
7												
8												
9												
10												
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16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: 2019 Eastern Region	**County:** Gates	**Site#:** MN-23	**Night#:** 3	**Site Name:** Firebrand Pull-off				**Date:** 7-12-19	
Latitude: 36.435002	Longitude: -76.676271			Datum: NAD 83	Elevation: 31'			ID By: Dylan Bradshaw	
Observers: Jake Anderson				Start Time: 20:26				End Time: 01:26	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	20:26	82	1	75	22:56	79	2	75	01:26	77°	1	75

Moon Effect: WAX-GIB	Start: 20:26 Stop: 22:57	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 75

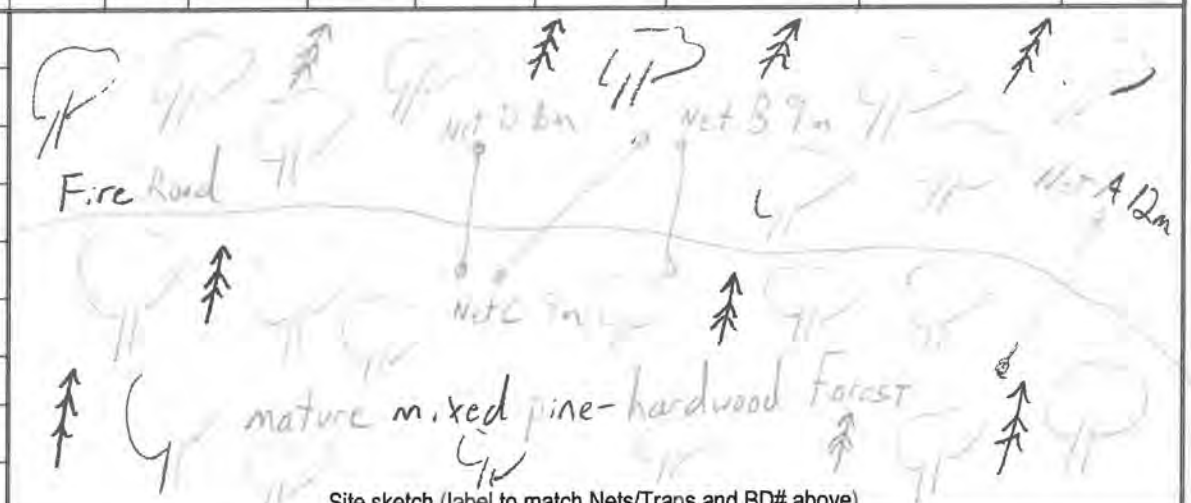
NETS/TRAPS:	A: 1x3H-12m	B: 1x2H- 9m	C: 1x2H-9m	D: 1x2H-6m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	DB108	DB109	DB110	DB111		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?

Site Description:

Pinus taeda
Liquidambar styraciflua
Acer saccharum
Ilex opaca
Quercus alba

Remarks:



Site sketch (label to match Nets/Traps and BD# above)

Bat Survey Data Form

Page _____ of _____

Project: 2019 Eastern Research County: Gates Site# MM-23 Night# 3 Site Name: Fire Road Pull-off Date: 07-12-19

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21:04	MYAU	F	A	L	39	13	8.5	C	1.5	1205/0	
2	21:56	LORA	F	A	L	43		10.5	C	2.5	1206/0	
3	22:30	MYAU	F	A	L	38	13	9	B	2	1207/0	
4	00:27	PESU	M	Jv	NR	33		6	D	2.5	1208/0	
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Appendix B

Mist-Net Site Photographs

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-12: Night 1
4/22/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-19: Night 1
4/23/2019

Net A

Net B

Net C

Net D

Net E

Net F

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-02: Night 1
4/29/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-13: Night 1
4/30/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-17: Night 1
5/1/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-13: Night 2
5/7/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-20: Night 1
5/7/2019

Net A

Net B

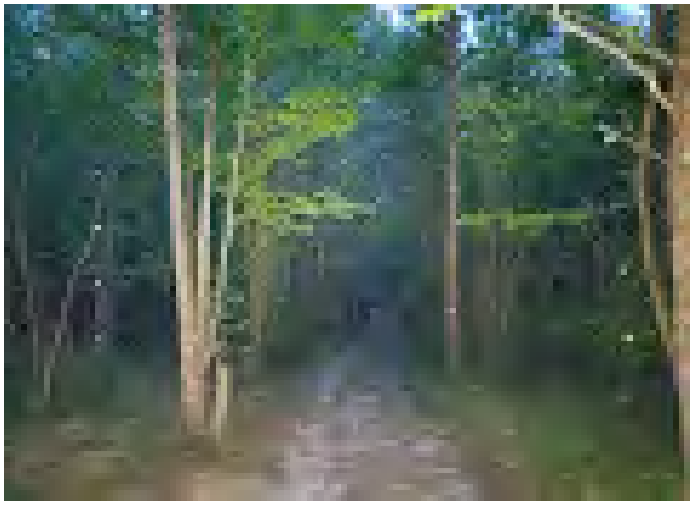
Net C

Net D

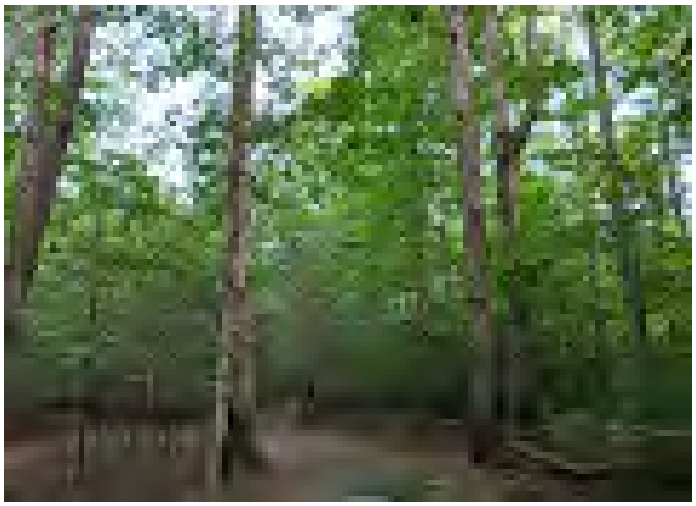
Net E

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

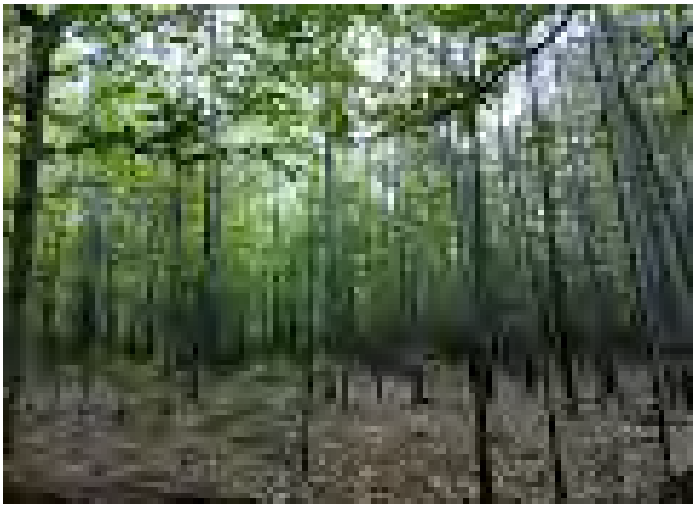
MM-09: Night 1
5/8/2019



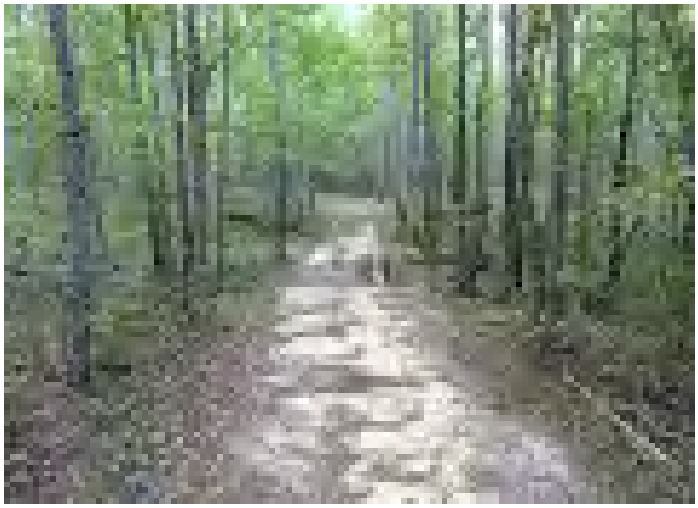
Net A



Net B



Net C



Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-21: Night 1
5/8/2019

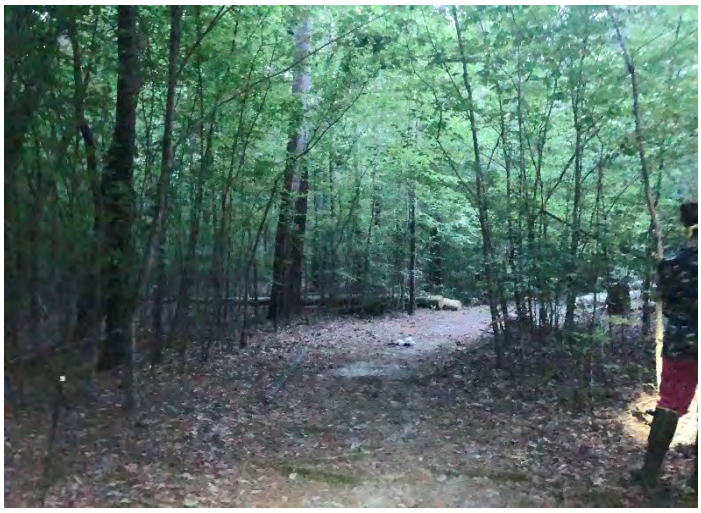
Net A

Net B

Net C

Net D

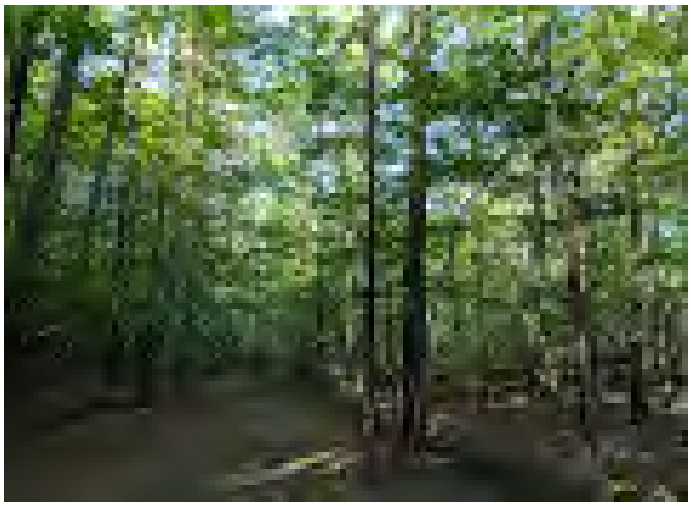
Net E



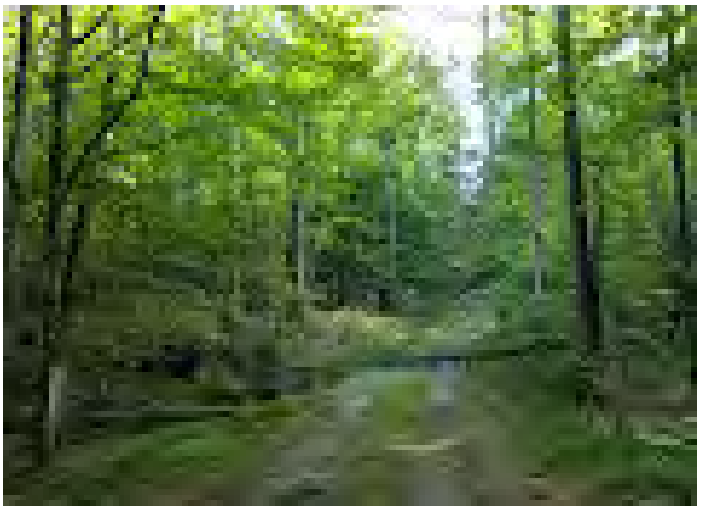
Net F

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-04: Night 1
5/9/2019

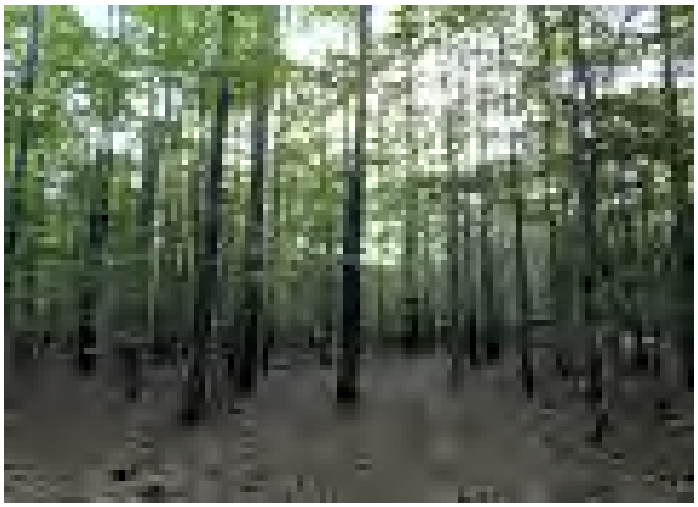


Net A



Net B

Net C



Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-02: Night 2
5/13/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-21: Night 2
5/13/2019

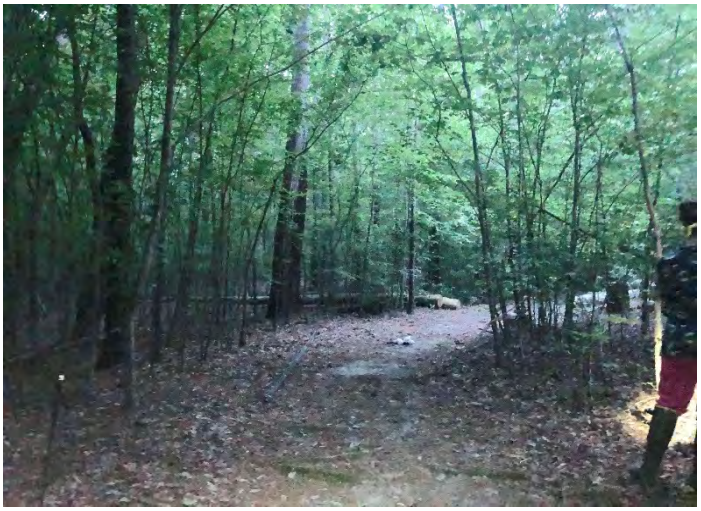
Net A

Net B

Net C

Net D

Net E



Net F

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-19: Night 2
5/16/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-22: Night 1
5/17/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-22: Night 2
5/18/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-22: Night 3
5/19/2019

Net A

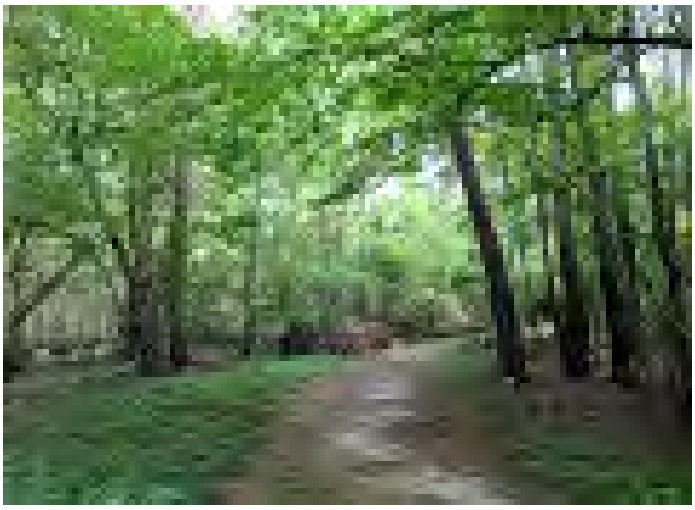
Net B

Net C

Net D

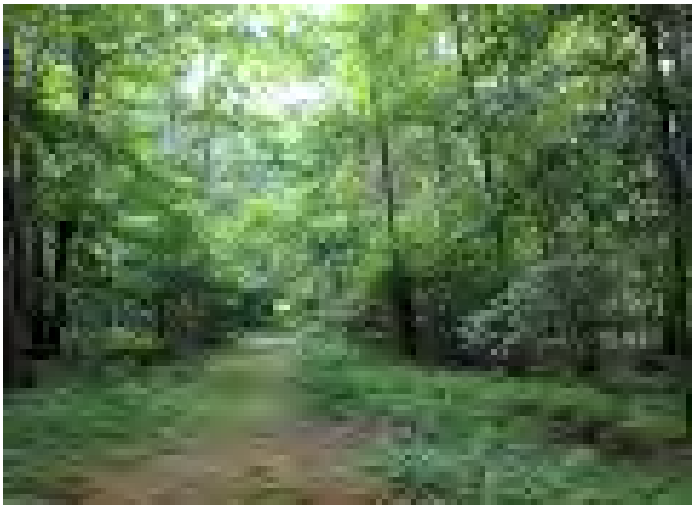
2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-13: Night 3
5/21/2019

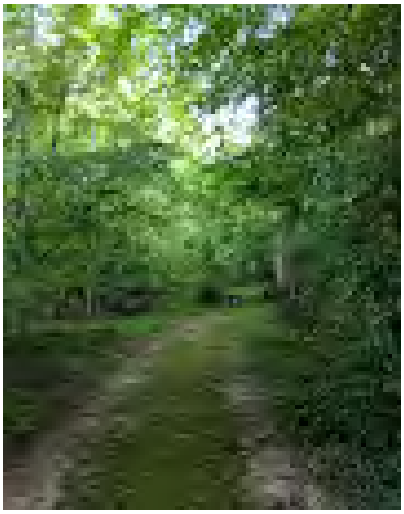


Net A

Net B



Net C



Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-17: Night 2
5/21/2019

Net A

Net B

Net C

Net D

Net E

Net F

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-03: Night 1
5/22/2019

Net A

Net B

Net C

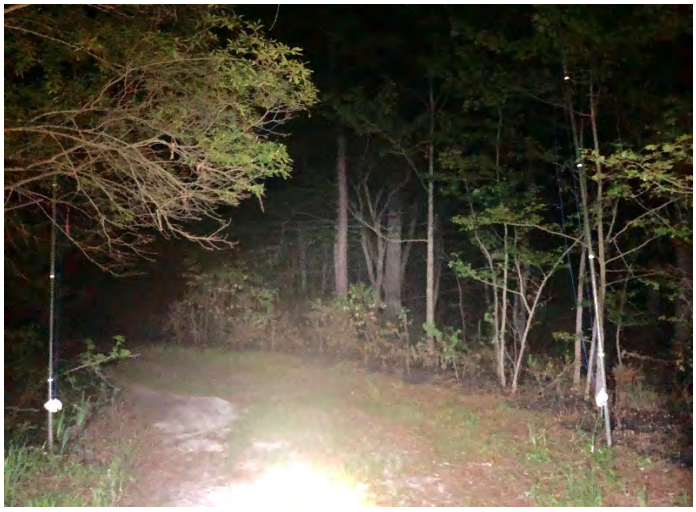
Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-08: Night 1
5/22/2019

Net A

Net B



Net C

Net D

Net E

Net F

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-23: Night 1
6/11/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-03: Night 2
6/11/2019

Net A

Net B

Net C

Net D

Net E

Net F

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-16: Night 1
6/13/2019

Net A

Net B

Net C

Net D

Net E

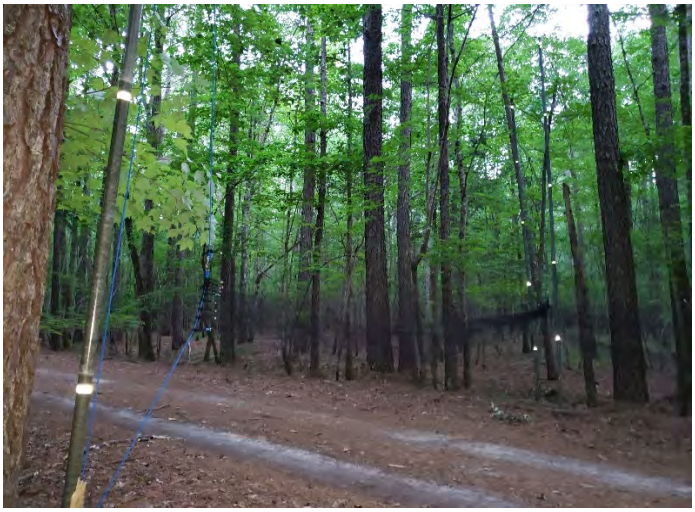
Net F

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-24: Night 1
6/14/2019

Net A

Net B



Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-25: Night 1
6/16/2019

Net A

Net B

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-19: Night 3
6/17/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-23: Night 2
6/24/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-02: Night 3
6/25/2019

Net A

Net B

Net C

Net D

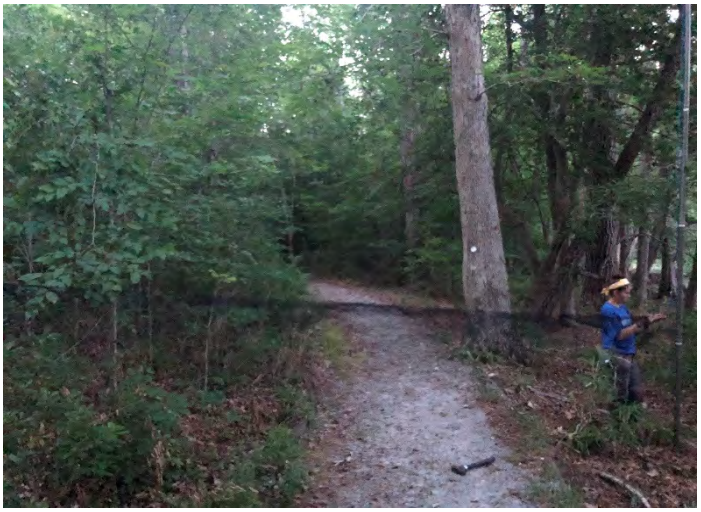
2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-20: Night 2
6/25/2019

Net A

Net B

Net C



Net D

Net E

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-27: Night 1
6/26/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-26: Night 1
6/26/2019

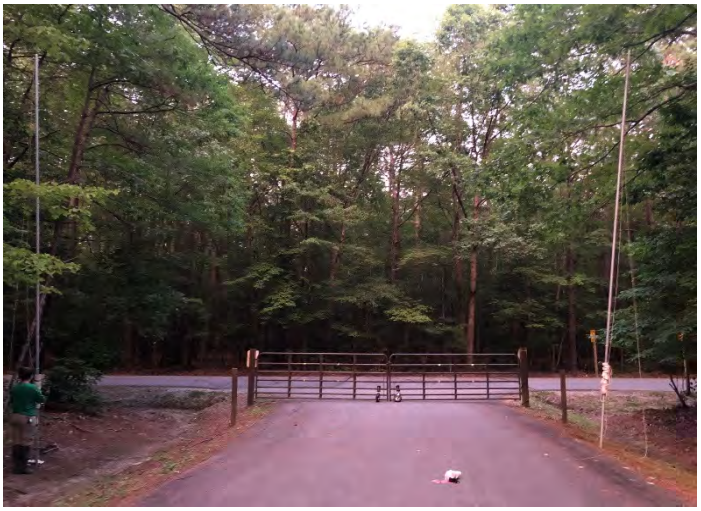
Net A

Net B

Net C

Net D

Net E



Net F

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-03: Night 3
6/27/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-10: Night 1
6/27/2019

Net A

Net B

Net C

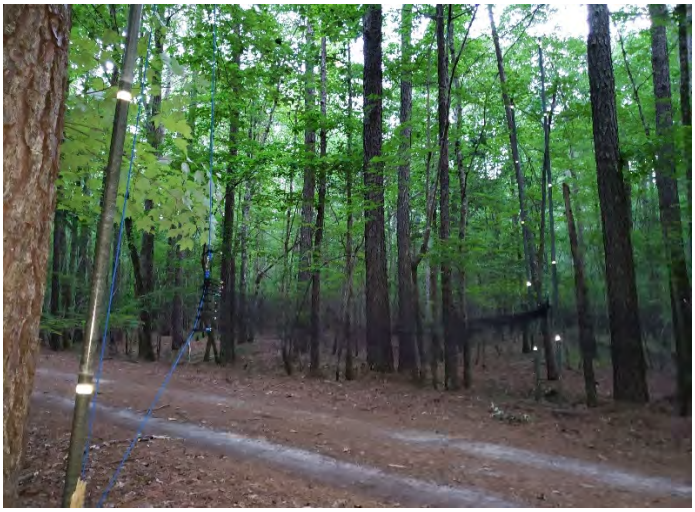
Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-24: Night 2
6/29/2019

Net A

Net B



Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-28: Night 1
7/1/2019

Net A

Net B

Net C

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-21: Night 3
7/2/2019

Net A

Net B

Net C

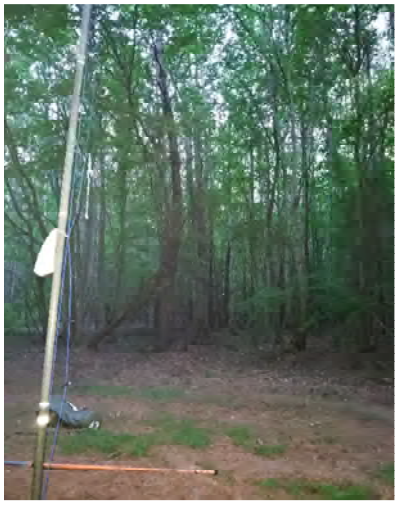
Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-29: Night 1
7/3/2019

Net A

Net B



Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-06: Night 1
7/3/2019

Net A

Net B

Net C

Net D

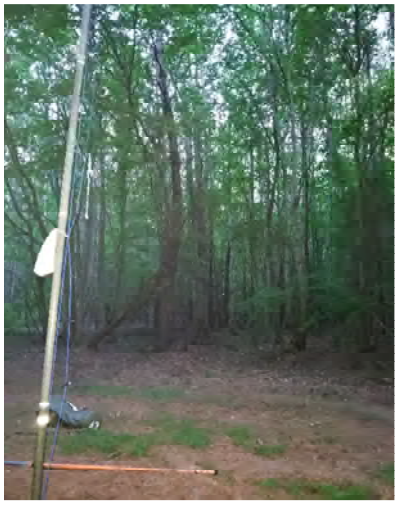
Net E

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-29: Night 2
7/5/2019

Net A

Net B



Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

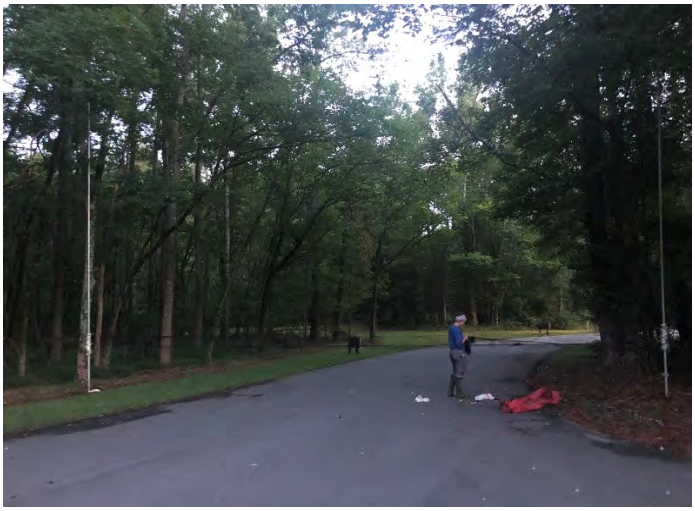
MM-19: Night 4
7/5/2019

Net A

Net B

Net C

Net D



Net E

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-30: Night 1
7/6/2019

NO PHOTO

Net A

NO PHOTO

Net B

NO PHOTO

Net C

NO PHOTO

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-03: Night 4
7/6/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-30: Night 2
7/7/2019

NO PHOTO

Net A

NO PHOTO

Net B

NO PHOTO

Net C

NO PHOTO

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-02: Night 4
7/7/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-31: Night 1
7/8/2019

Net A

Net B

Net C

NO PHOTO

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-13: Night 4
7/8/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-31: Night 2
7/9/2019

Net A

Net B

Net C

NO PHOTO

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-32: Night 1
7/10/2019

Net A

Net B

Net C

Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-23: Night 3
7/12/2019

Net A

Net B

Net C

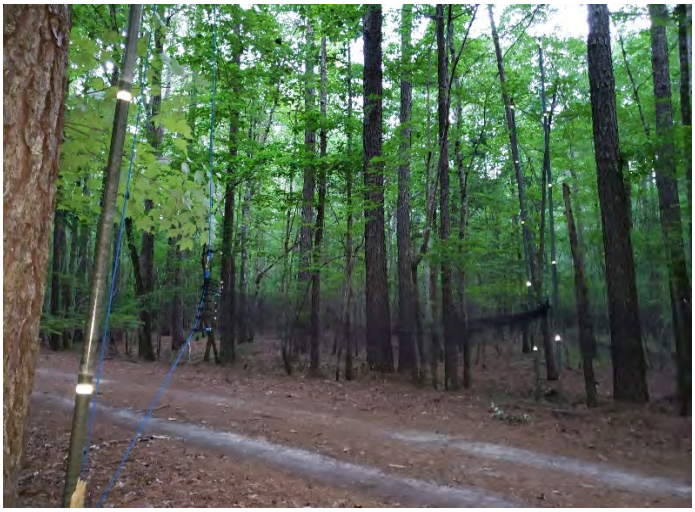
Net D

2019 Eastern North Carolina MYSE Research Study
Net Photo Document

MM-24: Night 3
7/13/2019

Net A

Net B



Net C

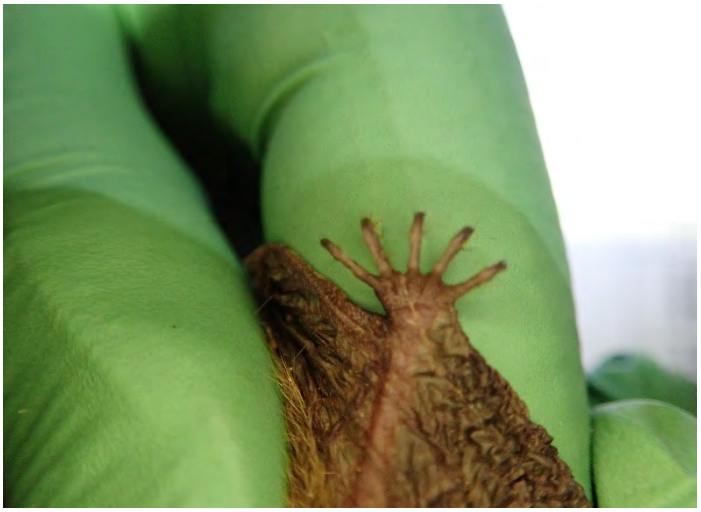
Net D

Appendix C

Northern Long-eared Bat Photographs

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-12 Date: 4/22/2019
Sex: Male Age: Adult Reproduction: NR Band #: CALYX 1046 Frequency #: N/A

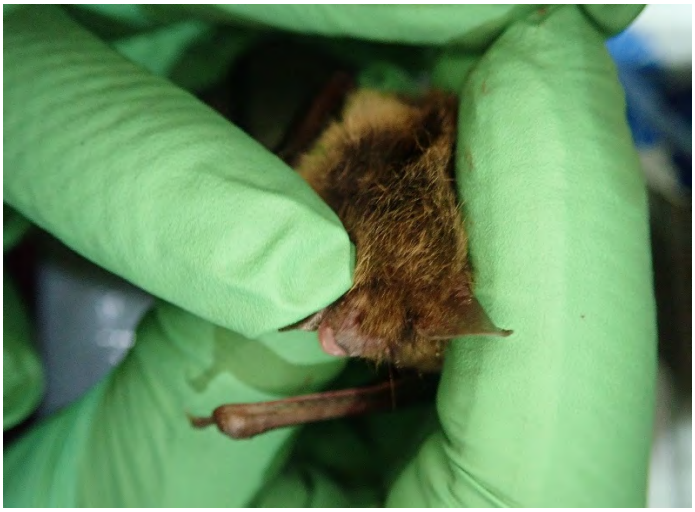


Net D

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-21 Date: 5/8/2019
Sex: Male Age: Adult Reproduction: NR Band #: CALYX 1058 Frequency #: N/A

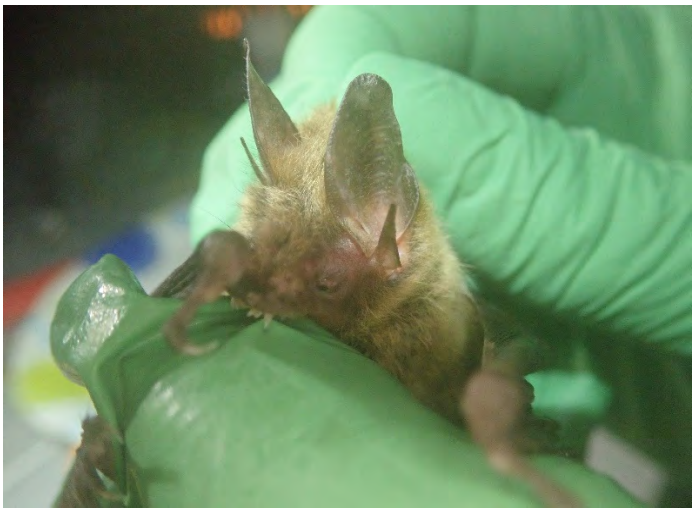


Net B

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-21 Date: 5/13/2019
Sex: Male Age: Adult Reproduction: NR Band #: CALYX 1059 Frequency #: N/A



Net C

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-19 Date: 5/16/2019
Sex: Male Age: Adult Reproduction: NR Band #: CALYX 1147 Frequency #: N/A

Net C

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-22 Date: 5/18/2019
Sex: Male Age: Adult Reproduction: NR Band #: CALYX 1101 Frequency #: N/A

Net A

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

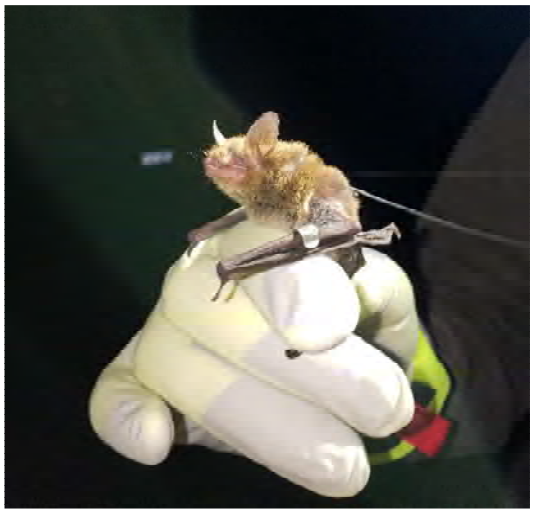
Site #: MM-17 Date: 5/21/2019
Sex: Male Age: Adult Reproduction: NR Band #: CALYX 1061 Frequency #: N/A

Net A

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-03 Date: 5/22/2019
Sex: Female Age: Adult Reproduction: P Band #: CALYX 1123 Frequency #: 150.660



Net B

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

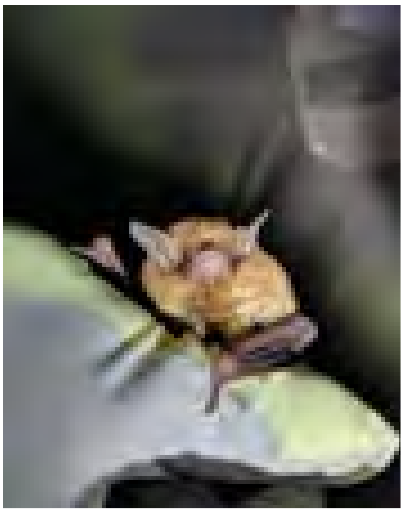
Site #: MM-23 Date: 6/11/2019
Sex: Male Age: Adult Reproduction: NR Band #: CALYX 1110 Frequency #: N/A

Net B

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-23 Date: 6/11/2019
Sex: Male Age: Adult Reproduction: NR Band #: CALYX 1114 Frequency #: N/A

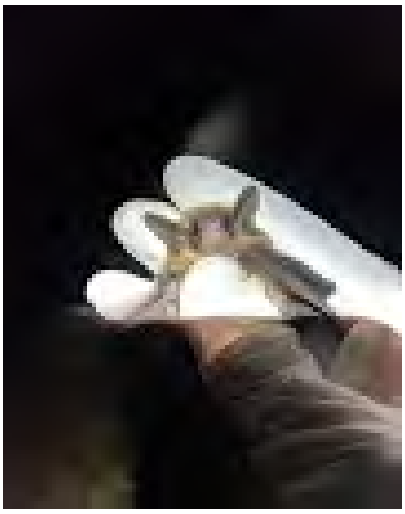


Net B

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-23 Date: 6/11/2019
Sex: Female Age: Adult Reproduction: L Band #: CALYX 1119 Frequency #: 150.980



Net C

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-24 Date: 6/14/2019
Sex: Female Age: Adult Reproduction: L Band #: CALYX 1237 Frequency #: 150.701

Net B

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-19 Date: 6/17/2019
Sex: Male Age: Adult Reproduction: TD Band #: CALYX 1087 Frequency #: N/A

Net D

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-19 Date: 6/17/2019
Sex: Male Age: Adult Reproduction: NR Band #: CALYX 1088 Frequency #: N/A

Net C

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-02 Date: 6/25/2019
Sex: Male Age: Juvenile Reproduction: NR Band #: CALYX 1120 Frequency #: N/A

Net D

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-02 Date: 6/25/2019
Sex: Female Age: Juvenile Reproduction: NR Band #: CALYX 1121 Frequency #: N/A

Net A

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-03 Date: 6/27/2019
Sex: Female Age: Adult Reproduction: L Band #: CALYX 1218 Frequency #: 150.939

Net A

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-21 Date: 7/2/2019
Sex: Male Age: Adult Reproduction: NR Band #: CALYX 1096 Frequency #: N/A

Net A

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-29 Date: 7/5/2019
Sex: Female Age: Adult Reproduction: NR Band #: CALYX 1250 Frequency #: N/A

Net D

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

2019 Eastern North Carolina MYSE Research Study
MYSE Photo Document

Site #: MM-02 Date: 7/7/2019
Sex: Female Age: Juvenile Reproduction: NR Band #: CALYX 1159 Frequency #: N/A

Net B

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating

Appendix D

Roost Tree Data Forms

APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dylan Brooks, Jake Anderson **Date:** 5/23/2019

UTM: Zone_____ **Easting** _____ **Northing**_____ ***OR***

LAT 36.438400 **LONG** -76.668700

Property Owner: Merchants Millpond State Park **Phone#** (252) 357-1911

State North Carolina **County** Gates **Site #** MM-03

Roost # 1 **Roost Name:** MM660RT1

Roost Tree Data

Species: *Taxodium distichum* **Live** ☐ **Snag** ☑ **Other** ☐

(if other, explain) _____

DBH (in or cm) 16.4" **Total Height (ft or m)** 43'

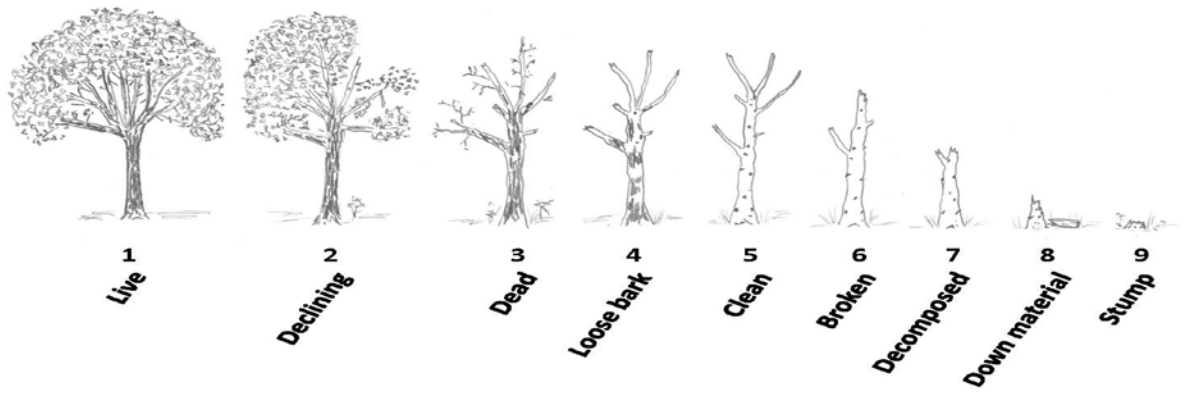
Height of roost area (if known) Multiple **Dist. from capture site** 0.96 miles

Roost position aspect (deg) Multiple

Exfoliating bark on bole (%) 10 **Describe: sloughing** ☐ **platy** ☐ **tight** ☑

Cavities present? Yes **If so, describe:** Over 20 small cavities near top of bole as well as a borken top making the upper portion of the snag hollow

Roost Decay State: 1 2 3 4 5 6 7 8 9 Other



APPENDIX D
PHASE 4 RADIO-TRACKING

Roost tree or snag canopy position: Dominant ☐ **Co-Dominant** ☑ **Suppressed** ☐

Surrounding Habitat Condition

Canopy closure at roost (%) 60

Approximate woodlot size (ac or ha) 400ac **Distance to non-forest (ft or m)** 431m

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature Cypress-tupelo habitat in brown water swamp attached to Bennett's Creek

Additional Comments

APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dylan Brooks, Jake Anderson **Date:** 6/15/2019

UTM: Zone_____ **Easting** _____ **Northing**_____ ***OR***

LAT 36.434780 **LONG** -76.670490

Property Owner: Merchants Millpond State Park **Phone#** (252) 357-1911

State North Carolina **County** Gates **Site #** MM-23

Roost # 1 **Roost Name:** MM701RT1

Roost Tree Data

Species: *Taxodium distichum* **Live** ☐ **Snag** ☑ **Other** ☐

(if other, explain) _____

DBH (in or cm) 15.8" **Total Height (ft or m)** 21'

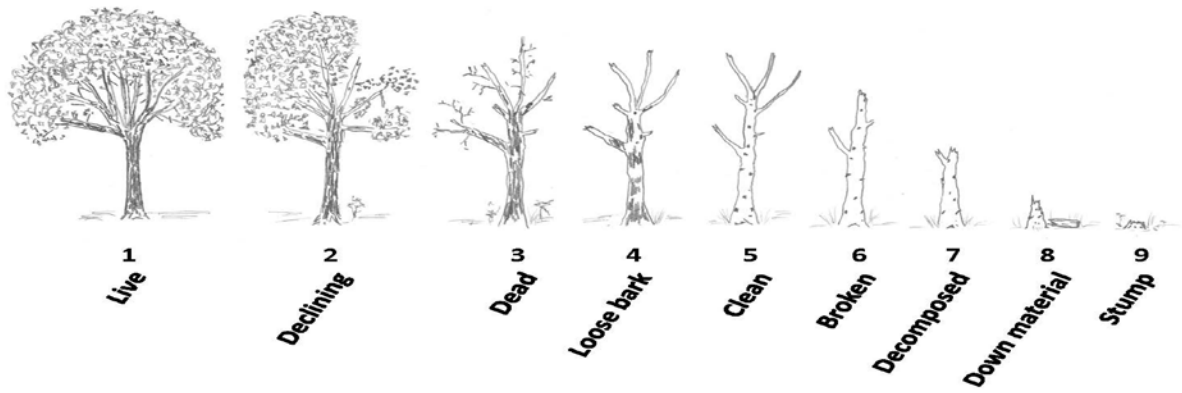
Height of roost area (if known) 14' **Dist. from capture site** 3,213'

Roost position aspect (deg) 347

Exfoliating bark on bole (%) 65 **Describe: sloughing** ☑ **platy** ☐ **tight** ☐

Cavities present? Yes **If so, describe:** Large crevices along bole of tree as well as a hollow broken top.

Roost Decay State: 1 2 3 4 5 6 7 8 9 Other



APPENDIX D
PHASE 4 RADIO-TRACKING

Roost tree or snag canopy position: Dominant ☐ **Co-Dominant** ☐ **Suppressed** ☑

Surrounding Habitat Condition

Canopy closure at roost (%) 55

Approximate woodlot size (ac or ha) 7,000ac **Distance to non-forest (ft or m)** 4,058'

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature Cypress-Tupelo brown water swamp on edge of Bennett's Creek.

Additional Comments

APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dylan Brooks, Jake Anderson **Date:** 6/18/2019

UTM: Zone_____ **Easting** _____ **Northing**_____ ***OR***

LAT 36.440850 **LONG** -76.669280

Property Owner: Merchants Millpond State Park **Phone#** (252) 357-1911

State North Carolina **County** Gates **Site #** MM-23

Roost # 2 **Roost Name:** MM701RT2

Roost Tree Data

Species: *Taxodium distichum* **Live** ☐ **Snag** ☑ **Other** ☐

(if other, explain) _____

DBH (in or cm) 16.3Ž **Total Height (ft or m)** 38•

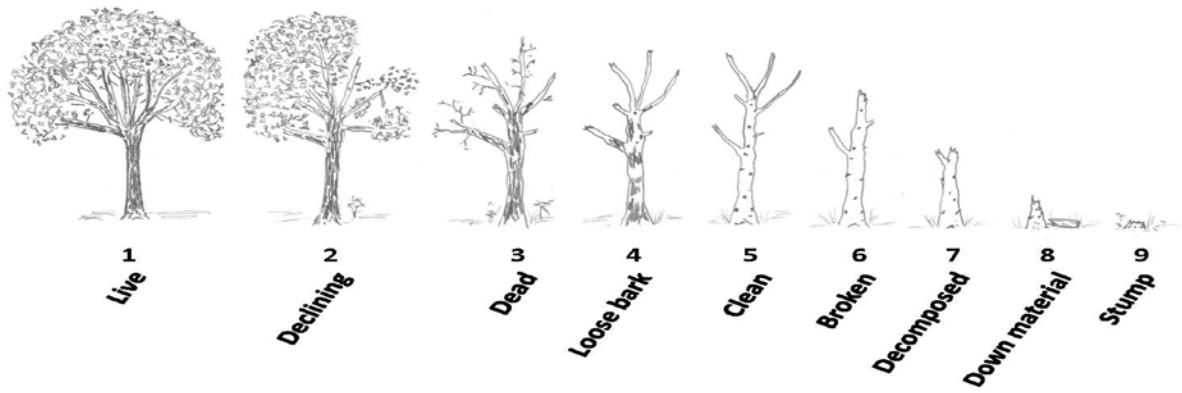
Height of roost area (if known) Unknown **Dist. from capture site** 3,004•

Roost position aspect (deg) Unknown

Exfoliating bark on bole (%) 60 **Describe: sloughing** ☑ **platy** ☐ **tight** ☐

Cavities present? Yes **If so, describe:** Large crevices along bole of tree as well as a hollow broken top.

Roost Decay State: 1 2 3 4 5 6 7 8 9 Other



APPENDIX D
PHASE 4 RADIO-TRACKING

Roost tree or snag canopy position: Dominant ☐ **Co-Dominant** ☐ **Suppressed** ☑

Surrounding Habitat Condition

Canopy closure at roost (%) 65

Approximate woodlot size (ac or ha) 7,000ac **Distance to non-forest (ft or m)** 3,643•

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature Cypress-Tupelo brown water swamp on edge of Bennett's Creek.

Additional Comments

APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dylan Brooks, Jake Anderson **Date:** 6/20/2019

UTM: Zone_____ **Easting** _____ **Northing**_____ ***OR***

LAT 36.442260 **LONG** -76.678520

Property Owner: Merchants Millpond State Park **Phone#** (252) 357-1911

State North Carolina **County** Gates **Site #** MM-23

Roost # 3 **Roost Name:** MM701RT3

Roost Tree Data

Species: *Ulmus spp.* **Live** ☐ **Snag** ☑ **Other** ☐

(if other, explain) _____

DBH (in or cm) 6.3' **Total Height (ft or m)** 44'

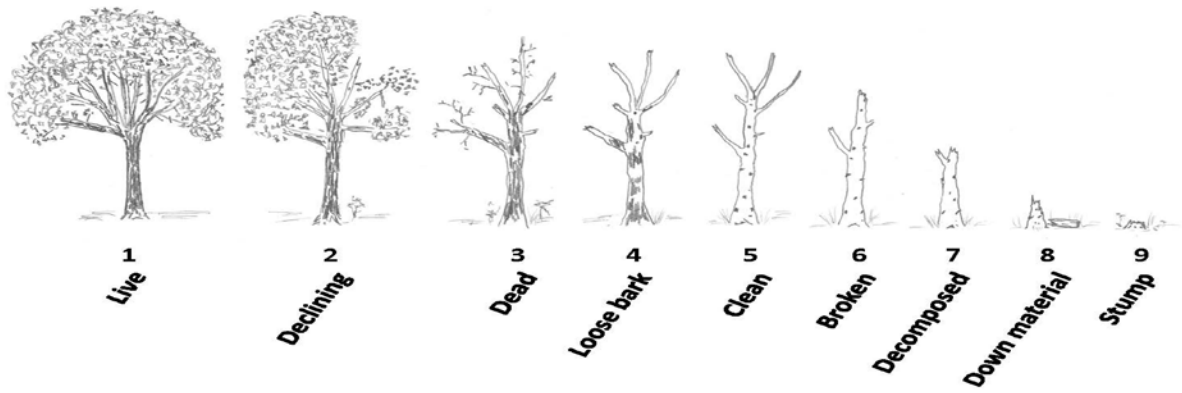
Height of roost area (if known) 36' **Dist. from capture site** 1,136•

Roost position aspect (deg) 68

Exfoliating bark on bole (%) 55 **Describe: sloughing** ☑ **platy** ☐ **tight** ☐

Cavities present? No **If so, describe:**_____

Roost Decay State: 1 2 3 4 5 6 7 8 9 Other



APPENDIX D
PHASE 4 RADIO-TRACKING

Roost tree or snag canopy position: Dominant ☐ **Co-Dominant** ☐ **Suppressed** ☑

Surrounding Habitat Condition

Canopy closure at roost (%) 75

Approximate woodlot size (ac or ha) 7,000ac **Distance to non-forest (ft or m)** 2,657'

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)

Mature mixed pine hardwood stand in understory reinitiation stage of stand development.

Additional Comments

APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dylan Brooks, Jake Anderson **Date:** 6/21/2019

UTM: Zone_____ **Easting** _____ **Northing**_____ ***OR***

LAT 36.443620 **LONG** -76.679800

Property Owner: Merchants Millpond State Park **Phone#** (252) 357-1911

State North Carolina **County** Gates **Site #** MM-23

Roost # 4 **Roost Name:** MM701RT4

Roost Tree Data

Species: *Quercus alba* **Live** ☑ **Snag** ☑ **Other** ☐

(if other, explain) _____

DBH (in or cm) 8.2Ž **Total Height (ft or m)** 46•

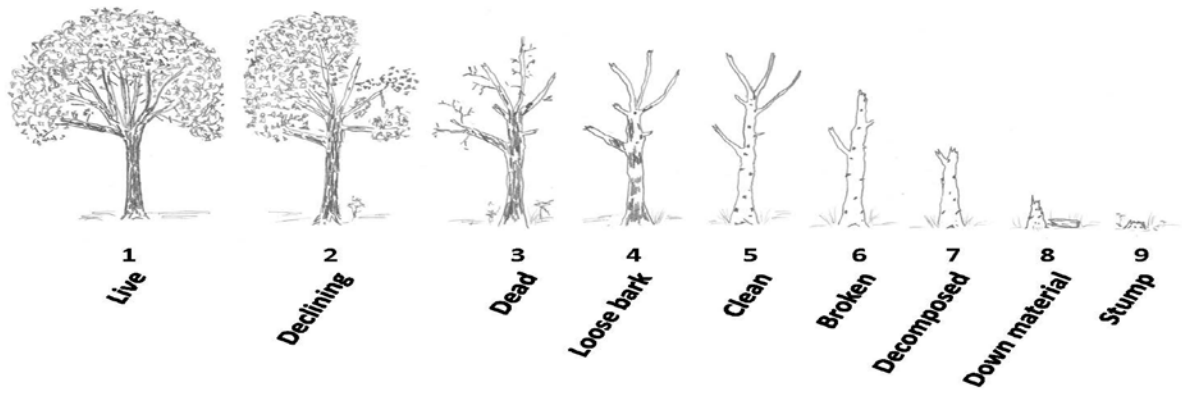
Height of roost area (if known) 16' **Dist. from capture site** 876'

Roost position aspect (deg) 13

Exfoliating bark on bole (%) 5 **Describe: sloughing** ☑ **platy** ☐ **tight** ☑

Cavities present? Yes **If so, describe:** Small collection of cavities on bole between 15-20'

Roost Decay State: 1 2 3 4 5 6 7 8 9 Other



APPENDIX D
PHASE 4 RADIO-TRACKING

Roost tree or snag canopy position: Dominant ☐ **Co-Dominant** ☐ **Suppressed** ☑

Surrounding Habitat Condition

Canopy closure at roost (%) 90

Approximate woodlot size (ac or ha) 7,000ac **Distance to non-forest (ft or m)** 3,131•

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature mixed pine hardwood stand in understory reinitiation stage of stand development.

Additional Comments

APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dylan Brooks, Jake Anderson **Date:** 6/22/2019

UTM: Zone_____ **Easting** _____ **Northing**_____ ***OR***

LAT 36.442940 **LONG** -76.678440

Property Owner: Merchants Millpond State Park **Phone#** (252) 357-1191

State North Carolina **County** Gates **Site #** MM-23

Roost # 5 **Roost Name:** MM701RT5

Roost Tree Data

Species: *Pinus taeda* **Live** ☑ **Snag** ☐ **Other** ☐

(if other, explain) _____

DBH (in or cm) 17.6" **Total Height (ft or m)** 116'

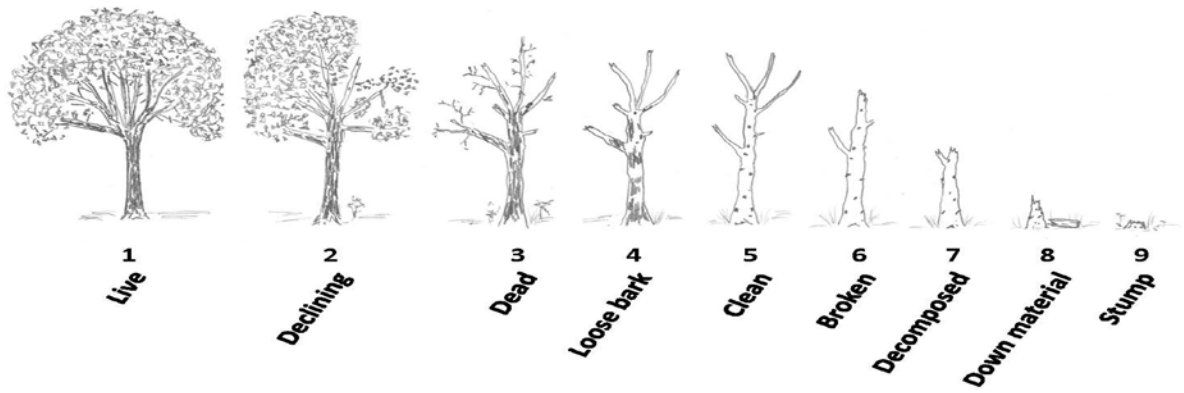
Height of roost area (if known) 48' **Dist. from capture site** 1813'

Roost position aspect (deg) 98

Exfoliating bark on bole (%) 5% **Describe: sloughing** ☐ **platy** ☑ **tight** ☐

Cavities present? Yes **If so, describe:** Peeling bark and dead branches present approximately 48' high.

Roost Decay State: **1** **2** **3** **4** **5** **6** **7** **8** **9** **Other**



APPENDIX D
PHASE 4 RADIO-TRACKING

Roost tree or snag canopy position: Dominant ☑ **Co-Dominant** ☐ **Suppressed** ☐

Surrounding Habitat Condition

Canopy closure at roost (%) 90%

Approximate woodlot size (ac or ha) 700ac **Distance to non-forest (ft or m)** 2340'

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature mixed pine-hardwood forest with sparse understory. Pinus taeda, Liquidambar styraciflua, and Fagus grandifolia dominate canopy.

Additional Comments

APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dylan Brooks, Jake Anderson **Date:** 6/23/2019

UTM: Zone_____ **Easting** _____ **Northing**_____ ***OR***

LAT 36.443180 **LONG** -76.679080

Property Owner: Merchants Millpond State Park **Phone#** (252) 357-1191

State North Carolina **County** Gates **Site #** MM-23

Roost # 6 **Roost Name:** MM701RT6

Roost Tree Data

Species: *Pinus taeda* **Live** ☑ **Snag** ☐ **Other** ☐

(if other, explain) _____

DBH (in or cm) 18.6" **Total Height (ft or m)** 106'

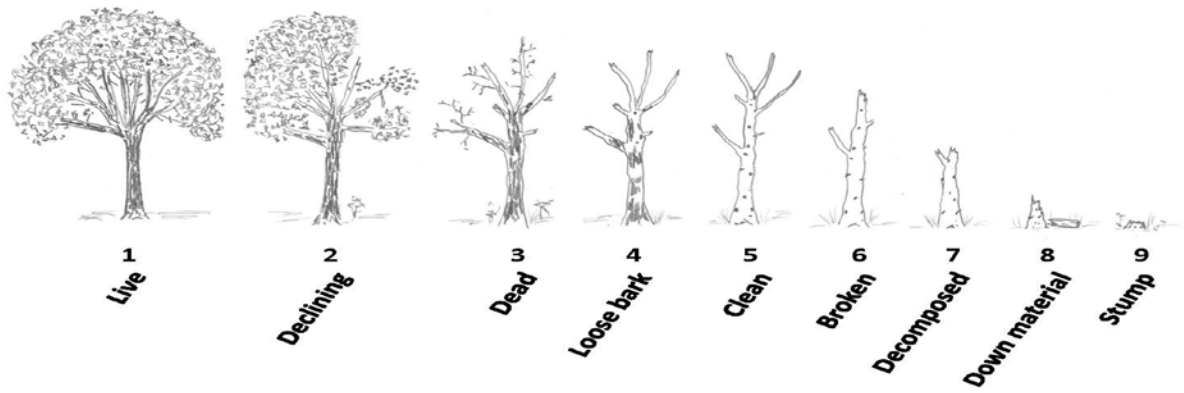
Height of roost area (if known) 73' **Dist. from capture site** 1813'

Roost position aspect (deg) 132

Exfoliating bark on bole (%) 5% **Describe: sloughing** ☐ **platy** ☑ **tight** ☐

Cavities present? Yes **If so, describe:** Peeling bark and dead branches present approximately 73' high.

Roost Decay State: (1) 2 3 4 5 6 7 8 9 Other



APPENDIX D
PHASE 4 RADIO-TRACKING

Roost tree or snag canopy position: Dominant ☑ **Co-Dominant** ☐ **Suppressed** ☐

Surrounding Habitat Condition

Canopy closure at roost (%) 75%

Approximate woodlot size (ac or ha) 700ac **Distance to non-forest (ft or m)** 2340'

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature mixed pine-hardwood forest with sparse understory. Pinus taeda, Liquidambar styraciflua, and Fagus grandifolia dominate canopy.

Additional Comments

APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dylan Brooks, Jake Anderson **Date:** 6/24/2019

UTM: Zone_____ **Easting** _____ **Northing**_____ ***OR***

LAT 36.442930 **LONG** -76.679110

Property Owner: Merchants Millpond State Park **Phone#** (252) 357-1191

State North Carolina **County** Gates **Site #** MM-23

Roost # 7 **Roost Name:** MM701RT7

Roost Tree Data

Species: *Pinus taeda* **Live** ☑ **Snag** ☐ **Other** ☐

(if other, explain) _____

DBH (in or cm) 19.3" **Total Height (ft or m)** 106'

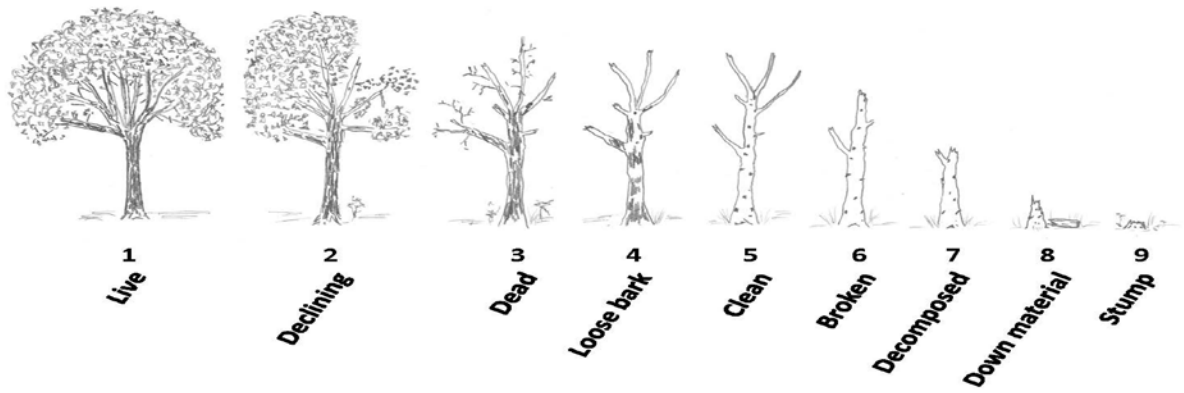
Height of roost area (if known) 66' **Dist. from capture site** 1778'

Roost position aspect (deg) 246

Exfoliating bark on bole (%) 5% **Describe: sloughing** ☐ **platy** ☑ **tight** ☐

Cavities present? Yes **If so, describe:** Peeling bark and dead branches present approximately 66' high.

Roost Decay State: **1** **2** **3** **4** **5** **6** **7** **8** **9** **Other**



APPENDIX D
PHASE 4 RADIO-TRACKING

Roost tree or snag canopy position: Dominant ☑ **Co-Dominant** ☐ **Suppressed** ☐

Surrounding Habitat Condition

Canopy closure at roost (%) 75%

Approximate woodlot size (ac or ha) 700ac **Distance to non-forest (ft or m)** 2370'

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature mixed pine-hardwood forest with sparse understory. Pinus taeda, Liquidambar styraciflua, and Fagus grandifolia dominate canopy.

Additional Comments

APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dylan Brooks, Jake Anderson **Date:** 6/28/2019

UTM: Zone_____ **Easting** _____ **Northing**_____ ***OR***

LAT 36.440100 **LONG** -76.666610

Property Owner: Merchants Millpond State Park **Phone#** (252) 357-1191

State North Carolina **County** Gates **Site #** MM-3

Roost # 1 **Roost Name:** MM939RT1

Roost Tree Data

Species: *Taxodium distichum* **Live** ☑ **Snag** ☐ **Other** ☐

(if other, explain) _____

DBH (in or cm) 18.3" **Total Height (ft or m)** 83'

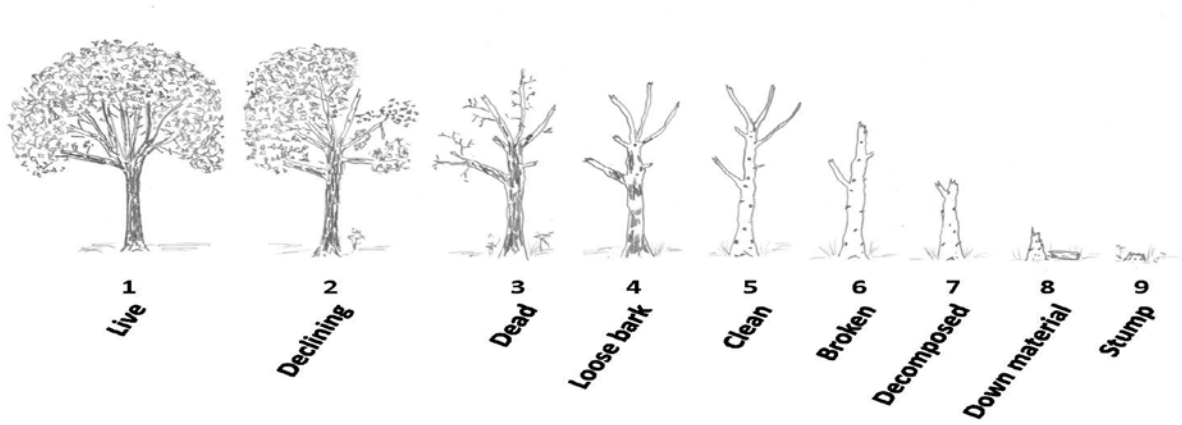
Height of roost area (if known) 37' **Dist. from capture site** 5,686'

Roost position aspect (deg) 223

Exfoliating bark on bole (%) 5% **Describe: sloughing** ☐ **platy** ☑ **tight** ☑

Cavities present? Yes **If so, describe:** Large cat face present 37' up.

Roost Decay State: 1 2 3 4 5 6 7 8 9 Other



APPENDIX D
PHASE 4 RADIO-TRACKING

Roost tree or snag canopy position: Dominant ☐ **Co-Dominant** ☑ **Suppressed** ☐

Surrounding Habitat Condition

Canopy closure at roost (%) 75%

Approximate woodlot size (ac or ha) 640ac **Distance to non-forest (ft or m)** 1309'

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature cypress-tupelo brown water swamp adjacent to Bennett's creek and upland mixed pine-hardwood stand.

Additional Comments

Appendix E

Emergence Data Forms

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 5/23/2019 **Surveyor(s) Full Name:** Dylan Brooks, Jake Anderson

State: NC **County:** Gates **Project Name:** 2019 MYSE Maternity Research

Site Name/#: MM-3 **Roost Name/#** MM660RT1 **Bat #:** MM660

Lat/Long or UTM of Roost: 36.43840° -76.66870°

Description of Roost/Habitat Feature Surveyed: Mature brown water cypress-tupelo swamp adjacent t Bennett's Creek.

Bat Species Known to be using this Roost/Feature (if not known, leave blank): *Myotis septentrionalis*

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed): Start temperature 83°F. End Temperature 77°F. Light 5mph wind in canopy. No precipitation.

Survey Start Time: 19:43 **Time of Sunset:** 20:13 **Survey End Time:** 21:13

NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
20:24	6	
20:32	8	Tagged bat emerges with 248° bearing
20:43	42	
21:08	5	

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: MM-3 **Roost Name/#:** MM660RT1

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	61	

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

Bats emerged continuously through out survey, starting at 20:24 and ending at 21:08. Some circled while others seemed to predominantly be heading west down Bennett's Creek. Tagged bat emerged at 20:32 with a bearing of 248°.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 6/15/2019 **Surveyor(s) Full Name:** Dylan Brooks, Jake Anderson

State: NC **County:** Gates **Project Name:** 2019 MYSE Maternity Research

Site Name/#: MM-24 **Roost Name/#** MM701RT1 **Bat #:** MM701

Lat/Long or UTM of Roost: 36.43478° -76.67049°

Description of Roost/Habitat Feature Surveyed: Mature brown water cypress-tupelo swamp adjacent t Bennett's Creek.

Bat Species Known to be using this Roost/Feature (if not known, leave blank): *Myotis septentrionalis*

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed): Start temperature 79°F. End Temperature 70°F. No wind in canopy. No precipitation.

Survey Start Time: 19:57 **Time of Sunset:** 20:27 **Survey End Time:** 21:27

NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
20:32	4	
20:47	19	
20:51	27	
20:58	10	Tagged bat emerges with 347° bearing
21:06	3	

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: MM-24 **Roost Name/#:** MM701RT1

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	63	

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

Bats emerged continuously through survey, starting at 20:41 and ending at 20:58. All left the area shortly after emerging and seemed be heading west down Bennett's Creek. Tagged bat emerged at 20:58 with a bearing of 347°.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 6/20/2019 **Surveyor(s) Full Name:** Jake Anderson

State: NC **County:** Gates **Project Name:** 2019 MYSE Maternity Research

Site Name/#: MM-24 **Roost Name/#** MM701RT2 **Bat #:** MM701

Lat/Long or UTM of Roost: 36.44085° -76.66928

Description of Roost/Habitat Feature Surveyed: Mature mixed pine-hardwood with sparse understory

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Myotis septentrionalis

Other Suspected Bat Species (explain): _____

Weather Conditions during Survey (temperature, precipitation, wind speed):
Start temperature 85°F. End Temperature 78°F. 5mph wind in canopy. No precipitation.

Survey Start Time: 19:58 **Time of Sunset:** 20:28 **Survey End Time:** 21:28

NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
20:33	1	
20:41	2	
20:47	1	
20:52	2	

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: MM-24 **Roost Name/#:** MM701RT2

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	6	

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

Bats emerged slowly during survey and dispersed in multiple directions.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 6/20/2019 **Surveyor(s) Full Name:** Dylan Brooks

State: NC **County:** Gates **Project Name:** 2019 MYSE Maternity Research

Site Name/#: MM-24 **Roost Name/#** MM701RT3 **Bat #:** MM701

Lat/Long or UTM of Roost: 36.44226° -76.67852

Description of Roost/Habitat Feature Surveyed: Mature mixed pine-hardwood with sparse understory

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Myotis septentrionalis

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed):
Start temperature 85°F. End Temperature 78°F. 5mph wind in canopy. No precipitation.

Survey Start Time: 19:58 **Time of Sunset:** 20:28 **Survey End Time:** 21:28

NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
20:54	1	Tagged bat emerges with 243° bearing

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: MM-24 **Roost Name/#:** MM701RT3

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	1	

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

Only MM701 emerged from the roost at 20:54 with 243° bearing.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 6/21/2019 **Surveyor(s) Full Name:** Dylan Brooks, Jake Anderson

State: NC **County:** Gates **Project Name:** 2019 MYSE Maternity Research

Site Name/#: MM-24 **Roost Name/#** MM701RT4 **Bat #:** MM701

Lat/Long or UTM of Roost: 36.44362° -76.67980

Description of Roost/Habitat Feature Surveyed: Mature mixed pine-hardwood with sparse understory.

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Myotis septentrionalis

Other Suspected Bat Species (explain): _____

Weather Conditions during Survey (temperature, precipitation, wind speed):
Start temperature 79°F. End Temperature 73°F. 5mph wind in canopy. No precipitation.

Survey Start Time: 19:58 **Time of Sunset:** 20:28 **Survey End Time:** 21:28

NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
20:57	1	Tagged bat emerged with 137° bearing

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: MM-24 **Roost Name/#:** MM701RT4

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	1	

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

Only MM701 emerged from the roost at 20:57 with a bearing of 137°.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 6/22/2019 **Surveyor(s) Full Name:** Dylan Brooks, Jake Anderson

State: NC **County:** Gates **Project Name:** 2019 MYSE Maternity Research

Site Name/#: MM-24 **Roost Name/#** MM701RT5 **Bat #:** MM701

Lat/Long or UTM of Roost: 36.44294° -76.67844

Description of Roost/Habitat Feature Surveyed: Mature mixed pine-hardwood with sparse understory.

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Myotis septentrionalis

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed):
Start temperature 77°F. End Temperature 70°F. No wind in canopy. No precipitation.

Survey Start Time: 19:58 **Time of Sunset:** 20:28 **Survey End Time:** 21:28

NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
20:51	1	Tagged bat emerged with 76° bearing

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: MM-24 **Roost Name/#:** MM701RT5

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	1	

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

Only MM701 emerged from the roost at 20:51 with a bearing of 76°.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 6/23/2019 **Surveyor(s) Full Name:** Dylan Brooks, Jake Anderson

State: NC **County:** Gates **Project Name:** 2019 MYSE Maternity Research

Site Name/#: MM-24 **Roost Name/#** MM701RT6 **Bat #:** MM701

Lat/Long or UTM of Roost: 36.44288° -76.67928

Description of Roost/Habitat Feature Surveyed: Mature mixed pine-hardwood with sparse understory.

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Myotis septentrionalis

Other Suspected Bat Species (explain): _____

Weather Conditions during Survey (temperature, precipitation, wind speed):
Start temperature 77°F. End Temperature 68°F. No wind in canopy. No precipitation.

Survey Start Time: 19:58 **Time of Sunset:** 20:28 **Survey End Time:** 21:28

NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
20:52	1	Tagged bat emerged with 246° bearing

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: MM-24 **Roost Name/#:** MM701RT6

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	1	

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

Only MM701 emerged from the roost at 20:52 with a bearing of 246°.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 6/24/2019 **Surveyor(s) Full Name:** Dylan Brooks, Jake Anderson

State: NC **County:** Gates **Project Name:** 2019 MYSE Maternity Research

Site Name/#: MM-24 **Roost Name/#** MM701RT7 **Bat #:** MM701

Lat/Long or UTM of Roost: 36.44293° -76.67911

Description of Roost/Habitat Feature Surveyed: Mature mixed pine-hardwood with sparse understory.

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Myotis septentrionalis

Other Suspected Bat Species (explain): _____

Weather Conditions during Survey (temperature, precipitation, wind speed):
Start temperature 84°F. End Temperature 73°F. No wind in canopy. No precipitation.

Survey Start Time: 19:58 **Time of Sunset:** 20:28 **Survey End Time:** 21:28

NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
20:48	1	Tagged bat emerged with 202° bearing

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: MM-24 **Roost Name/#:** MM701RT7

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	1	

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

Only MM701 emerged from the roost at 20:48 with a bearing of 202°.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 6/28/2019 **Surveyor(s) Full Name:** Dylan Brooks, Jake Anderson

State: NC **County:** Gates **Project Name:** 2019 MYSE Maternity Research

Site Name/#: MM-3 **Roost Name/#** MM939RT1 **Bat #:** MM939

Lat/Long or UTM of Roost: 36.44010° -76.66661

Description of Roost/Habitat Feature Surveyed: Mature brown water cypress-tupelo swamp adjacent t
To Bennett's Creek and upland forest.

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Myotis septentrionalis

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed):
Start temperature 85°F. End Temperature 76°F. 5mph wind in canopy. No precipitation.

Survey Start Time: 19:59 **Time of Sunset:** 20:29 **Survey End Time:** 21:29

NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
20:34	1	
20:41	2	Tagged bat emerged with 177° bearing
20:48	3	
20:53	1	

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: MM-3 **Roost Name/#:** MM939RT1

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	7	

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

Only MM939 emerged from the roost at 20:41 with a bearing of 177°.

Appendix F

Little Brown Bat Photographs

2019 Eastern North Carolina MYSE Research Study
MYLU Photo Document

Site #: MM-17 Date: 5/1/2019
Sex: Male Age: Adult Reproduction: NR Band #: CALYX 1055 Frequency #: N/A

Net B

Reproduction: NR=Non-reproductive, TD=Testes descended, P=Pregnant, L=Lactating, PL=Post-lactating