Final Report:

Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell Counties, North Carolina

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Executive Summary

In October 2016, the North Carolina Department of Transportation contracted Copperhead Environmental Consulting, Inc. (Copperhead) and its sub consultant (HDRInc.) to assist with portions of a research study of the Federally Threatened northern long-eared bat (*Myotis septentrionalis*) in eastern North Carolina. Because the species was first documented in the coastal plain in 2007, relatively little is known of the natural history of the species there. This study is part of a multi-year research project designed to elucidate the distribution, habitat preferences, and behavior of the northern long-eared bat in the region. A detailed summary of the results of this field study are provided herein.

This project was divided into two survey phases consisting of a "Fall" (15 November – 31 December 2016) and "Winter" (1 January – 21 March 2017) study period. Copperhead surveyed five pre-determined study areas using mist-netting techniques and acoustic detectors. All surveys were conducted within suitable northern long-eared bat roosting and foraging habitat with the goal of catching or recording the species. In general, mist-net and acoustic surveys followed guidelines established by the US Fish and Wildlife Service. However, certain accommodations were made for the unconventional conditions posed by seasonal weather patterns occurring during the fall and winter months.

Netting efforts conducted at 30 sites surveyed over 69 calendar nights captured a total of 181 bats of 10 species. A total of 10 northern long-eared bats were captured at 7 sites located in 4 of the 5 study areas. Each of these bats were fitted with radio transmitters and subsequently tracked in an effort locate day roosts and characterize the habitat preferences of the species. Eight of the focal bats were successfully tracked for 21 days; one transmitter was shed after 9 days and another bat was presumed to have left the study area after ground and aerial searches failed to locate it. Tracking efforts resulted in the location of a total of 41 roost trees of 11 species in 4 study areas. The mean number of roosts used by focal bats tracked for the term of their 21-day activity period (n = 8) was 5 (range 3 – 7 roosts). The mean number of days focal bats remained in a particular roost was 2.5 (range 1 – 14 days). A minimum of one emergence count was conducted on each roost tree. The maximum number of bats observed emerging from a roost during the study was 6. The mean distance from point of capture to day roosts was 968 meters (range 425 – 2,199 m).

Acoustic surveys were conducted in conjunction with and concurrently at mist net locations. A total of 249 individual call files were autoclassified as northern long-eared bat. Of these, a total of 10 files (obtained across 6 sites in all 5 study areas) were ultimately vetted and qualitatively identified as northern long-eared bat vocalizations.

The data provided in this document were collected by Copperhead during the Fall 2016/Winter 2017 Northern Long-eared Bat Research Project. At the direction of the North Carolina Department of Transportation, this document uses past summary reports produced during previous phases of this project as templates. These reports were used both broadly as a general outline and as a guide for data reporting formats and are cited, as needed.

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Project Background

The US Fish and Wildlife Service (USFWS) formally listed the northern long-eared bat (NLEB) as a threatened species under the Endangered Species Act on 4 May 2015. The species was not known to occur in the Coastal Plain of North Carolina until it was first documented in the region in 2007 (Morris et al. 2009). While most NLEB across their range hibernate underground, the study area has no known caves or mines. Subsequent research conducted in the region (NCDOT 2016, Three Oaks 2016) has shown that a population of the species overwinter on the Coastal Plain where the relatively mild winter temperatures appear to allow a level of insect activity high enough to provide NLEB with winter foraging opportunities.

The federal listing of the NLEB affects North Carolina Department of Transportation (NCDOT) projects statewide with a federal nexus. The term "federal nexus" applies when a NCDOT project involves federal funding, federal permit or approval, or use of federal lands or a federal program. It is within this context that NCDOT has entered into a Programmatic Agreement with the USFWS which includes a research program designed to establish conclusive information concerning the existence of the NLEB in the Coastal Plain of North Carolina. NCDOT has set aside funds earmarked for NLEB surveys during summer and winter months in an effort to better understand the specie's requirements during this time. In exchange, the USFWS has issued NCDOT an incidental take permit, which will allow them to continue working on their projects for five years while the team develops comprehensive guidelines that will shape consultation recommendations, starting in 2020.

In October 2016, Copperhead Environmental Consulting, Inc. (Copperhead) and its subconsultant (HDRInc) was contracted by NCDOT to conduct an acoustic and mist net survey at five predetermined study sites in the coastal plain of North Carolina. The Fall 2016/Winter 2017 NLEB Research Project (detailed herein) represents the third phase of an ongoing multi-year effort to elucidate the range, habitat preferences, and behavior of the species in the Coastal Plain of North Carolina. Specifically, the objectives of this study include the following:

- Determine the distribution of NLEB in eastern North Carolina, determine where and if presence is year-round and where it is limited to the maternity season, and develop basic understanding of NLEB habitat and temporal (year-round) activity patterns;
- Conduct mist-netting and radio telemetry on NLEB to locate and characterize day roosts used during the fall/winter months;
- Swab susceptible bats in winter to determine presence/absence of *Pseudogymnoascus destructans* (*Pd*), the fungus that causes white-nose syndrome (WNS).

In general, acoustic and mist-net survey methodologies followed guidelines outlined in the USFWS (2016) document *2016 Range-wide Indiana Bat Summer Survey Guidelines.* However, because this research occurs outside of the "normal" bat survey season, modifications were made to the study design to account for conditions present during the fall/winter months.

Study Area Description

Copperhead was tasked with sampling four pre-determined locations in the Coastal Plain of North Carolina. A fifth study area, the Buckridge Game Land (Buckridge) study area, was originally included as a substitute survey area should the Alligator River site fail to offer suitable bat habitat. Ultimately, all five survey areas were sampled and include the following:

1. Lower Roanoke River Game Land, Martin County
2. Roanoke River National Wildlife Refuge, Bertie County
3. Bladen Lakes State Forest, Bladen County
4. Alligator River Game Land, Tyrrell County
5. Buckridge Game Land, Tyrrell County

Prior to this study, the Bladen Lakes State Forest (Bladen Lakes), Lower Roanoke River Game Land (Lower Roanoke), and Roanoke River National Wildlife Refuge (Roanoke River) study areas had all been surveyed previously with one or a combination of acoustic and mist net surveys with NLEB captures occurring at all three of these survey areas. The Alligator and Buckridge study areas had received no known previous bat survey work prior to this study and the species was not known to occur either of these study areas.

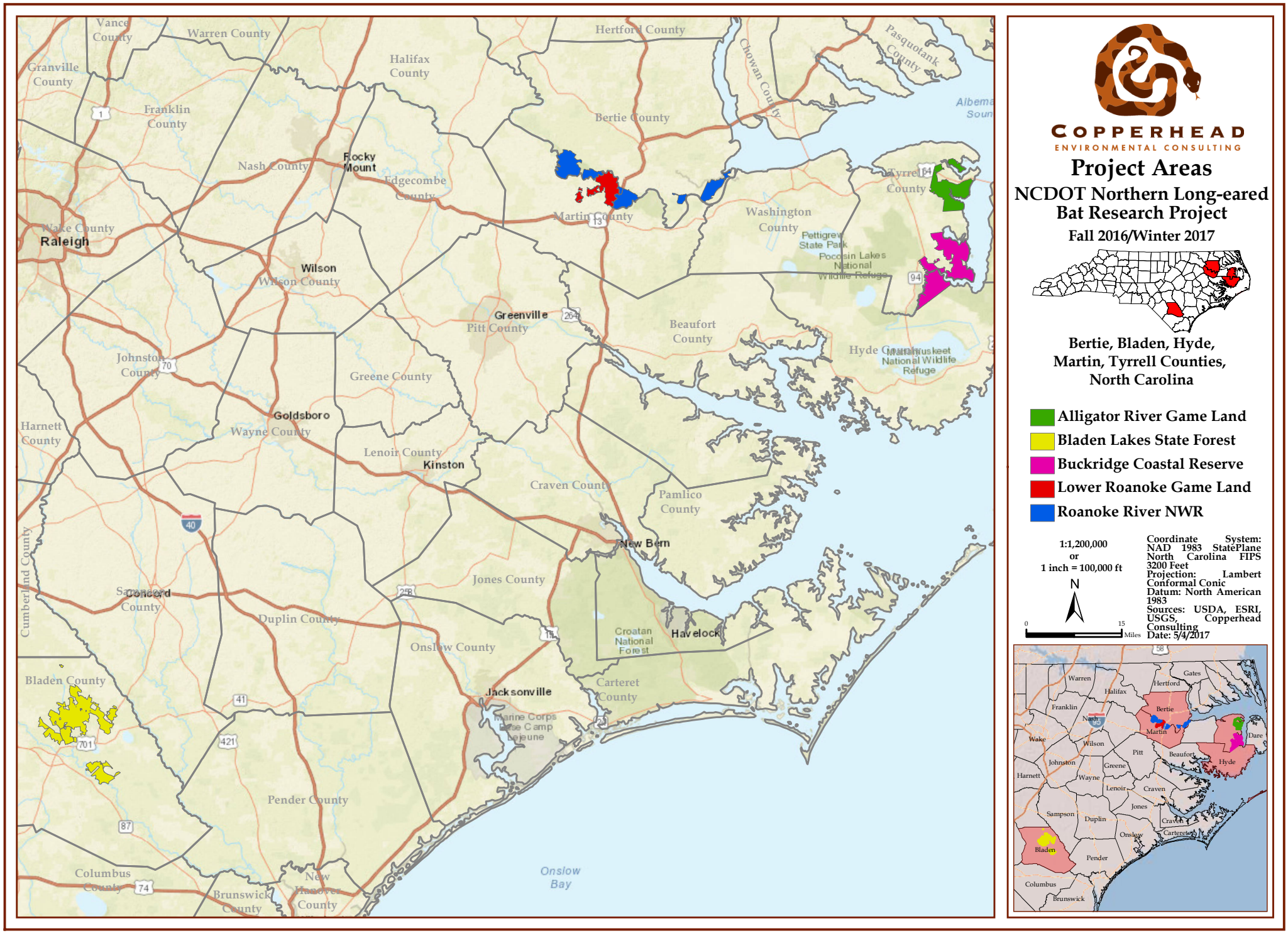

Figure 1. Project overview and study areas surveyed during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina.

Methods

Mist-net Surveys

In general, mist-net surveys followed methodologies outlined by the USFWS *2016 Range-Wide Indiana Bat Summer Survey Guidelines*. Survey methods also followed the internal NCDOT document *Standards for NLEB Research 2016 (Appendix A)*. The locations of several sites that had previous captures (or were otherwise thought to provide high quality NLEB habitat) were provided to Copperhead. The remaining sites were located via reconnaissance by Copperhead biologists in areas of suitable NLEB habitat. The actual location and orientation of each net was determined in the field.

Mist-nets were set to maximize coverage of flight paths used by NLEB along suitable travel corridors, foraging areas, or drinking areas. Placement of mist-nets was based on the extent of canopy cover, presence of an open flyway, and forest conditions near the site. Mist-net sites were surveyed for one or more nights based on capture success or the surrounding habitat. All work was conducted by qualified bat biologists who hold current applicable USFWS and NC Wildlife Resources Commission (NCWRC) permits.

The mist-net survey effort was based on calendar nights, i.e., sampling conducted at one site for a complete survey period equals one calendar night of netting. The number of net sets deployed at each site ranged from 2-5 sets and depended on conditions and the habitat present. Each set consisted of a minimum of a double-high net configuration (two nets stacked; 5.2 m tall). Low visibility, high-quality nylon nets, 4 to 12 meters in length (depending upon the width of the corridor), were used for each net set. Nets were deployed at sunset each night, left open for the duration of the survey period, and checked every 10 minutes. Disturbance near the nets was kept to a minimum between checks. Digital photographs of mist net locations are provided in Appendix E.

Weather data, including temperature, wind speed, and cloud cover, were recorded for each site on an hourly basis to ensure compliance with the mist-netting guidelines (e.g., temperature during survey > 50 degrees F). No work was conducted on nights for which the forecast temperature was lower than 45 degrees Fahrenheit during the survey window. This forecast was obtained on the same calendar day of the netting effort. Using this minimum temperature requirement, nightly mist net efforts at each site were considered "complete" when nets remained open at least five hours a night (past official sunset) during the fall study period and for a minimum of three hours during the winter period. Survey efforts at each site were repeated if weather conditions failed to meet the minimum temperature requirement, the winds moved the nets more than 50 percent of the time, and/or rain or fog persisted for 30 minutes or continued intermittently throughout the survey period. Temperature data were collected by temperature data loggers (Lascar Electronics, model EL-USB) provided by NCDOT which were deployed at each site.

Bats were live-caught in mist-nets and released unharmed near the point of capture. Data was recorded on NCDOT *Mist-netting and Acoustic Survey Data Forms*. Biological and morphometric data, i.e., species, sex, age class (juvenile or adult), reproductive condition (pregnant, lactating, post-lactating, scrotal, or non-reproductive), forearm length (mm), mass (g), and Wing-Damage Index (WDI) score to determine possible infection from WNS were recorded for each bat (Reichard and Kunz 2009). In addition, the capture height and the specific net set of capture were recorded for each bat. Processing of bats was completed within 30 minutes from the time the bat was removed from the net. Aluminum-lipped arm bands (Porzana Ltd, Icklesham, East Sussex, UK) provided by NCDOT were applied to the right forearm of captured bats (until band supplies were exhausted).

Prior to release, NLEB were photographed following techniques provided by USFWS in their 2016 Indiana bat survey guidelines (USFWS 2016). Digital photographs of all captured NLEB and of other captured myotines are included in Appendices F and H, respectively.

Acoustic Survey

Acoustic surveys were conducted concurrently with mist-net surveys. Bat detector locations were selected by permitted biologists based on the presence of high quality NLEB foraging and roosting habitat within proximity of the mist-net sites.

Acoustic surveys utilized AnaBat SD-2 detectors (Titley Electronics Pty Ltd, Ballina, NSW Australia). All bat detectors received functionality tests from the manufacturer within a calendar year of the project start date. Detector certifications are available upon request.

Audio division ratio was set to 16, data division ratio was set to 8, and sensitivity was set to 6 or 7 (depending on insect noise levels) for all recording sessions. Units were placed in a weatherproof Pelican Case (Pelican Products, Inc., Torrance, CA) and attached via a weatherproof cable to a "high" microphone mounted inside a 1.5-inch, 45-degree angle PVC tube manufactured by Titley. Microphones were mounted on a pole 3.6 meters off the ground to reduce the amount of noise recorded. Detectors were deployed at least 3 meters from vegetation in any direction. Detectors were turned on at or before sunset and recorded for the duration of the nightly netting effort. To ensure the unit was functioning properly, fingers were rubbed together in front of the microphone at set up and take down. Photographs of each acoustic site are provided in Appendix E.

Due to the close proximity of the mist-net and acoustic sites, the GPS location recorded for the mist-net site was also used to report the acoustic site location. Surveys were not conducted when the forecast temperature was below 45°F. Nightly acoustic survey efforts were repeated when temperatures dropped below the temperature minimum (within the window of the survey period), there was more than 30 minutes of rain, or if wind moved the mist-nets more than 50 percent of the time. Weather conditions were recorded at the beginning, at the midpoint, and at the conclusion of the survey. If the

temperature dropped below 45 degrees Fahrenheit during the night, it is noted in Table 6 (Appendix A).

If less than 100 call files were recorded at a site on a given night, the files were processed using EchoClass version 3.1 and all files were manually analyzed by a biologist trained in acoustic identification. If more than 100 call files were recorded at a site on a given night, the files were processed using EchoClass and BCID East version 2.7d. Processing with EchoClass utilized species Set 1 and processing with BCID East utilized the default North Carolina species set plus "*Myotis austroriparius*." Maximum likelihood estimates, identifications by file, and identifications by night were output by both programs.

Files identified as NLEB by either program were manually analyzed and vetted by a trained biologist from Copperhead. For each file identified as NLEB by either program, a biologist provided manual identification of the species suspected of making the call, as well as a rationale for the identification. Files were viewed in AnalookW (version 4.2g) with a filter to remove noise and to aid in the vetting of each call. The filter was configured with the following settings: Smoothness 30, Body over 1000 microseconds, Fc (kHz) min of 5 and max of 100, Dur (ms) min of 2 and max of 100, and minimal call rate required 1 call in 15 seconds. Screen shots of each sonogram identified as NLEB are shown at the F7 time scale, compressed, in the "frequency only" view with the filter turned on.

Radio Telemetry

All captured NLEB were fitted with 21-day radio transmitters (Holohil Systems Ltd. LB-2X, frequency 172 kHz, 0.30 g). Transmitter attachment followed methodologies outlined in the *2016 Range-wide Indiana Bat Summer Survey Guidelines* (USFWS 2016). Radio transmitters were tested and then attached between the scapulae of the bat using a nontoxic surgical adhesive (The Perma-Type Company, Inc., Plainville, CT, USA) that degrades over time allowing the transmitter to eventually become detached from the bat. Each transmitter had a unique frequency, which was used to identify individual bats during radio-tracking.

Ground Telemetry

Model TRX-1000S (Wildlife Materials Inc., Carbondale, Illinois, USA) tracking receivers and 172-3FB 3- and 5-element Yagi directional antennas were used to search for radio-tagged bats on the landscape. Each focal bat was tracked for a minimum of 4 hours per day and a maximum of 8 hours a day for up to 21 days, until the roost tree was located or the transmitter was shed or malfunctioned. Once located, each roost tree was photographed and coordinates were obtained using a handheld GPS unit set to decimal degrees using the NAD83 datum. In addition, a sketch of the roost was made on Copperhead's roost tree datasheet and a uniquely numbered aluminum tree tag and high visibility flagging were placed on each tree for future identification. Data recorded for each roost included tree species, diameter at breast height (dbh; in centimeters), tree height (in meters; estimated), roost height (in meters; estimated if known), condition (snag, live, or live-damaged), percent usable bark cover for roosting (Gardner et al. 1991), percent total bark cover, tree ranking (whether a tree's crown was in the canopy, sub-canopy, or understory), and any other noteworthy observations (e.g., bat vocalization, guano). Basal area [an expression of tree density (Avery 1967)] of the forest surrounding the roost tree was determined with a 10-factor English prism. Each tree within this plot was characterized using the same criteria as the roost tree. Roost tree data were recorded on the USFWS (USFWS 2016) and Copperhead Roost Tree Datasheets. Emergence counts were documented using a combination of USFWS Emergence Count Datasheets (USFWS 2016) and Copperhead Roost Tree Datasheets.

Aerial Telemetry

If contact with a transmitter was lost for more than two days, aerial searches were conducted to relocate the lost bat. The aerial search was conducted using a Cessna Sky Hawk 172 fitted with aircraft strut mount assemblies (Advanced Telemetry Systems Inc., [ATS] 1997, Isanti, MN) with two 172-3FB 4-element ATS Yagi directional antennas (ATS model #13886). The aerial crew consisted of a pilot and a navigator/copilot. The pilot maintained an elevation of approximately 455 meters (1,500 ft) above ground level. The navigator monitored the transmitter signal through the receiver estimating bat location on mapping software (DeLorme Topo North America 9.0, Yarmouth, ME). A gridded search pattern was conducted centered on the last known location of the lost bat with transects spaced approximately 6 kilometers apart. This distance is well within the known signal capabilities (with the plane flown at this altitude) and allows for maximum coverage of the landscape (covered by the grid).

Habitat Characterization

The natural community type was described at all NLEB capture sites and day roosts. Community types followed *The Guide to the Natural Communities of North Carolina, Third Approximation* (Schafale and Weakley 1990). In addition, habitat in the survey area was characterized using the NCDOT document *Standards for NLEB Research 2016 (Appendix A).* Specifically, habitat at mist net sites was characterized using the following:

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)
   - sparse/no, < 10% cover
   - low, 10-39% cover
   - medium, 40-75% cover
   - high, >75% cover

Clutter at mist net sites was recorded as an average number representing the surrounding forest where all nets were set, not specifically the flyway.

In addition, the forest basal area (meter^2/hectare) and canopy cover were estimated for each NLEB capture site and roost tree. Basal area at each site was determined using a 10-factor prism and canopy cover using a sighting tube at 10 random points selected within a 0.05-acre (500 m^2) circle centered around the roost tree or capture site. Points were chosen using a random number generator to create an azimuth (1 - 360°) and a distance from the center (0 - 12.6 m) for each sample point (Cook et al. 1995, Ford et al. 2006). At each point, a GRS densitometer (Geographic Resource Solutions, Inc.) was used to record the presence or absence of canopy cover. These ten points were then used to generate an average percent cover.

White-Nose Syndrome Protocol

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

Biological Sampling

Swab samples were collected from all captured NLEB and attempts were made to collect both swab and guano samples from captured *M. lucifugus*, *M. austroriparius*, *Eptesicus fuscus*, and *Perimyotis subflavus*. Collection methodologies followed guidance outlined in Appendix E of the document *North Carolina's White-nose Syndrome Surveillance and Respone Plan, April 2016*. Collected swab samples were kept refrigerated and were sent to the Southeast Cooperative Wildlife Disease Study (SCWDS) lab for *Pseudogymnoascus destructans* (*Pd*) analysis under the NCWRC contract. Guano samples were also collected for *Pd* analysis from the species listed above when available. Guano samples are currently being housed at the Copperhead Main Office pending further shipping instructions from NCDOT or US Geological Survey National Wildlife Health Center.

Results

Mist Net Survey

Mist-net surveys were conducted over 69 calendar nights at 30 sites sampled over 5 survey areas. A total of 181 bats of 10 species were captured (Table 1), including 55 southeastern bats (*M. austroriparius*), 47 red bats (*Lasiurus borealis*), 31 big brown bats (*Eptesicus fuscus*), 15 Rafinesque's big-eared bat (*Corynorhinus rafinesquii*), 11 Evening bats (*Nycticeius humeralis*), 10 NLEB, 7 Seminole bats (*L. seminolus*), 2 hoary bats (*L. cinereus*), 2 silver-haired bats (*Lasionycteris noctivagens*), and 1 tricolored bat (*Perimyotis subflavus*).

A more detailed mist-net capture summary is provided in Table 4 (Appendix A). Figures detailing the locations of mist-net sites and NLEB captures are located in Appendix B and completed mist-net datasheets are provided in Appendix D. Digital photographs of captured NLEB and photographs of other, non-target myotines are provided in Appendix G and H, respectively.

Table 1. Summary of total bat captures by species, age, sex, and reproductive status captured during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Martin, and Tyrrell counties, North Carolina.

	Adult Male		**Adult Female**				**Juvenile**			
Species	**NR**	**S**	**P**	**L**	**PL**	**NR**	**Female**	**Male**	**Escaped**	**Total**
Myotis austroriparius	16	12	-	-	-	27	-	-	-	**55**
Lasiurus borealis	36	1	-	-	-	2	-	5	3	**47**
Eptesicus fuscus	17	3	-	-	-	10	-	-	1	**31**
Corynorhinus rafinesquii	3	6	-	-	-	5	-	-	1	**15**
Nycticeius humeralis	2	1	-	-	-	8	-	-	-	**11**
Myotis septentrionalis	6	-			1	3				**10**
Lasiurus seminolus	7	-	-	-	-	-	-	-	-	**7**
Lasiurus cinereus	-	1	-	-	-	-	-	1		**2**
Lasionycteris noctivagens	2	-	-	-	-	-	-	-	-	**2**
Perimyotis subflavus	-	-	-	-	-	1	-	-	-	**1**

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

Bat Capture by Study Area

A total of 30 sites were sampled across 5 study areas (Table 2). The Lower Roanoke River site was the only survey area where no NLEB were captured. A more detailed mist net capture summary is provided in Table 4 (Appendix A).

Table 2. Capture and tracking results by study area during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Martin, and Tyrell counties, North Carolina.

Study Area	Total Bat Captures	Species Richness	# of Net Sites	# of Calendar Nights	# NLEB Captured	Total # Day Roosts
Alligator River GL	16	6	6	8	3	17
Bladen Lakes SF	31	7	13	52	2	6
Buckridge CR	2	2	2	4	1	2
Lower Roanoke	75	6	4	14	0	0
Roanoke River NWR	57	7	5	10	4	16
Total	**181**	**-**	**30**	**88**	**10**	**41**

Bat Capture by Study Period

During the fall survey period, a total of 58 bats of 8 species were captured including 24 red bats, 21 southeastern bats, 4 Rafinesque's big-eared bat, 3 Seminole bats, 2 NLEB, 2 hoary bats, 1 evening bat, and 1 silver-haired bat.

During the winter survey period, a total of 123 bats of 9 species including 34 southeastern bats, 31 big brown bats, 24 red bats, 12 Rafinesque's bats, 10 evening bats, 8 NLEB, 2 Seminole bats, 1 tricolored bat, and 1 silver-haired bat,

Radiotelemetry, Roosts, and Emergence Counts

A total of 10 NLEB were captured at 7 sites located in 4 of the 5 study areas (Table 2). Each of these bats were fitted with radio transmitters and tracked in an effort locate day roosts. Eight of the focal bats were successfully tracked for 21 days; one transmitter was shed after 9 days and another was presumed to have left the study area after ground and aerial searches failed to locate it.

Contact with this bat (Bat .664) was lost after four days of tracking. Approximately two days after final contact with the bat, an attempt was made to relocate the bat via ground and aerial telemetry searches of the surrounding area. Ground crews conducted searches from 20 - 22 November traveling 272 kilometers using local roads crossing the general area of the bat's last known location (Roost Tree 613). The plane conducted a 7-hour search on 22 November centered on Roost Tree 613. A grid pattern was flown at an altitude of approximately 457 meters with transects spaced approximately 3.2 – 6.4 kilometers apart, depending on altitude and terrain. The plane flew a total of 734.5 kilometers and covered an area of 2,993 square kilometers. Neither the aerial or ground

crews were able to relocate the missing bat and tracking efforts were terminated on 24 November. Both the aerial and ground search paths are detailed in Figure 11 (Appendix B).

Subsequent tracking efforts resulted in the location of a total of 41 roost trees of 11 species in 4 of the study areas. Roost trees varied greatly in age, condition, size, and observable microhabitats available for roosting bats. The most commonly used species were *Nyssa aquatic* (n = 10), *N. biflora* (n = 9), *Populus heterophylla* (n = 4), and *Acer rubrum* (n = 4). Most roosts were live (n = 20) but focal bats also roosted in live-damaged trees (n = 13), and snags (n = 4). The mean dbh of all roosts was 39.8 centimeters and the mean height was 10.9 meters.

The mean number of roosts used by focal bats tracked for the entire 21-day activity period (n = 8) was 5 (range 3 – 7 roosts). In general, focal bats roosted in the vicinity of their capture site and maintained a pool of alternative roosts within close proximity to one another. The mean distance from point of capture to all day roosts was 968 meters (range 425 – 2,199 m). Bats switched roosts frequently and many left roosts only to return to them at a later date. The mean number of days focal bats remained in a particular roost was 2.5 (range 1 – 14 days). This number was calculated only for those bats whose arrival and exit for a particular roost was documented. One bat was documented to remain in the same roost for 16 days. This transmitter was active on the last day of the study but it is unknown if it was still attached to the focal bat.

A minimum of one emergence survey was conducted at each roost location. The maximum number of bats observed emerging from a roost during the study was six (range 0 – 6).

Table 5 (Appendix A) provides a detailed summary of the tracking effort, emergence counts, and day roosts. Completed Roost Tree and Emergence Datasheets are provided in Appendix D and digital photographs of day roosts are provided in Appendix G.

Acoustic Survey

A total of 30 acoustic detector nights were completed during the fall session (15 November - 31 December) and 31 acoustic detector nights were completed during the winter session (1 January – 28 February). A total of 249 individual call files were autoclassified as NLEB vocalizations. Most files identified as NLEB (n = 249) by the autoclassifiers were qualitatively identified (i.e., through manual vetting) as other species. In total, 132 of the 249 files were manually identified as southeastern bats, 11 as "other Myotis", 8 as red bats and 1 was identified as a big brown bat. A total of 74 files were determined to lack sufficient information to confidently identify to species and were designated as NOID ("No ID"). After qualitative vetting, a total of 10 files were identified as NLEB. Confirmed NLEB vocalizations were obtained across all five study areas (Table 3).

Table 3. Mist net captures and positive NLEB acoustic documentation for each study site surveyed during the Fall 2016/Winter 2017 Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina.

Study Area	# NLEB Captured[1]	# NLEB Autoclassified[2]	# NLEB Confirmed[3]	# Sites Confirmed[4]
Alligator River GL	3	3	1	1
Bladen Lakes SF	2	6	1	1
Buckridge Coastal Res.	1	5	2	1
Lower Roanoke	0	96	2	1
Roanoke River NWR	4	139	4	2
Total	**10**	**249**	**10**	**6**

[1] – Number of NLEB capture during mist net survey

[2] - Number of acoustic files autoclassified as NLEB using Echoclass or Kaleidoscope software

[3] - Number of acoustic files qualitatively identified as NLEB

[4] – Number of acoustic survey sites with confirmed NLEB vocalizations recorded

Figures detailing the locations of acoustic survey sites and NLEB detections are located in Appendix B. Tables 6 - 7 provide a detailed summary of acoustic site locations, community types, start and stop times, nightly temperature profiles, call files identified as NLEB by the autoclassifiers, call files confirmed (as those being consistent with calls produced by NLEB), and any notes in regards to the survey or analysis. Jpeg images of the sonogram outputs of each file qualitatively identified as NLEB are provided in Appendix J.

Habitat Characterizations of NLEB Capture and Detection Sites

NLEB were captured at four of the five survey areas. Lower Roanoke was the only study area in which no NLEB were captured. All study area had sites in which NLEB vocalizations were recorded. All sites in which NLEB were documented are described below.

Additional mist-net capture data are presented in Table 4. Please refer to the Figures 2 - 6 (Appendix B) for the locations of mist-net and acoustic survey sites. Community type narratives are not provided for mist-net sites where no NLEB were captured, but can be made available upon request. General habitat descriptions are also provided in completed mist-net and acoustic survey data sheets (Appendix C).

Habitat Characterizations of Mist Net Sites

NLEB were captured at four of the five survey areas. Lower Roanoke Game Land was the only study area in which no NLEB were captured. All study areas had sites in which NLEB vocalizations were recorded.

Additional mist-net capture data are presented in Table 4. Refer to the Figures 2 -6 (Appendix B) for the locations of mist-net and acoustic survey sites. Community type narratives are not provided for mist-net sites where no NLEB were captured. General habitat descriptions are also provided in completed mist-net and acoustic survey data sheets (Appendix C).

Sites in which NLEB were documented include the following sites:

<u>Bladen Lakes State Forest</u>

BL04- is located in the north-eastern portion of the Bladen Lakes study area. The mist-net site is situated along a corridor created by a partially flooded dirt road. The corridor is surrounded by a cluttered mixed hardwood/pine forest which is dominated by red maple (*Acer rubrum*), water oak (*Quercus nigra*), loblolly bay (*Gordonia lasianthus*), and Eastern red cedar (*Juniperus virginiana*). The corridor provides access to several forest openings and various swampy ponds that provide a water source to bats and other wildlife. Individual adult female NLEBs were captured at the site in Net C on November 16, 2016, and December 1, 2016. Both were fitted with radio transmitters.

<u>Buckridge Game Land</u>

BR01- is located in the north-eastern portion of the game land. The mist-net site is situated along a corridor at an intersection created by a grassy trail. The corridor follows a ditch filled with water and is surrounded by scrub shrub habitat with few mature trees. Surrounding vegetation is a mix of young pines and hardwoods in a larger bottomland system. On 13 January 2017, one male NLEB was captured in Net C and was fitted with a radio transmitter.

Alligator River Game Land

AR05- is located in the western portion of the game land. Mist nets were placed along a dirt road through a mature mixed bottomland forest. Portions of the forest were inundated. A managed pine plantation was adjacent to the site approximately 150 meters to the east. The dominant forest composition includes loblolly pine (*Pinus taeda*), American sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), red maple (*Acer rubrum*), wax myrtle (*Morella cerifera*), swamp tupelo (*Nyssa biflora*), swamp bay (*Persea palustris*), and sweetbay magnolia (*Magnolia virginiana*). Numerous standing snags were present offering a variety of bat roost opportunities. On February 27, 2017, one female NLEB was captured in Net B and one male NLEB was captured in Net C. Both bats were fitted with radio transmitters.

AR06- is located in the western portion of the game land. The mist net site was located at the intersection of a gravel road and a grassy side road. The surrounding area is mature unmanaged mixed bottomland forest. Nets were placed in medium clutter. Site AR06 is dominated by loblolly pine (*Pinus taeda*), American sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), and red maple (*Acer rubrum*). On 27 February 2017, one male NLEB was captured in Net A and was outfitted with a radio transmitter.

Lower Roanoke River Game Lands

LR02- is located in the eastern portion of the game lands. The mist net site was located along a hunting access road leading into the large forested area buffering the river. The acoustic detector was placed just north of the mist nets along the field edge. Surrounding forest was unmanaged mature mixed bottomland forest. Clutter at the site was low. Dominant vegetation included red maple (*Acer rubrum*), American sweetgum (*Liquidambar styraciflua*), willow oak (*Quercus phellos*), and river birch (*Betula nigra*). On 17 November 2016, two call sequences were recorded during acoustic sampling that were manually vetted and determined to be consistent with calls typically produced by NLEBs. No NLEBs were captured at this mist-net site.

Roanoke River National Wildlife Refuge

RR01- is located in the north-western parcel of the Roanoke River National Wildlife Refuge in Bertie County, NC. The mist-net site is located along a small trail through a woodlot adjacent to an inundated Cypress-Gum Swamp (brownwater sub-type). Unmanaged mature bottomland hardwood forest surrounded the site with a high degree of clutter surrounding mist nets. Dominant trees at the site include shortleaf pine (*Pinus echinate*), turkey oak (*Quercus laevis*), willow oak (*Quercus phellos*), and American hornbeam (*Carpinus carolinia*). Two adult male NLEBs were captured at RR01 in Net B on 22 February 2017 and were fitted with radio transmitters.

RR03- is located in the north-western parcel of the Roanoke River National Wildlife Refuge in Bertie County, NC. The mist-net site was located at the junction of three

unimproved roads surrounding a forest opening used for gravel storage and as a traffic "turn-about". The site is adjacent to inundated Cypress-Gum Swamp (brownwater sub-type) to the south. The mixed forest surrounding the site is mature but appears to have been managed by thinning and is part of a larger forested bottomland system. Mist-nets were placed in medium clutter blocking the roads. Dominant vegetation includes American sweetgum (*Liquidambar styraciflua*), loblolly pine (*Pinus taeda*), American sycamore (*Platanus occidentalis*), and turkey oak (*Quercus laevis*). One adult female NLEB was capture at RR03 in Net B on February 25, 2017 and was fitted with a radio transmitter.

RR05- is located in the north-western parcel of the Roanoke River National Wildlife Refuge in Bertie County, NC. The site is at the junction of 3 trails and appears to experience seasonal flooding. The surrounding bottomland hardwood forest is mature and appears to be unmanaged. Mist nets were placed blocking the trails in medium clutter. Dominant vegetation includes winged elm (*Ulmus alata*), eastern cottonwood (*Populus deltoids*), and American sycamore (*Platanus occidentalis*). One adult male NLEB was captured at Site RR06 in Net A on February 25, 2017 and was fitted with a radio transmitter.

Biological Sampling

On 11 April 2017, a total of 67 swab samples were sent to the SCWDS lab for *Pd* analysis. An email containing the results of this analysis arrived via email on 3 May 2017 indicating that *Pd* was not detected by PCR in any of the submitted bat swabs. A formal laboratory report detailing the results of this analysis is included in Appendix I.

A request was made to SCWDS for information on the shipping of guano samples for analysis. These samples are currently being stored at the Copperhead Main Office and can be sent to the US Geological Survey National Wildlife Health Center upon further instruction.

Discussion

The results of the Fall 2016/Winter 2017 NCDOT NLEB Research Study succeeded in completing the three objectives of the project. The results of the mist net and acoustic surveys contribute to the growing body of evidence indicating that NLEB maintain a year-round presence on the Coastal Plain of North Carolina. The data gathered during this study also contribute to our knowledge of the habitat preferences and temporal activity patterns of NLEBs in the study area. While several studies have succeeded in elucidating the timing and physiological dynamics of bats overwintering in hibernacula, relatively little is known regarding the short- and long-term strategies employed by bats roosting in trees during the winter months (Brack 2007). It is likely that the relatively warm temperatures present in the Coastal Plain during the winter months provide foraging opportunities for resident bats that are not available to bats roosting in more temperate parts of its range. For example, Grider (2014) documented year-round activity of bat populations in the Coastal Plain of North Carolina.

The natural community surrounding each roost and capture site was characterized according to Schafale and Weakley (1990). While the habitat preferences of NLEB during the summer maternity season is relatively well documented (Foster and Kurta 1999, Lacki and Schwierjohann 2001), the habitat requirements of the species in winter is poorly known. As in summer, it is likely that bats choose winter habitat according to its availability. However, the habitat preferences for bats may vary greatly between the seasons in a way that is framed by their changing physiological and behavioral needs. For example, live trees and dead trees have different thermodynamic properties and the population dynamics for colonial roosting bats like the NLEB are different during the summer when females choose roost locations and roost mates that maximize the growth of offspring. In this way, the preference for live and live-damaged trees may be a reflection of the thermodynamic character of the roosts themselves, i.e., live trees are thought to have a higher heat holding capacity and to retain heat longer. While no analysis was done on the relative prevalence of the three roost types (i.e., live, live-damaged, and dead), anecdotal evidence suggests that dead or dying roosts were present in great numbers on the landscape. *Nyssa aquatica/biflora* was the most common roost species used by focal bats in this study and were a dominate member non-riverine and gum-swamp natural communities sampled Shafale and Weakley (2012). In general, it appeared to not be their bark character that enabled bats to utilize them as day roosts, but the presence of cracks and crevices when damaged.

The results of the analysis conducted on biological samples taken from captured bats showed no evidence of *Pd* infection. This may indicate that little or no mixing occurs between the populations of bats that overwinter in hibernacula and bats of the Coastal Plain of North Carolina. This is not surprising considering the paucity of suitable caves or mines in the region and that the maximum migration distance currently known for the NLEB is 50 miles. While it is possible that the two populations come in contact during fall/spring swarming or migration, this finding provides a bit of good news in the face

of the devastating losses that the North American chiropterans have suffered in the last decade.

Additional fall- and winter-time surveys in this area are needed to fully assess presence or absence of *Pd* in bats of the Coastal Plain of North Carolina. Additional mist net and acoustic surveys will also give a better understanding of the distribution, density, and habitat preferences of NLEB in the region. More detailed analysis of the physiological dynamics of roosting in trees by bats on the Atlantic Coastal Plain in the winter would provide greater insight into the evolution and maintenance of the two life history strategies employed by the species.

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Appendix A
Additional Data Tables

Table 4. Mist-net capture summary for the NCDOT Fall 2016/Winter 2017 Northern-long Eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina (follows NCDOT 2016).

Study Area	Site No.	Lat, Long	Clutter	Community types	Night	Date	CORRAF	EPTFUS	LASBOR	LASNOC	LASSEM	LASCIN	MYOAUS	MYOSEP	NYCHUM	PERSUB	Total	Notes
Alligator River	1	35.911810, -76.136890	3	NWHF	1	06 Dec 16	-	-	3	-	-	-	-	-	-	-	3	One LASBOR was captured at 1730 and 1840
	2	35.927290, -76.133170	3	NWHF	1	06 Dec 16	-	-	-	-	1	-	1	-	-	-	2	
	3	35.886210, -76.147130	2	NSF	1	11 Jan 17	-	-	-	-	-	-	-	-	-	-	0	Survey terminated due to low temperatures
					2	12 Jan 17	-	-	-	-	-	-	-	-	-	-	0	
	4	35.929000, -76.129810	3	TCGS	1	11 Jan 17	-	-	-	-	-	-	-	-	-	-	0	Survey terminated due to low temperatures
					2	12 Jan 17	-	-	2	-	-	-	3	-	-	-	5	
	5	35.886960, -76.133650	3	NWHF	1	27 Feb 17	-	-	1	-	-	-	-	2	-	-	3	MYOSEP/Female/Adult/NR, wt.7.5g, Wing score 0, Time 1900, NCDOT 1628, Freq. 172.542, Temp. ~55°F MYOSEP/Male/Adult/NR, wt. 7g, Wing Score 0, Time 1950, CC 1963, Freq. 172.605, Temp. ~54°F One additional capture occurred but no ID could be made before escaping the net
	6	35.875100, -76.131110	3	NWHF	1	27 Feb 17	-	1	-	-	-	-	-	1	1	-	3	MYOSEP/Male/Adult/NR, wt. 6.25g, Wing Score 0, Time 1910, CC 1659, Freq. 172.183, Temp. ~53°F
Bladen Lakes	1	34.726670, -78.543660	4	NSF	1	15 Nov 16	-	-	1	1	-	-	-	-	-	-	2	One additional capture occurred but no ID could be made before escaping the net
					2	16 Nov 16	-	-	3	-	-	-	-	-	-	-	3	
	2	34.573470, -78.485860	3	PPW	1	15 Nov 16	-	-	-	-	-	-	-	-	-	-	0	One bat escaped net before ID could be made
					2	16 Nov 16	-	-	-	-	-	-	-	-	-	-	0	
	3	34.585690, -78.489310	3	PPW	1	15 Nov 16	-	-	-	-	-	-	-	-	-	-	0	
					2	16 Nov 16	-	-	-	-	-	-	-	-	-	-	0	
	4	34.710711, -78.520655	3	PPW	1	15 Nov 16	-	-	1	-	-	-	-	-	-	-	1	
					2	16 Nov 16	-	-	1	-	-	-	-	1	-	-	2	MYOSEP/♀/Adult/PL, wt. 6.25g, Wing score 0, Time 1806, NC-WRC A0732, Freq 172.664, Temp. ~54°F
					3	17 Nov 16	-	-	3	-	-	-	-	-	-	-	3	
					4	01 Dec 16	-	-	2	-	-	-	-	1	-	-	3	MYOSEP/♀/Adult/NR, wt. 6.25g, Wing score 0, Time 2005, NC-WRC A0726, Freq. 172.905, Temp. ~48°F
					5	02 Dec 16	-	-	-	-	-	-	-	-	-	-	0	Survey terminated due to low temperatures
					6	14 Jan 17	-	-	-	-	-	-	-	-	-	-	0	Survey terminated due to low temperatures
					7	15 Jan 17	-	-	-	-	-	-	-	-	-	-	0	
	5	34.590770, -78.489730	3	PPW	1	18 Nov 16	-	-	-	-	-	-	-	-	-	-	0	
	6	34.738110, -78.571400	4	NWHF	1	18 Nov 16	-	-	2	-	-	-	-	-	-	-	2	
					2	19 Nov 16	-	-	2	-	-	2	-	-	-	-	4	Survey terminated due to excessive wind
					3	01 Dec 16	-	-	1	-	-	-	-	-	-	-	1	First capture at 1805, same bat recaptured at 1820
					4	16 Jan 17	-	-	-	-	-	-	-	-	-	-	0	
					5	17 Jan 17	-	-	1	-	2	-	-	-	-	-	3	
	7	34,606970, -78.477700	2	PP	1	19 Nov 16	-	-	1	-	-	-	-	-	1	-	2	Survey terminated down due to wind
					2	01 Dec 16	-	-	-	-	-	-	-	-	-	-	0	
	8	34.726300, -78.515620	2	PP	1	01 Dec 16	-	-	1	-	-	-	-	-	-	-	1	
	9	34.731480, -78.568980	3	PPW	1	02 Dec 16	-	-	-	-	-	-	-	-	-	-	0	
					2	03 Dec 16	-	-	-	-	-	-	-	-	-	-	0	
	10	34.690740, -78.568550	3	NWHF	1	03 Dec 16	-	-	-	-	-	-	-	-	-	-	0	
					2	05 Dec 16	-	-	-	-	2	-	-	-	-	-	2	
	11	34.670910, -78.618280	4	NWHF	1	05 Dec 16	-	-	-	-	-	-	-	-	-	-	0	
					2	16 Jan 17	-	-	-	-	-	-	1	-	-	-	1	
					3	17 Jan 17	-	-	-	-	-	-	-	-	-	-	0	
	12	34.718290, -78.599110	4	PP	1	18 Jan 17	-	-	-	-	-	-	-	-	-	-	0	
					2	19 Jan 17	-	-	-	-	-	-	-	-	-	-	0	
	13	34.727140, -78.544110	3	MMHF	1	18 Jan 17	-	-	-	-	-	-	-	-	-	-	0	
					2	20 Jan 17	-	-	-	1	-	-	-	-	-	-	1	

Table 4 (continued). Mist-net capture summary for the NCDOT Fall 2016/Winter 2017 Northern-long Eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina (follows NCDOT 2016).

Study Area	Site No.	Lat, Long	Clutter	Community types	Night	Date	CORRAF	EPTFUS	LASBOR	LASNOC	LASSEM	LASCIN	MYOAUS	MYOSEP	NYCHUM	PERSUB	Total	Notes
Buck Ridge	1	35.737660, -76.072710	3	NSF	1	13 Jan 17	-	-	-	-	-	-	-	1	-	-	1	MYOSEP/Male/Adult/NR, wt. 7g, Wing score 0, Time 1815, NC-WRC A0729, Freq. 172.423; Temp ~54°F
					2	14 Jan 17	-	-	-	-	-	-	-	-	-	-	0	
	2	35.724330, -76.074390	3	NSF	1	13 Jan 17	-	-	-	-	-	-	-	-	-	-	0	
					2	27 Feb 17	-	-	-	-	1	-	-	-	-	-	1	
Lower Roanoke	1	35.884100, -77.144912	3	NSF	1	17 Nov 16	1	-	-	-	-	-	5	-	-	-	6	
					2	18 Nov 16	3	-	2	-	-	-	4	-	-	-	9	One MYOAUS was a recapture from night 1
					3	22 Feb 17	1	-	4	-	1	-	1	-	-	-	7	One LASBOR was a recapture from night 2
					4	23 Feb 17	-	-	4	-	-	-	2	-	-	-	6	
	2	35.886360, -77.049900	2	CPBHF	1	17 Nov 16	-	-	1	-	-	-	-	-	-	-	1	LASBOR ID, but escaped net
					2	18 Nov 16	-	-	-	-	-	-	3	-	-	-	3	
					3	24 Feb 17	1	6	-	-	-	-	-	-	1	-	8	
					4	25 Feb 17	-	3	2	-	-	-	1	-	-	-	6	
	3	35.865295, -77.044022	3	NSF	1	19 Nov 16	-	-	-	-	-	-	-	-	-	-	0	Survey terminated due to excessive wind
					2	24 Feb 17	-	3	3	-	-	-	2	-	4	-	12	
					3	25 Feb 17	-	5	-	-	-	-	3	-	1	-	9	One EPTFUS and one MYOAUS were recaptures from night 2
	4	35.898417, -77.064756	2	MMHF	1	19 Nov 16	-	-	-	-	-	-	1	-	-	-	1	Survey terminated due to excessive wind
					2	22 Feb 17	1	1	-	-	-	-	3	-	-	-	5	
					3	23 Feb 17	1	1	-	-	-	-	-	-	-	-	2	EPTFUS was captured at 2235 and 2250
Roanoke River	1	35.970717, -77.139417	3	CGS	1	02 Dec 16	-	-	-	-	-	-	-	-	-	-	0	Shut down because temperature dropped below 42°F
					2	05 Dec 16	-	-	-	-	-	-	1	-	-	-	1	
					3	22 Feb 17	-	-	-	-	-	-	-	2	-	-	2	MYOSEP/♂/Adult/NR, wt. 6.25g, Wing Score 0, Time 1857, NC-WRC A0734, Freq. 172.483, Temp. ~64°F MYOSEP/Male/Adult/NR, wt. 6g, Wing Score 0, Time 1857, NC-WRC A0736, Freq. 172.064, Temp. ~64°F
					4	24 Feb 17	2	-	1	-	-	-	-	-	-	-	3	One CORRAF and the LASBOR escaped the net
	2	35.978400, -77.160900	3	CGS	1	02 Dec 16	-	-	-	-	-	-	-	-	-	-	0	
	3	35.960100, -77.148580	3	CGS	1	05 Dec 16	-	-	-	-	-	-	6	-	-	-	6	
					2	25 Feb 17	3	7	3	-	-	-	1	1	3	1	19	MYOSEP/Female/Adult/NR, wt. 5.75g, Wing score 0, Time 1900, CC 1674, Freq. 172.364, Temp. ~69°F
	4	35.970193, -77.141856	3	CGS	1	22 Feb 17	-	4	1	-	-	-	10	-	-	-	15	
					2	23 Feb 17	1	-	1	-	-	-	7	-	-	-	9	
	5	35.965060, -77.149620	3	CGS	1	25 Feb 17	1	-	-	-	-	-	-	1	-	-	2	MYOSEP/Male/Adult/NR, wt. 6g, Wing score 0, Time 2235, NCDOT 1629, Freq. 172.125, Temp.~58°F
						GRAND TOTAL	**15**	**31**	**47**	**2**	**7**	**2**	**55**	**10**	**11**	**1**	**181**	

CORRAF = *Corynorhinus rafinesquii*, Rafinesque's Big-eared Bat; **EPTFUS** = *Eptesicus fuscus*, Big Brown Bat; **LASBOR** = *Lasiurus borealis*, Red Bat; **LASNOC** = *Lasionycteris noctivagans*, Silver-haired Bat; **LASSEM** = *Lasiurus seminolus*, Seminole Bat; **LASCIN** = *Lasiurus cinereus*, Hoary Bat; **MYOAUS** = *Myotis austroriparius*, Southeastern Myotis; **MYOSEP** = *Myotis septentrionalis*, Northern Long-eared Bat; **NYCHUM** = *Nycticeius humeralis*, Evening Bat; **PERSUB** = *Perimyotis subflavus*, Tricolored Bat

Clutter visually evaluated for surrounding forest: 1 = <10% cover, 2 = 10-39% cover, 3 = 40-75% cover, 4 = >75% cover; **Orange highlighted cells** = Site closed due to weather conditions; **Yellow highlighted cells** = MYOSEP captures; **NR** = Non-Reproductive; **Grand Total** = Total captures between all sites
Community Type: NWHF = Nonriverine Wet Hardwood Forest, NSF = Nonriverine Swamp Forest, TCGS = Tidal Cypress Gum Swamp, PPW = Pond Pine Woodland, PP = Pine Plantation, MMHF = Mesic Mixed Hardwood Forest, CPBHF = Coastal Plain Bottomland Hardwood Forest, Cypress-Gum Swamp

Table 5. Summary of radiotracking efforts and emergence counts conducted during the NCDOT Fall 2016/Winter 2017 Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina (follows NCDOT 2016).

Site	NLEB Sex/Freq.	Band No.	Dates Tracked	General Habitat	Tree Species	Roost No.	Lat, Long	Roost Dates	Emergence Surveys			Notes
									Date	Observed Emerging	Temp. During Emergence (F°)	
Bladen Lake	F/664	NCWRC A0732	16-22 Nov 2016 Tracked bat with airplane for 7 hrs on 22 Nov and never found	Pine Plantation	*Pinus palustris*	1 (RT613)	34.72630, -78.51562	17-19 Nov 2016	17 Nov 2016	No	59	Bats seen flying in area, darkness fell before bat emerged on 19 Nov
									18 Nov 2016	No	69	
									19 Nov 2016	No	70	
	F/905	NCWRC A0726	2-22 Dec 2016	Pond Pine Woodland	*Acer rubrum*	1 (RT66a)	34.70787, -78.52093	2-9 Dec 2016 15 Dec 2016	2 Dec 2016	No	48	No bats emerged
									3 Dec 2016	No	48	
									4 Dec 2016	No	45	
									5 Dec 2016	No	56	
									15 Dec 2016	No	43	
					Acer rubrum	2 (RT67)	34.70890, -78.52048	10-11 Dec 2016 13-14 Dec 2016 16-17 Dec 2016	11 Dec 2016	No	46	No bats emerged
					Persea borbonia	3 (RT614)	34.70883, -78.52033	18 Dec 2016	18 Dec 2016	Yes	70	Focal bat exited at 1730 hrs
					Nyssa spp.	4 (RT68)	34.70774, -78.52094	2-9 Dec 2016 15 Dec 2016 19 Dec 2016	19 Dec 2016	No	41	No bats emerged
					Nyssa spp.	5 (RT615)	34.70886, -78.52031	20-22 Dec 2016	20 Dec 2016	No	41	No bats emerged
Buckridge	M/423	NCWRC A0729	14-23 Jan 2017 Transmitter found on ground	Non-riverine Swamp Forest	*Magnolia virginiana*	1 (RT616)	35.73590, -76.07717	14-19 Jan 2017	14 Jan 2017	No	47	No bats emerged
					Nyssa biflora	2 (RT617)	35.73561, -76.07739	20-22 Jan 2017	20 Jan 2017	No	unk	No bats emerged
Roanoke River	M/064	NCWRC A0736	23 Feb - 17 Mar 2017	Cypress-Gum Swamp (Brownwater subtype)	*Populus heterophylla*	1 (RT31)	35.96819, -77.13786	23 Feb 2017	23 Feb 2017	Yes	unk	Focal bat exited at 1823 hours
					Populus heterophylla	2 (RT28)	35.96809, -77.13805	24 Feb 2017 27 Feb – 12 Mar 2017	24 Feb 2017	No	71	Bat exited but not observed
					Nyssa aquatica	3 (RT29)	35.96805, -77.13800	25-26 Feb 2017 13-14 Mar 2017	25 Feb 2017	Yes	71.5	Focal bat exited at 1824 hours
				Mixed mature Cypress-Gum Swamp	*Nyssa spp.*	4 (RT15)	35.96796, -77.13987	15-17 Mar 2017	17 Mar 2017	No	unk	No bats emerged
Roanoke River	M/483	NCWRC A0734	23 Feb - 17 Mar 2017	Cypress-Gum Swamp (Brownwater subtype)	*Populus heterophylla*	1 (RT30)	35.970193, -77.141856	23 Feb 2017	23 Feb 2017	Yes	unk	Focal bat exited at 1820 hours
					Nyssa aquatica	2 (RT49)	35.9682, -77.14532	24-25 Feb 2017 28 Feb - 1 Mar 2017 7-10 Mar 2017	24 Feb 2017	Yes	71	Focal bat exited at 1818 hours
					Nyssa aquatica	3 (RT37)	35.96937, -77.14317	26-27 Feb 2017	26 Feb 2017	No	50.5	No bats emerged
					Nyssa aquatica	4 (RT39)	35.96922, -77.14311	3-6 Mar 2017 11-17 Mar 2017	3 Mar 2017	No	48.0	No bats emerged
	M/125	NCWRC 1629	26 Feb - 18 Mar 2017	Cypress-Gum Swamp	*Nyssa aquatica*	1 (RT66b)	35.95377, -77.15121	26 Feb 2017 1-2 Mar 2017	26 Feb 2017	No	50.5	Focal bat exited at 1843 hours

Site	NLEB Sex/Freq.	Band No.	Dates Tracked	General Habitat	Tree Species	Roost No.	Lat, Long	Roost Dates	Emergence Surveys			Notes
									Date	Observed Emerging	Temp. During Emergence (F°)	
				(Brownwater subtype)	*Nyssa aquatica*	2 (RT98)	35.95511, -77.15029	27 Feb 2017	27 Feb 2017	Yes + 1 more bat	61.5	2 bats exited the roost; focal bat exited at 1824 hours
					Nyssa biflora	3 (RT303)	35.98059, -77.14668	28 Feb 2017 3-18 Mar 2017	28 Feb 2017	Yes	70.5	Focal bat exited at 1816 hours
	F/364	CC 1674	26 Feb - 18 Mar 2017	Cypress-Gum Swamp (Brownwater subtype)	*Nyssa aquatica*	1 (RT36)	35.95603, -77.14779	26-27 Feb 2017 16-18 Mar 2017	26 Feb 2017	No	50.5	No bats emerged
					Nyssa aquatica	2 (RT34)	35.9568, -77.14837	28 Feb 2017 4-8 Mar 2017	28 Feb 2017	No + 6 other bats	70.5	Transmittered bat did not emerge; 6 non-focal bats exited at 1816hrs
					Populus heterophylla	3 (RT38)	35.95623, -77.14799	1-2 Mar 2017 9-14 Mar 2017	1 Mar 2017	No	74.5	Bat emerged after dark at 1847 hours
					Nyssa aquatica	4 (RT40)	35.95615, -77.14771	3 Mar 2017	3 Mar 2017	No	48.0	No bats emerged
					Nyssa aquatica	5 (RT11)	35.95632, -77.14809	15 Mar 2017	17 Mar 2017	No	unk	No bats emerged
Alligator River	M/183	CC 1659	28 Feb - 20 Mar 2017	Mature tidal swamp	*Nyssa biflora*	1 (RT271)	35.88233, -76.10821	28 Feb 2017 10 Mar 2017	28 Feb 2017	Yes	67	Focal bat exited at 1827
				Mixed mature non-riverine swamp forest	*Morella cerifera*	2 (RT270)	35.88234, -76.10987	1 Mar 2017	1 Mar 2017	Yes	70	Focal bat exited at 1825 hrs
					Nyssa biflora	3 (RT269)	35.88284, -76.10772	2 Mar 2017	2 Mar 2017	No	51.5	Focal bat exited at 1853 hours
					Acer rubrum	4 (RT268)	35.8841, -76.11764	3-6 Mar 2017 11-20 Mar 2017	3 Mar 2017	No	48	No bats emerged
					Pinus taeda	5 (RT305)	35.88593, -76.11905	7 Mar 2017	8 Mar 2017	No	55.0	No bats emerged
					Persia bornonia/ palustris	6 (RT299)	35.88686, -76.11916	8 Mar 2017	8 Mar 2017	No	55.0	No bats emerged
Alligator River	F/542	NCDOT 1628	28 Feb - 20 Mar 2017	Mixed mature non-riverine swamp forest	*Nyssa biflora*	1 (RT272)	35.88717, -76.13281	28 Feb 2017	28 Feb 2017	Yes	67	Focal bat exited at 1900hrs
				Non-riverine Swamp Forest	*Morella cerifera*	2 (RT273)	35.89044, -76.13017	1 Mar 2017	1 Mar 2017	No	70	Focal bat exited (after dark) at 1847 hrs
				Mixed non-riverine swamp forest	*Pinus spp.*	3 (RT274)	35.89043, -76.13034	2-4 Mar 2017 8 Mar 2017	6 Mar 2017	No	51	Tagged bat was known to be in a different tree
					Ilex opaca	4 (RT876)	35.89051, -76.13021	5 Mar 2017 7 Mar 2017 10-12 Mar 2017	6 Mar 2017	No	51.0	
					Acer rubrum	5 (RT877)	35.89139, -76.12582	6 Mar 2017 13-15 Mar 2017 18 Mar 2017	6 Mar 2017	No	51.0	No bats emerged
				Mixed mature non-riverine forest	*Nyssa biflora*	6 (RT306)	35.89083, -76.13498	16-17 Mar 2017	17 Mar 2017	No	50.0	No bats emerged
					Nyssa biflora	7 (RT300)	35.89102, -76.12581	19-20 Mar 2017	N/A	N/A	N/A	Emergence not conducted b/c this was the 7th tree for bat
	M/605	CC 1963	28 Feb - 20 Mar 2017	Mature non-riverine swamp forest	*Nyssa spp.*	1 (RT25)	35.89714, -76.11332	28 Feb 2017	28 Feb 2017	No	75	Emergence (1837 hrs) was observed remotely via antenna from road
									6 Mar 2017	No	60	No bats emerged
				Mature tidal swamp forest	*Nyssa biflora*	2 (RT304)	35.89728, -76.11325	3 Mar 2017 9-10 Mar 2017	6 Mar 2017	No	60.0	No bats emerged
					Nyssa biflora	3 (RT139)	36.89594, -76.11163	5-8 Mar 2017 11-15 Mar 2017 19-20 Mar 2017	6 Mar 2017	No	52.0	No bats emerged
				Mixed mature non-riverine forest	*Taxodium distichum*	4 (RT878)	35.89477, -76.11066	16-18 Mar 2017	17 Mar 2017	No	50.0	No bats emerged

Table 6. Summary of acoustic site conditions and data collected during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie. Bladen, Hyde, Martin, and Tyrrell counties, North Carolina (follows NCDOT 2016).

Location	Site	Lat, Long	Community Type (per Schafale 1990)	Dates	Start/End Times	Survey Hours	Temperature (F)	No. Files Autoclassified as NLEB, (program name)	No. Files Qualitatively Confirmed as NLEB	Comments	Data logger temps
Alligator River	AR01	35.91568, -76.14255	Nonriverine Wet Hardwood Forest	12/6/2016	1645/2244	6.00	49.5-66.5	0	0	N/A	54-63
	AR02	35.92729, -76.13317	Nonriverine Wet Hardwood Forest	12/6/2016	1650/2215	5.42	52-66.5 F	1 (Echoclass)	0	N/A	53.5-73
	AR03	35.88621, -76.14713	Nonriverine Swamp Forest	1/11/2017	1715/2030	3.25	42.5-70.5 F	0	0	Cold out	42.5-71
				1/12/2017	1710/2210	5.00	47-66 F	0	0	N/A	51.5-73.5
	AR04	35.92900, -76.129810	Tidal Cypress Gum Swamp	1/11/2017	1711/2013	3.00	44-42 F	0	0	Cold out	42.5-72.0
				1/12/2017	1712/2212	5.00	50.2-54.4 F	0	0	N/A	47.5-66.0
	AR05	35.88696, -76.13111	Nonriverine Wet Hardwood Forest	2/27/2017	1715/2015	3.00	54.5-61 F	1 (Echoclass)	1	Captured max # of NLEB	54-70.5
	AR06	35.87510, -76.13111	Nonriverine Wet Hardwood Forest	2/27/2017	1755/2018	3.00	52-59.5	1 (Echoclass)	0	Captured max # of NLEB	52.5-72

Location	Site	Lat, Long	Community Type (per Schafale 1990)	Dates	Start/End Times	Survey Hours	Temperature (F)	No. Files Autoclassified as NLEB, (program name)	No. Files Qualitatively Confirmed as NLEB	Comments	Data logger temps
Bladen Lakes	BL01	34.72667, -78.54366	Nonriverine Swamp Forest	11/15/2016	1700/2209	5.17	43-55	0	0	N/A	40-78.5
				11/16/2016	1709/2209	5.00	43-62	0	0	N/A	46-70
	BL02	34.57347, -78.48586	Pond Pine Woodland	11/15/2016	1700/2210	5.17	45-55	0	0	N/A	N/A
				11/16/2016	1700/2210	5.17	43-71	1 (Echoclass)	0	N/A	41.5-72
	BL03	34.58570, -78.48933	Pond Pine Woodland	11/15/2016	1705/2222	5.25	43-55	0	0	N/A	N/A
				11/16/2016	1640/2232	5.84	48-68	0	0	N/A	51.5-51
	BL04	34.710711, -78.520655	Pond Pine Woodland	11/15/2016	1706/2209	5.00	45-72	1 (Echoclass)	1	N/A	44.5-69
				11/16/2016	1706/2209	5.00	48-54.5	0	0	N/A	45.5-54
				11/17/2016	1704/2208	5.00	46-58	2 (Echoclass)	0	N/A	47-52
				12/1/2016	1645/2222	5.58	44.5-58	0	0	N/A	44.5-56
				12/2/2016	1700/2115	4.25	39.5-48	0	0	Cold out	40-48.6
				1/14/2017	1720/2023	3.00	41.5-50	0	0	Cold out	42-50.5
				1/15/2017	1720/2225	5.00	47.5-54	0	0	N/A	49.0-54
	BL05	34.59077, -78.48973	Pond Pine Woodland	11/18/2016	1653/2250	6.00	49-71	0	0	N/A	50.5-59
	BL06	34.73854, -78.57161	Mesic Pine Savanna	11/18/2016	1708/1915	5.00	45.5-69	0	0	N/A	49.5-56
				11/19/2016	1708/1915	5.00	51-70	0	0	Wind out	57-59
				12/1/2016	1630/2203	5.50	45-48	0	0	N/A	45.5-56
				1/16/2017	1726/2226	5.00	51-58	0	0	N/A	53.5-58
				1/17/2017	1727/2227	5.00	53.5-60	0	0	N/A	54.5-60
	BL07	34.60697, -78.47770	Pine Plantation	11/19/2016	1705/2101	4.00	49-68	0	0	Wind out	51-60.5
				12/1/2016	1650/2240	5.83	44-58	0	0	N/A	47.5-56.5

Location	Site	Lat, Long	Community Type (per Schafale 1990)	Dates	Start/End Times	Survey Hours	Temperature (F)	No. Files Autoclassified as NLEB, (program name)	No. Files Qualitatively Confirmed as NLEB	Comments	Data logger temps
	BL08	34.72630, -78.51562	Pine Plantation	12/1/2016	1644/2235	5.83	43.5-58	0	0	N/A	41.5-59
	BL09	34.73148, -78.56898	Pond Pine Woodland	12/2/2016	1630/2003	3.50	37.5-46	0	0	Cold out	38-67.5
				12/3/2016	1703/2203	5.00	43-49.5	0	0	N/A	43.5-49.5
	BL10	34.69074, -78.56855	Nonriverine Wet Hardwood Forest	12/3/2016	1630/2220	5.83	42-49.5	0	0	Cold out	43-49.5
				12/5/2016	1630/2242	6.17	50-54	1 (Echoclass)	0	N/A	51-54
	BL11	34.67091, -78.61828	Nonriverine Wet Hardwood Forest	12/5/2016	1703/2203	5.00	51-56	0	0	N/A	51-52
				1/16/2017	1710/2230	5.00	51-54	0	0	N/A	50.5-57
				1/17/2017	1720/2229	5.00	53.3 -57	0	0	N/A	53.5-63
	BL12	34.71829, -78.59911	Pine Plantation	1/18/2017	1729/2147	4.25	42.5-62	0	0	Cold out	43-58
				1/19/2017	1729/2224	5.00	42.5-50.5	0	0	N/A	41-64.5
	BL13	34.72714, -78.54411	Mesic Mixed Hardwood Forest	1/18/2017	1728/2228	5.00	44.5-54.5	1 (Echoclass)	0	N/A	44.5-54.5
				1/20/2017	1730/2230	5.00	50-64	0	0	N/A	50-74.5
Buck Ridge	BR01	35.73766, -76.07271	Nonriverine Swamp Forest	1/13/2017	1711/2211	5.00	47-49	4 (Echoclass)	2	N/A	44-49.5
				1/14/2017	1712/2212	5.00	45.5-47	0	0	N/A	46-48.5
	BR02	35.72433, -76.07439	Nonriverine Swamp Forest	1/13/2017	1711/2211	5.00	45-50.5	0	0	N/A	44.5-52.5
				2/27/2017	1800/2100	5.00	50.5-58	1 (Echoclass)	0	N/A	50.5-64

Location	Site	Lat, Long	Community Type (per Schafale 1990)	Dates	Start/End Times	Survey Hours	Temperature (F)	No. Files Autoclassified as NLEB, (program name)	No. Files Qualitatively Confirmed as NLEB	Comments	Data logger temps
Lower Roanoke	LR01	35.88410, -77.14491	Nonriverine Swamp Forest	11/17/2016	1650/2159	5.00	42-60	14 (12 Echoclass, 2 BCID)	0	N/A	42-78.5
				11/18/2016	1645/2159	5.00	53-72.5	54 (42 Echoclass, 12 BCID)	0	N/A	44-57.5
				2/22/2017	1745/2330	5.75	55-66	0	0	N/A	56.5-64
				2/23/2017	1745/2315	5.50	43-71	0	0	N/A	56.5-66
	LR02	35.88636, -77.04990	Coastal Plain Bottomland Hardwood Forest	11/17/2016	1645/2215	5.50	46-60	7 (5 Echoclass, 2 BCID	2	N/A	47-66.5
				11/18/2016	1750/2150	3.00	48-55	13 (11Echoclass, 2 BCID)	0	N/A	49-55.5
				2/24/2017	1759/2320	5.33	57-68.5	1 (Echoclass)	0	N/A	57-67
				2/25/2017	1800/2300	5.00	54.5-68	0	0	N/A	54.5-70.5
	LR03	35.86529, -77.04402	Nonriverine Swamp Forest	11/19/2016	1656/2032	3.50	50-72	0	0	Wind out	51-77
				2/24/2017	1750/2330	5.67	44.5-58	2 (1 Echoclass, 1 BCID)	0	N/A	56.5-69.5
				2/25/2017	1715/2300	5.75	39.5-48	1 (Echoclass)	0	N/A	56-81
	LR04	35.89841, -77.06475	Mesic Mixed Hardwood Forest	11/19/2016	1650/1940	2.83	50-72	1 (Echoclass)	0	Wind out	50.5-78.5
				2/22/2017	1750/2300	5.17	57-68	2 (1 Echoclass, 1 BCID)	0	N/A	57-65

Location	Site	Lat, Long	Community Type (per Schafale 1990)	Dates	Start/End Times	Survey Hours	Temperature (F)	No. Files Autoclassified as NLEB, (program name)	No. Files Qualitatively Confirmed as NLEB	Comments	Data logger temps
				2/23/2017	1750/2300	5.17	55-64	1 (Echoclass)	0	N/A	56-68.5
Roanoke River	RR01	35.97079, -77.14016	Cypress-Gum Swamp	12/2/2016	1658/2151	5.00	41-48	1 (Echoclass)	0	N/A	41-48.5
				12/5/2016	1658/2151	5.00	47.5-49.5	86 (76 Echoclass, 10 BCID)	3	N/A	49.5-50
				2/22/2017	1750-2300	5.17	56-62	14 (13 Echoclass, 2 BCID)	1	N/A	56-75.5
				2/24/2017	1755-2310	5.25	54-69	8 (Echoclass)	0	N/A	54-69
	RR02	35.97840, -77.16090	Cypress-Gum Swamp	12/2/2016	1654/2140	4.75	38-51	0	0	N/A	39.5-51
	RR03	35.9601, -77.14858	Cypress-Gum Swamp	12/5/2016	1650/2220	5.50	48.5-65.5	29 (25 Echoclass, 6 BCID)	0	N/A	47-49.5
				2/25/2017	1735/2343	6.17	57-68.5	0	0	Data logger was set at roost trees during emergence counts	57-84.5
	RR04 RR04	35.97019, -77.14185	Cypress-Gum Swamp	2/22/2017	1740/2315	5.58	58-65	0	0	N/A	58-65
				2/23/2017	1750/2303	5.25	50-67	1 (Echoclass)	0	N/A	51-61
	RR05	35.96506, -77.14962	Cypress-Gum Swamp	2/25/2017	1755/2319	5.42	48.5-65.5	0	0	N/A	48.5-69

Table 7. Summary of vetted acoustic data collected during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina (follows NCDOT 2016).

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
Alligator River	AR02	6 Dec 2017	1788	QC061738.36 #	MYOSEP	N/A	Other Myotis	Only a few calls were recorded and though they appear to be Myotis they lack the long, linear, steep characteristics of NLEB calls.	G. Janos	N/A
	AR05	27 Feb 2017	1853	R2271853.05 #	MYOSEP	N/A	MYOSEP	The calls are characteristic of those produced by MYOSEP (steep slope (SC >200 OPS), long linear calls).	G. Janos	1
	AR06	27 Feb 2017	1952	R2271952.33 #	MYOSEP	N/A	EPTFUS	This file is an EPTFUS with a feeding buzz which made EchoClass ID the file as a MYOSEP.	G. Janos	N/A
Bladen Lakes	BL02	16 Nov 2016	1915	QB161915.07 #	MYOSEP	N/A	NOID	Filter had to be turned off to view call. Low quality call. Lots of noise in the file. Calls have a steep slope but calls are short, Fc is inconsistent, and calls are variably spaced.	G. Janos	N/A
	BL04	15 Nov 2016	1802	QB151802.25 #	MYOSEP	N/A	MYOSEP	The calls are characteristic of those produced by MYOSEP (steep slope (SC >200 OPS), long linear calls).	G. Janos	2
	BL04	17 Nov 2016	1721	QB171721.14 #	MYOSEP	N/A	LASBOR	This file is a LASBOR with a feeding buzz. Calls have hooks on the end and the Fc is inconsistent	G. Janos	N/A
	BL04	17 Nov 2016	1810	QB171810.44 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	BL10	5 Dec 2016	1749	QC051749.54 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	BL13	18 Jan 2017	1801	R1181801.21 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
Buckridge	BR01	13 Jan 2017	1808	R1131809.29 #	MYOSEP	N/A	NOID	Not sufficient data to make a species determination. Calls do have a steep slope (SC>200OPS) but there are only a few calls within the file and are of low quality.	G. Janos	N/A
	BR01	13 Jan 2017	1856	R1131856.57 #	MYOSEP	N/A	MYOSEP	The calls are characteristic of those produced by MYOSEP (steep slope (SC >200 OPS), long linear calls). These calls were recorded when our captured MYOSEP flew in front of the Anabat microphone.	G. Janos	3

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
Buckridge	BR01	13 Jan 2017	1857	R1131857.18 #	MYOSEP	N/A	MYOSEP	The calls are characteristic of those produced by MYOSEP (steep slope (SC >200 OPS), long linear calls). These calls were recorded when our captured MYOSEP flew in front of the Anabat microphone.	G. Janos	4
	BR01	13 Jan 2017	1857	R1131857.12 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
Lower Roanoke	LR01	17 Nov 2016	1740	QB171740.41 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	17 Nov 2016	1754	QB171754.13 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	17 Nov 2016	1801	QB171801.56 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	17 Nov 2016	1802	QB171802.21 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	17 Nov 2016	1809	QB171809.14 #	LASBOR	MYOSEP	Other Myotis	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	17 Nov 2016	1811	QB171811.22 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	LR01	17 Nov 2016	1812	QB171812.58 #	MYOSEP	NOID	Other Myotis	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	17 Nov 2016	1813	QB171813.12 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	17 Nov 2016	1813	QB171813.46 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
Lower Roanoke	LR01	17 Nov 2016	1819	QB171819.11 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	17 Nov 2016	1824	QB171824.35 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	17 Nov 2016	1825	QB171825.43 #	LASBOR	MYOSEP	Other Myotis	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR01	17 Nov 2016	1826	QB171826.43 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	LR01	17 Nov 2016	1913	QB171913.06 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	LR01	18 Nov 2016	1750	QB181750.55 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	LR01	18 Nov 2016	1801	QB181801.34 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1809	QB181809.56 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1810	QB181810.55 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1816	QB181816.26 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1816	QB181816.57 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	LR01	18 Nov 2016	1818	QB181818.47 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
Lower Roanoke	LR01	18 Nov 2016	1819	QB181819.38 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1827	QB181827.53 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1828	QB181828.13 #	MYOSEP	NOID	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1831	QB181831.58 #	MYOSEP	NOID	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1832	QB181832.14 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1847	QB181847.55 #	MYOSEP	MYOLEI	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1849	QB181849.41 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	LR01	18 Nov 2016	1854	QB181854.54 #	MYOSEP	NOID	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1858	QB181858.32 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1910	QB181910.49 #	MYOSEP	MYOLEI	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1916	QB181916.00 #	MYOSEP	MYOLEI	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1916	QB181916.17 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
Lower Roanoke	LR01	18 Nov 2016	1916	QB181916.51 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	LR01	18 Nov 2016	1917	QB181917.50 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1918	QB181918.02 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1920	QB181920.18 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1921	QB181921.39 #	MYOSEP	MYOLEI	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1922	QB181922.05 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1922	QB181922.47 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1922	QB181922.35 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1923	QB181923.27 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1926	QB181926.54 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1927	QB181927.23 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
Lower Roanoke	LR01	18 Nov 2016	1929	QB181929.24 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1937	QB181937.27 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1937	QB181937.59 #	MYOSEP	MYLY	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1939	QB181939.06 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1939	QB181939.33 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1941	QB181941.50 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1944	QB181944.15 #	MYOSEP	NOID	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1945	QB181945.48 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1948	QB181948.56 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1950	QB181950.55 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	1951	QB181951.40 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
Lower Roanoke	LR01	18 Nov 2016	1952	QB181952.36 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	2002	QB182002.59 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	2003	QB182003.29 #	MYOSEP	NOID	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	2008	QB182008.59 #	MYOSEP	NOID	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	2012	QB182012.22 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	2017	QB182017.10 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	LR01	18 Nov 2016	2019	QB182019.47 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	2026	QB182026.41 #	MYOSEP	NOID	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR01	18 Nov 2016	2030	QB182032.46 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR02	17 Nov 2016	1747	QB171747.58 #	MYOSEP	MYOSOD	Other Myotis	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	G. Janos	N/A
	LR02	17 Nov 2016	1751	QB171751.22 #	MYOSEP	MYOSOD	Other Myotis	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	G. Janos	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
Lower Roanoke	LR02	17 Nov 2016	1759	QB171759.44 #	MYOSEP	NOID	NOID	Low quality calls. Lots of noise in the file. Calls lack the characteristics of MYOSEP calls (steep slope, long linear calls)	G. Janos	N/A
	LR02	17 Nov 2016	1824	QB171824.12 #	MYOSEP	NOID	NOID	Low quality calls. Lots of noise in the file. Calls lack the characteristics of MYOSEP calls (steep slope, long linear calls)	G. Janos	N/A
	LR02	17 Nov 2016	1857	QB171857.31 #	MYOSEP	MYOSOD	Other Myotis	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	G. Janos	N/A
	LR02	17 Nov 2016	1804	QB171804.14 #	LASBOR	MYOSEP	MYOSEP	The calls are characteristic of those produced by MYOSEP (steep slope (SC >200 OPS), long linear calls).	G. Janos	5
	LR02	17 Nov 2016	1804	QB171804.44 #	LASBOR	MYOSEP	MYOSEP	The calls are characteristic of those produced by MYOSEP (steep slope (SC >200 OPS), long linear calls).	G. Janos	6
	LR02	18 Nov 2016	1737	QB181737.47 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR02	18 Nov 2016	1754	QB181754.33 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	LR02	18 Nov 2016	1755	QB181755.52 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR02	18 Nov 2016	1818	QB181818.41 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR02	18 Nov 2016	1825	QB181825.02 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR02	18 Nov 2016	1828	QB181828.25 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
Lower Roanoke	LR02	18 Nov 2016	1845	QB181845.59 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR02	18 Nov 2016	1854	QB181854.58 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	LR02	18 Nov 2016	1856	QB181856.06 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR02	18 Nov 2016	1921	QB181921.27 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	LR02	18 Nov 2016	1925	QB181925.09 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	LR02	18 Nov 2016	1934	QB181934.45 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	LR02	24 Feb 2017	2002	R2242002.30 #	MYOSEP	MYOSOD	Other Myotis	The calls are inconsistent and are not characteristic of those produced by MYOSEP (high slope, long linear calls). The call is broken and the last part (what likely triggered the ID of MYOSEP) appears to be a feeding buzz.	G. Janos	N/A
	LR03	24 Feb 2017	1906	R2241906.38 #	LASBOR	MYOSEP	LASBOR	The calls do have a steep slope but the frequency is inconsistent. There are LASBOR calls before and after this file and it is likely these calls are LASBOR too.	G. Janos	N/A
	LR03	24 Feb 2017	2125	R2242125.42 #	MYOSEP	MYOSOD	Other Myotis	The calls do have a high slope but they are not long tall calls characteristic of MYOSEP. They likely are MYOAUS calls.	G. Janos	N/A
	LR03	25 Feb 2017	2148	R2252148.17 #	MYOSEP	NOID	Other Myotis	The calls do not have the characteristics of those produced by MYOSEP (steep slope, long linear calls).	G. Janos	N/A
	LR04	19 Nov 2016	1744	QB191744.16 #	MYOSEP	N/A	LASBOR	Although there are several pulse that are indicative of MYOSEP (long, linear, and steep), the fundamental frequencies (Fc) of the pulses are not	S. Samoray	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
								consistent, and this call is more likely from a LASBOR in clutter.		
Lower Roanoke	LR04	22 Feb 2017	2024	R2222024.17 #	MYOSEP	MYOSOD	LASBOR	Both files appear to be LASBOR in clutter. The calls are not as steep as typical MYOSEP calls and the Fc of the calls are not consistent	G. Janos	N/A
	LR04	22 Feb 2017	2024	R2222204.54 #	NOID	MYOSEP	LASBOR	Both files appear to be LASBOR in clutter. The calls are not as steep as typical MYOSEP calls and the Fc of the calls are not consistent	G. Janos	N/A
	LR04	23 Feb 2017	2030	R2232030.33 #	MYOSEP	MYOSOD	LASBOR	Although there are several pulse that are indicative of MYOSEP (long, linear, and steep slope), the Fc of the calls are not consistent. This call is more likely from a LASBOR in clutter.	G. Janos	N/A
Roanoke River	RR01	2 Dec 2016	1824	QC021824.46 #	MYOSEP	N/A	Other Myotis	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	G. Janos	N/A
	RR01	5 Dec 2016	1714	QC051714.39 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1715	QC051715.56 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1716	QC051716.12 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1717	QC051717.07 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1722	QC051722.31 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1722	QC051722.58 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR01	5 Dec 2016	1723	QC051723.39 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
Roanoke River	RR01	5 Dec 2016	1726	QC051726.30 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1727	QC051727.16 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1728	QC051728.22 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1729	QC051729.09 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1731	QC051731.25 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1731	QC051731.43 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1733	QC051733.13 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1734	QC051734.15 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1734	QC051734.36 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1735	QC051735.37 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR01	5 Dec 2016	1736	QC051736.08 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
Roanoke River	RR01	5 Dec 2016	1736	QC051736.30 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1737	QC051737.21 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1739	QC051739.41 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1740	QC051740.06 #	MYOSEP	MYOSOD	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1740	QC051740.21 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1741	QC051741.35 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1743	QC051743.12 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1743	QC051743.27 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1744	QC051744.38 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1744	QC051744.53 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray, G. Janos	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR01	5 Dec 2016	1745	QC051745.08 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1745	QC051745.40 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
Roanoke River	RR01	5 Dec 2016	1745	QC051745.55 #	MYOSEP	MYOLEI	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1748	QC051748.39 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1750	QC051750.13 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1754	QC051754.24 #	MYOSEP	NOID	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1755	QC051755.25 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1755	QC051755.40 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1755	QC051755.55 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1756	QC051756.06 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1756	QC051756.47 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR01	5 Dec 2016	1757	QC051757.02 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls resemble that of Myotis but the call is broken and cannot be confidently identified to species.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1757	QC051757.15 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
Roanoke River	RR01	5 Dec 2016	1757	QC051757.37 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1758	QC051758.26 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1759	QC051759.02 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1800	QC051800.32 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1800	QC051800.52 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1801	QC051801.39 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1802	QC051802.03 #	MYOSEP	MYOLEI	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1802	QC051802.30 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR01	5 Dec 2016	1803	QC051803.23 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1803	QC051803.49 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1804	QC051804.31 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls resemble that of Myotis there are only a few calls and cannot be confidently identified to species.	S. Samoray, G. Janos	N/A
Roanoke River	RR01	5 Dec 2016	1805	QC051805.00 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1806	QC051806.00 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1806	QC051806.27 #	MYOSEP	MYOLEI	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1806	QC051806.45 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1807	QC051807.06 #	MYOSEP	MYOLEI	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1809	QC051809.55 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1810	QC051810.59 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1811	QC051811.27 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR01	5 Dec 2016	1811	QC051811.48 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1812	QC051812.44 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1812	QC051812.59 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
Roanoke River	RR01	5 Dec 2016	1813	QC051813.20 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1814	QC051814.09 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1814	QC051814.48 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1815	QC051815.29 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1817	QC051817.05 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1817	QC051817.31 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1818	QC051818.07 #	MYOSEP	MYOSEP	MYOSEP	The calls are characteristic of those produced by MYOSEP (steep slope (SC >200 OPS), long linear calls).	S. Samoray, G. Janos	7
	RR01	5 Dec 2016	1818	QC051818.28 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR01	5 Dec 2016	1821	QC051821.35 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1822	QC051822.04 #	MYOSEP	MYOSOD	MYOSEP	The calls are characteristic of those produced by MYOSEP (steep slope (SC >200 OPS), long linear calls).	S. Samoray, G. Janos	8
	RR01	5 Dec 2016	1823	QC051823.32 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
Roanoke River	RR01	5 Dec 2016	1828	QC051828.18 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1837	QC051837.29 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1837	QC051837.44 #	MYOSEP	MYOSEP	MYOSEP	The calls are characteristic of those produced by MYOSEP (steep slope (SC >200 OPS), long linear calls).	S. Samoray, G. Janos	9
	RR01	5 Dec 2016	1838	QC051838.48 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	5 Dec 2016	1903	QC051903.34 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray, G. Janos	N/A
	RR01	22 Feb 2017	1914	R2221914.09 #	MYOSEP	MYOSEP	LASBOR	The Fc of the calls is not consistent and the slope is not as steep as MYOSEP calls often are.	G. Janos	N/A
	RR01	22 Feb 2017	1927	R2221927.49 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	22 Feb 2017	1951	R2221951.07 #	MYOSEP	MYOSEP	LASBOR	Although there are several pulse that are indicative of MYOSEP (long, linear, and steep), the Fc of the pulses are not consistent, and this call is more likely from a LASBOR in clutter.	G. Janos	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR01	22 Feb 2017	2049	R2222049.03 #	NOID	MYOSEP	MYOSEP	The calls are characteristic of those produced by MYOSEP (steep slope (SC >200 OPS), long linear calls).	G. Janos	10
	RR01	22 Feb 2017	2247	R2222247.00 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	22 Feb 2017	2247	R2222247.23 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
Roanoke River	RR01	22 Feb 2017	2250	R2222250.44 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	22 Feb 2017	2251	R2222251.04 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	22 Feb 2017	2255	R2222255.36 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	22 Feb 2017	2258	R2222258.41 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	22 Feb 2017	2259	R2222259.15 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	22 Feb 2017	2259	R2222259.28 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	22 Feb 2017	2301	R2222301.30 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	22 Feb 2017	2301	R2222301.39 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR01	24 Feb 2017	1934	R2241934.24 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	24 Feb 2017	1956	R2241956.07 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	24 Feb 2017	2143	R2242143.08 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
Roanoke River	RR01	24 Feb 2017	2147	R2242147.24 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	24 Feb 2017	2147	R2242147.33 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	24 Feb 2017	2247	R2242247.15 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	24 Feb 2017	2252	R2242252.03 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR01	24 Feb 2017	2310	R2242310.04 #	MYOSEP	N/A	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	G. Janos	N/A
	RR03	5 Dec 2016	1716	QC051716.54 #	MYOSEP	MYOAUS	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1717	QC051717.24 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1720	QC051720.23 #	MYOSEP	NOID	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR03	5 Dec 2016	1731	QC051731.32 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1741	QC051741.44 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1742	QC051742.14 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
Roanoke River	RR03	5 Dec 2016	1743	QC051743.49 #	NOID	MYOSEP	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1744	QC051744.59 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1748	QC051748.47 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1749	QC051749.49 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1750	QC051750.01 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1750	QC051750.33 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1750	QC051750.50 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR03	5 Dec 2016	1751	QC051751.32 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1752	QC051752.01 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1755	QC051755.37 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
Roanoke River	RR03	5 Dec 2016	1756	QC051756.16 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1757	QC051757.21 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	RR03	5 Dec 2016	1758	QC051758.49 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1801	QC051801.13 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1801	QC051801.30 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1801	QC051801.45 #	MYOSEP	NOID	NOID	Filter had to be turned off to view calls. Low quality call. Lots of noise in the file and only a few calls.	S. Samoray	N/A
	RR03	5 Dec 2016	1805	QC051805.31 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A

Location	Site	Date	Time	File Name	EchoClass	BCID	Manual ID	Comments	Vetted By	Sonogram No.
	RR03	5 Dec 2016	1809	QC051809.05 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1811	QC051811.26 #	MYOSEP	NOID	NOID	Not sufficient data to make a species determination. The calls do lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1813	QC051813.45 #	LASBOR	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
Roanoke River	RR03	5 Dec 2016	1814	QC051814.48 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1816	QC051816.34 #	MYOSEP	MYOSOD	MYOAUS	Though the calls appear to be Myotis and have a steep slope (SC >200OPS), there is not sufficient data to confidently call the file MYOSEP.	S. Samoray	N/A
	RR03	5 Dec 2016	1912	QC051912.13 #	MYOSEP	MYOSEP	MYOAUS	Though the calls appear to be Myotis they lack the characteristics (steep slope, long linear calls) of MYOSEP.	S. Samoray	N/A
	RR04	23 Feb 2017	1836	R2231836.34 #	MYOSEP	N/A	NOID	File only contains a few calls and there are of poor quality. Not enough information to ID to species.	G. Janos	N/A

EPTFUS = *Eptesicus fuscus*, Big Brown Bat; **LASBOR** = *Lasiurus borealis*, Red Bat; **MYOAUS** = *Myotis austroriparius*, Southeastern Myotis; **MYOLEI** = *Myotis leibii*, Eastern Small-Footed Bat; **MYOSEP** = *Myotis septentrionalis*, Northern Long-eared Bat; **MYOSOD** = *Myotis sodalis*, Indiana Bat

NOID = No identification made; **Yellow highlighted rows** = confirmed MYOSEP calls

Appendix B
Additional Report Figures

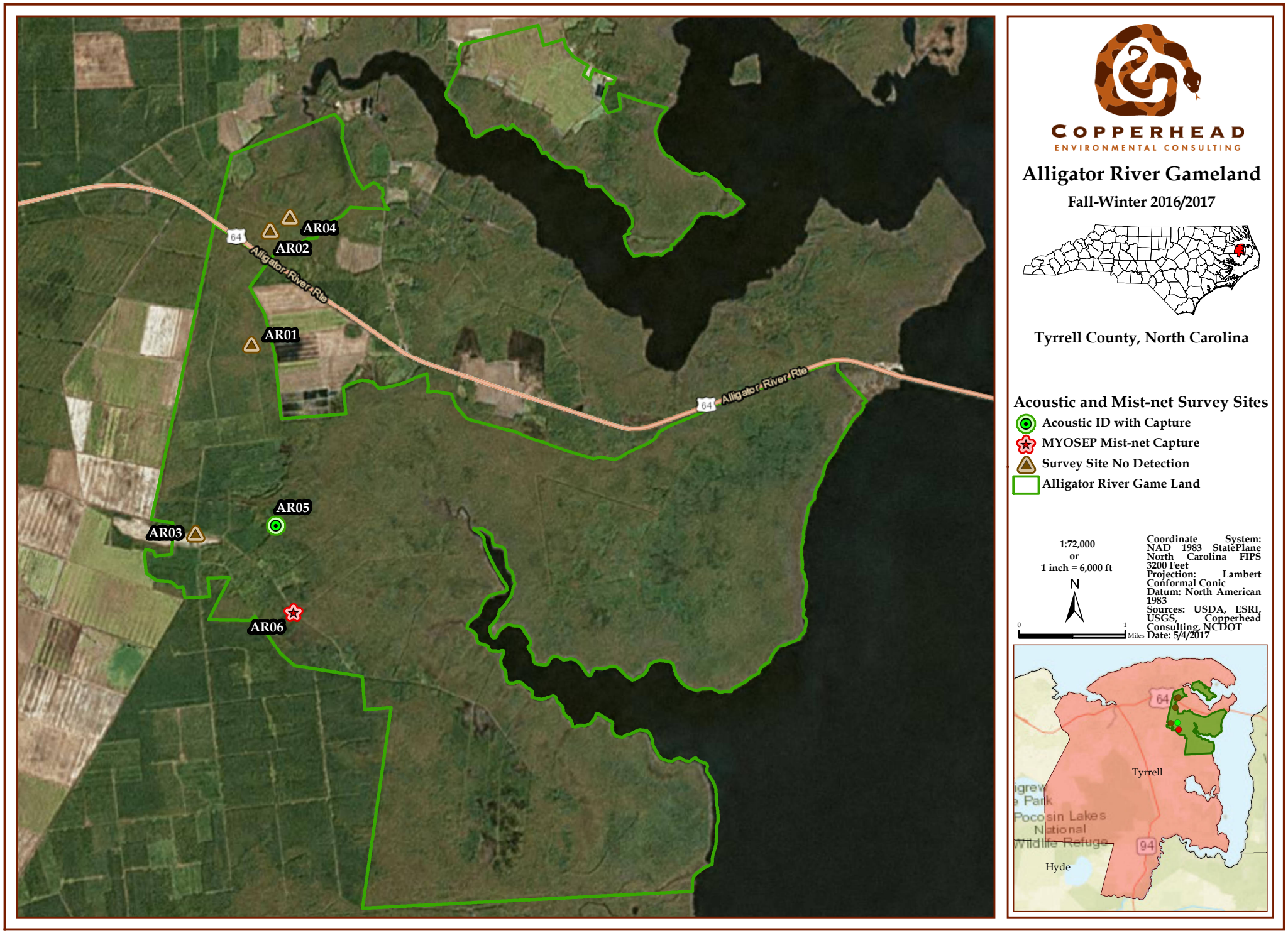


Figure 2. Survey sites sampled at the Alligator River Game Lands Study Area during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina.

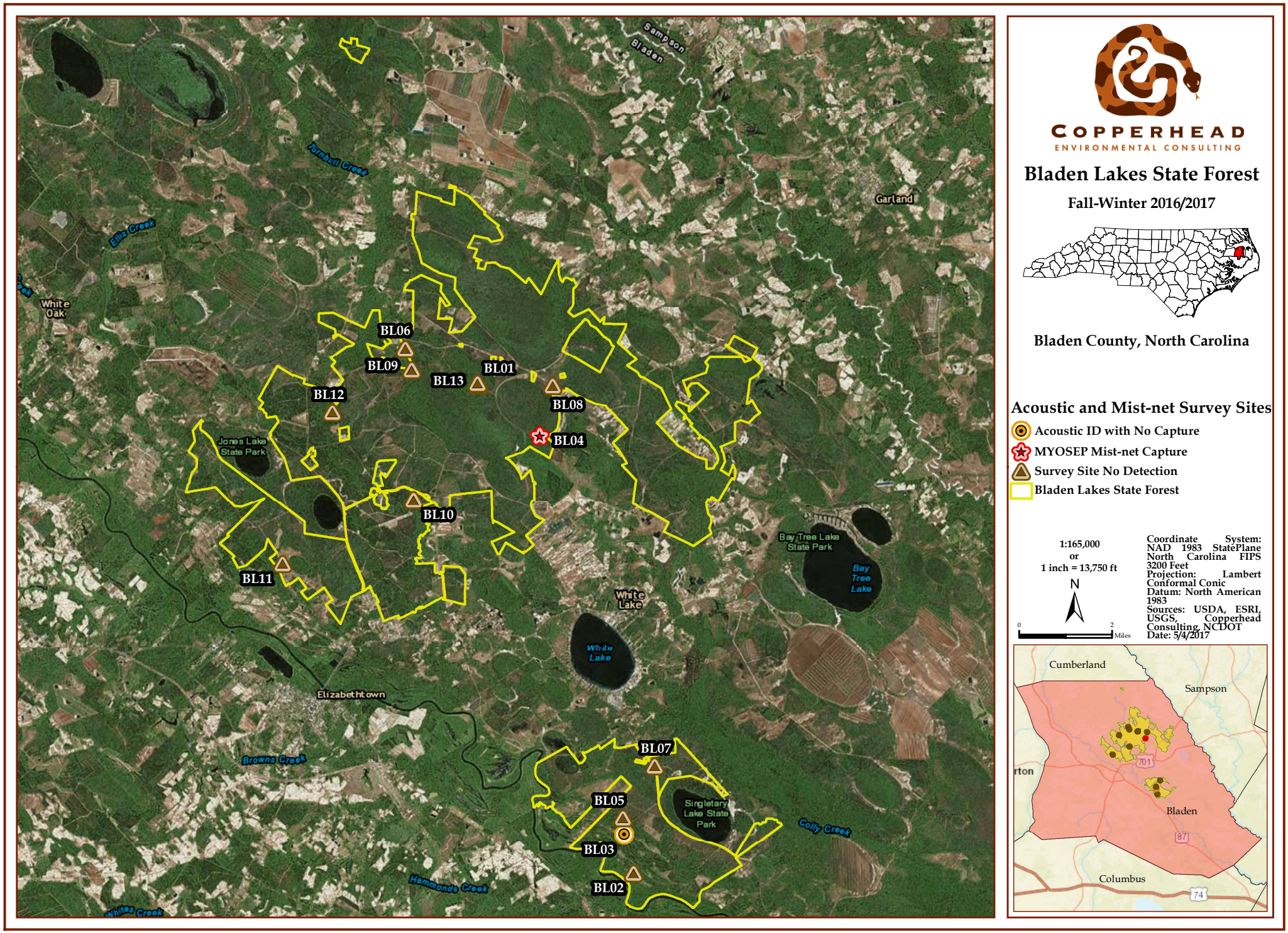
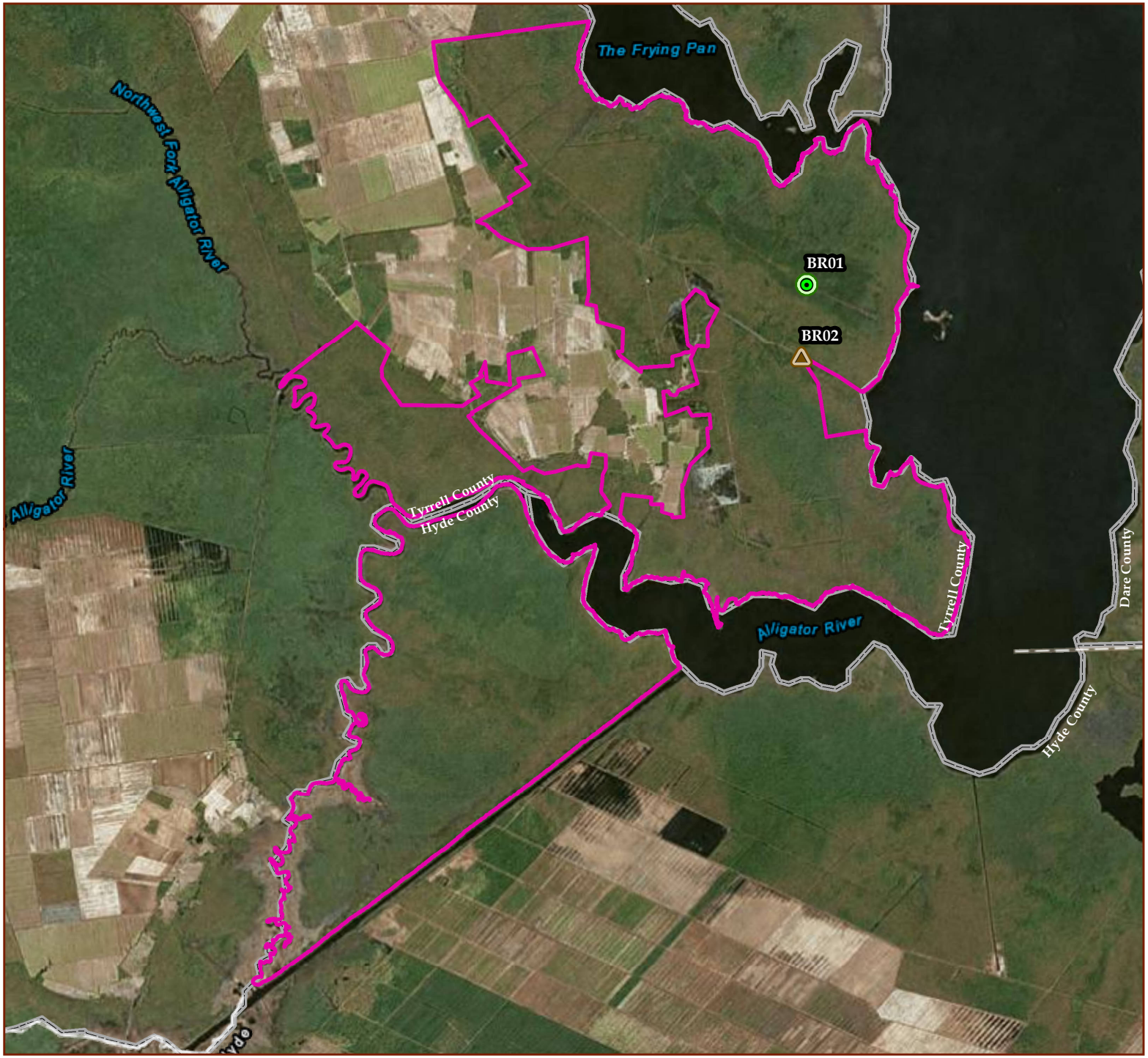


Figure 3. Survey sites sampled at the Bladen Lakes State Forest Study Area during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, and Tyrell counties, North Carolina.



COPPERHEAD
ENVIRONMENTAL CONSULTING

Buckridge Coastal Reserve

Fall-Winter 2016/2017

Hyde and Tyrell County, North Carolina

Acoustic and Mist-net Survey Sites

- Acoustic ID with Capture
- Survey Site No Detection
- Buckridge Coastal Reserve

1:114,000
or
1 inch = 9,500 ft

N

0 1.5 Miles

Coordinate System: NAD 1983 StatePlane North Carolina FIPS 3200 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS, Copperhead Consulting, NCDOT
Date: 5/4/2017

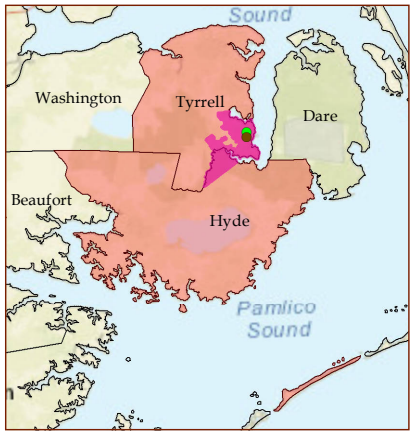


Figure 4. Survey sites sampled at the Buckridge Coastal Reserve Study Area during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina.

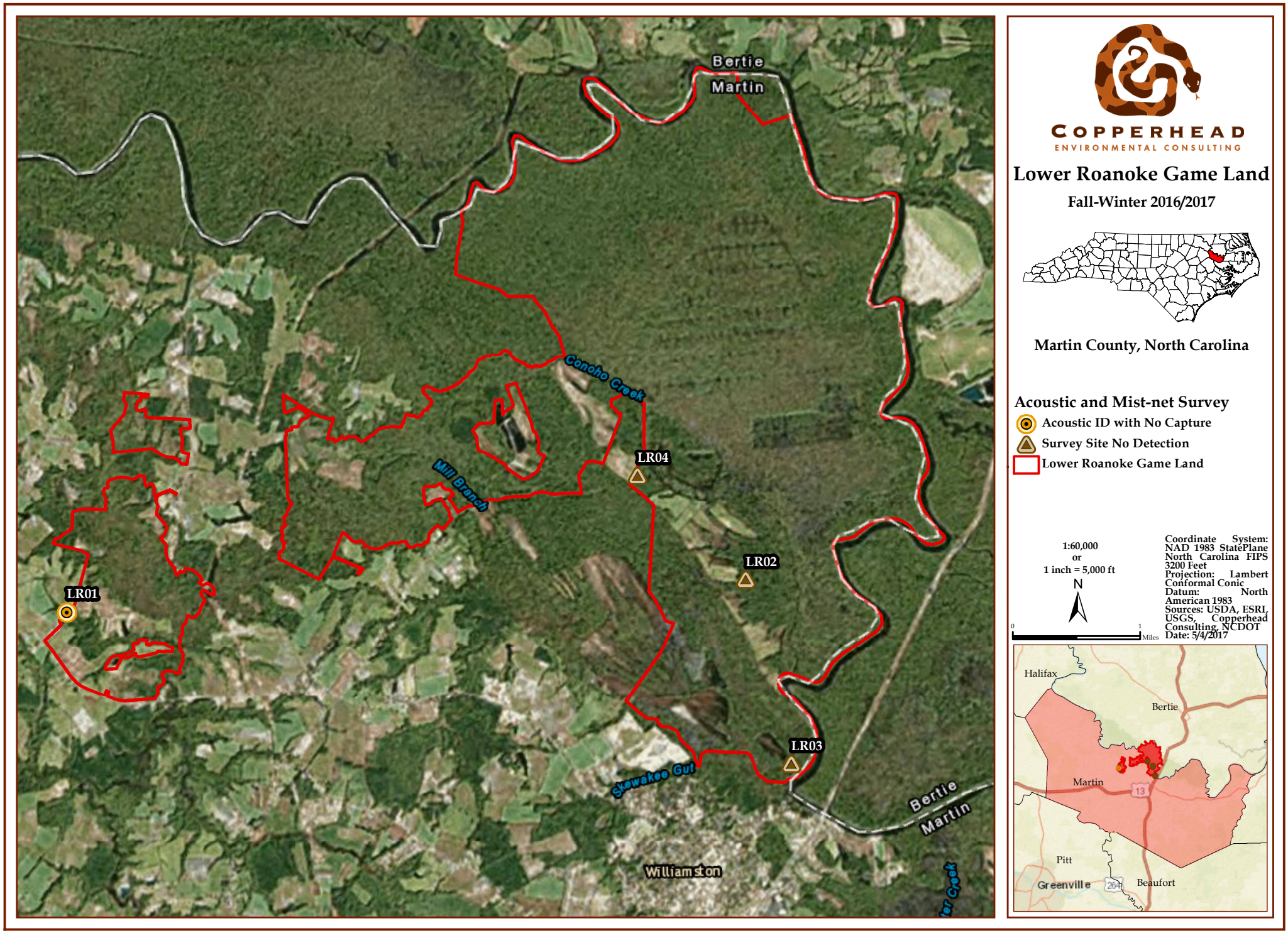


Figure 5. Survey sites sampled at the Lower Roanoke Game Land Study Area during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina.

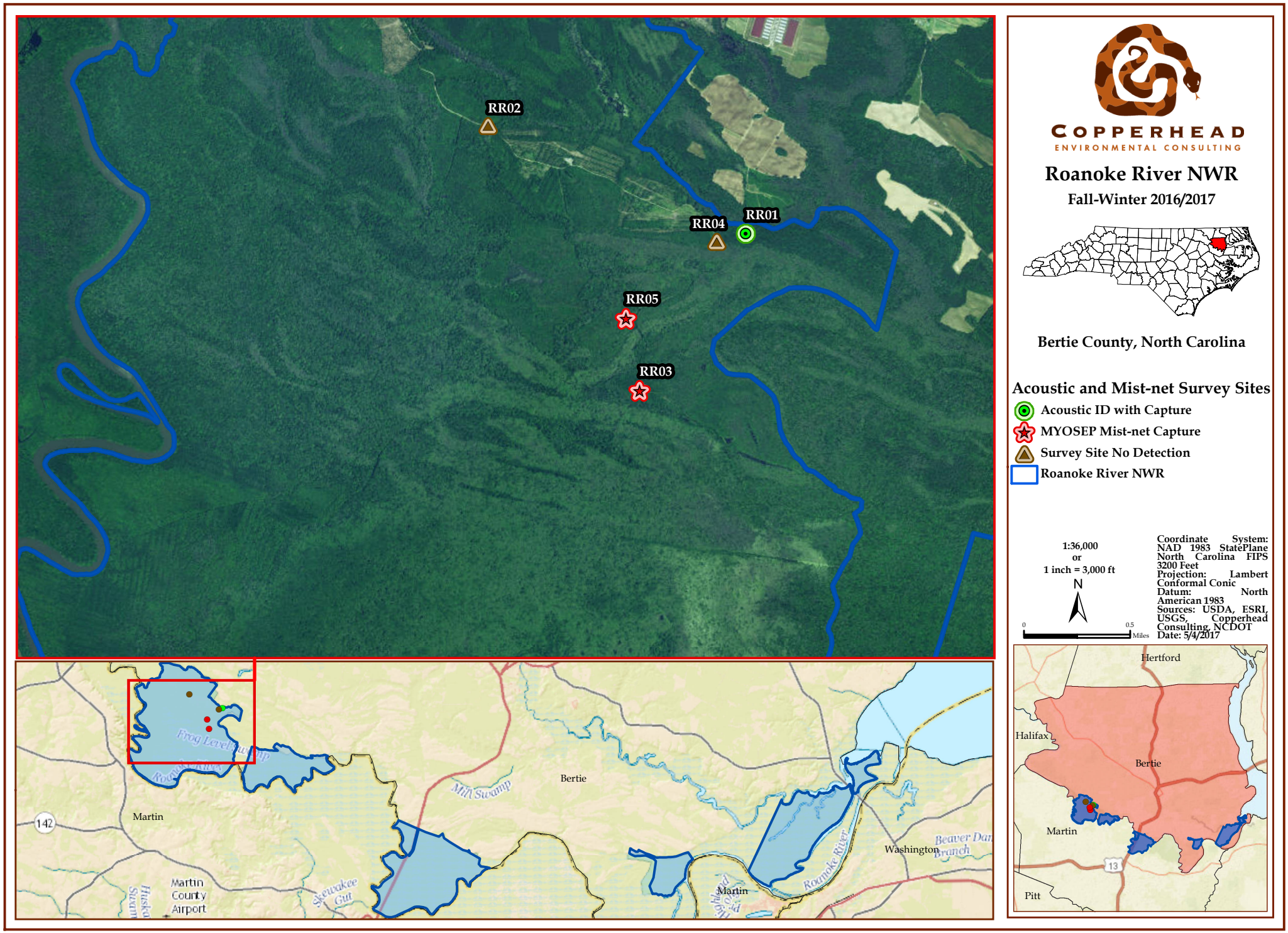


Figure 6. Survey sites sampled at Roanoke River National Wildlife Refuge Study Area, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina.

COPPERHEAD
ENVIRONMENTAL CONSULTING

Alligator River Gameland
MYOSEP Roost Sites
Fall-Winter 2016/2017

Tyrrell County, North Carolina

Bat Transmitter Frequency

- 183
- 542
- 605
- Alligator River Game

1:15,000
or
1 inch = 1,250 ft

N

0 1,000 Feet

Coordinate System: NAD 1983 StatePlane North Carolina FIPS 3200 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS, Copperhead Consulting, NCDOT
Date: 5/4/2017

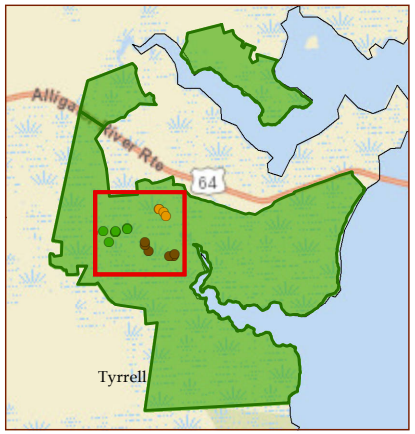


Figure 7. Roost trees located on the Alligator Game Land Study Area during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrell counties, North Carolina.

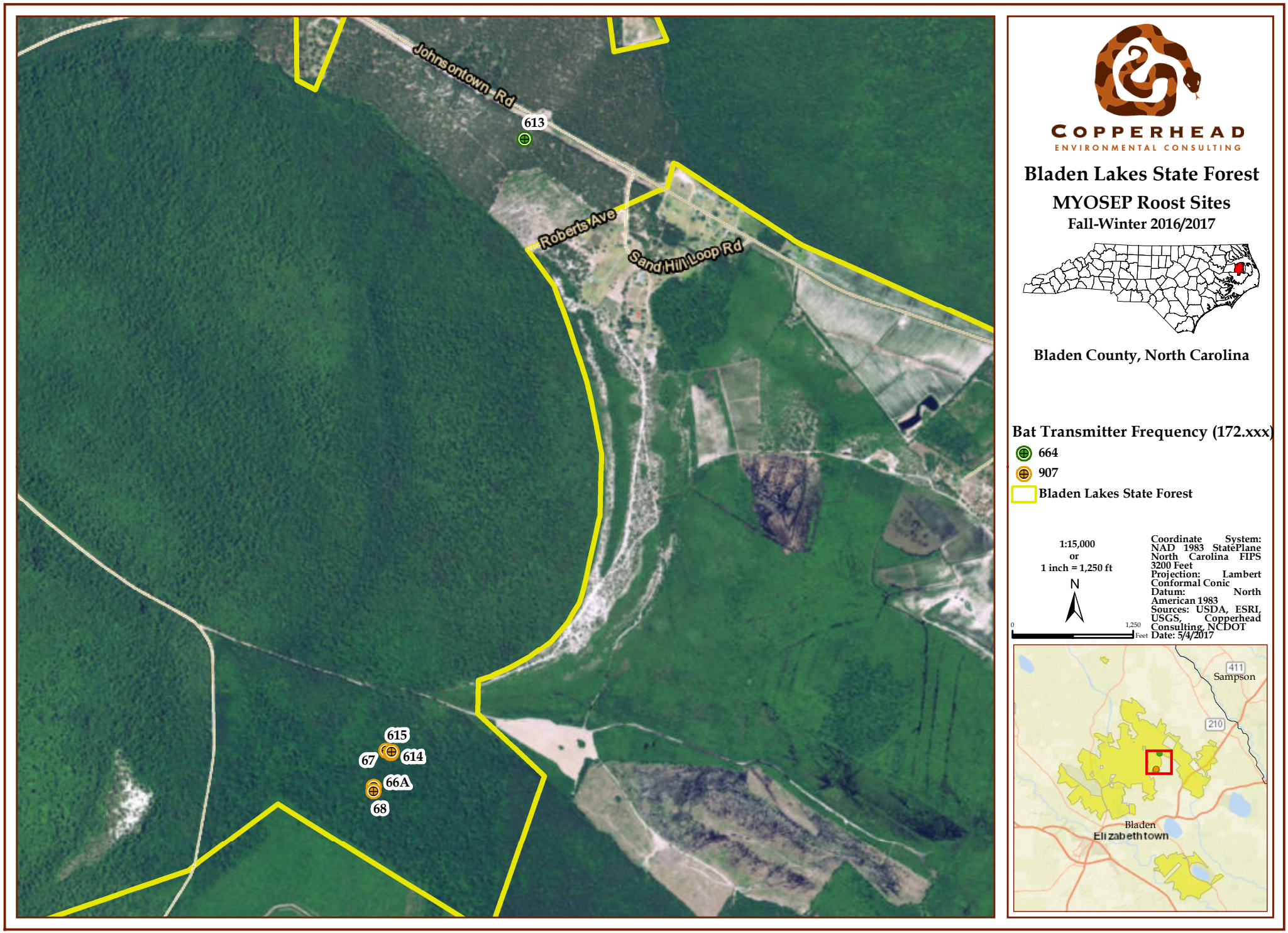


Figure 8. Roost trees located on the Bladen Lakes State Forest Study Area during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina.

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Buckridge Coastal Reserve

MYOSEP Roost Sites

Fall-Winter 2016/2017

Hyde and Tyrell County,
North Carolina

Bat Transmitter Frequency (175.xxx)

423

Buckridge Coastal Reserve

1:6,000
or
1 inch = 500 ft

N

0 420 Feet

Coordinate System: NAD 1983 StatePlane North Carolina FIPS 3200 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS, Copperhead Consulting, NCDOT
Date: 5/4/2017

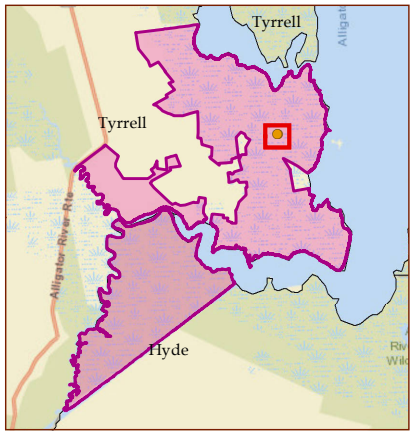
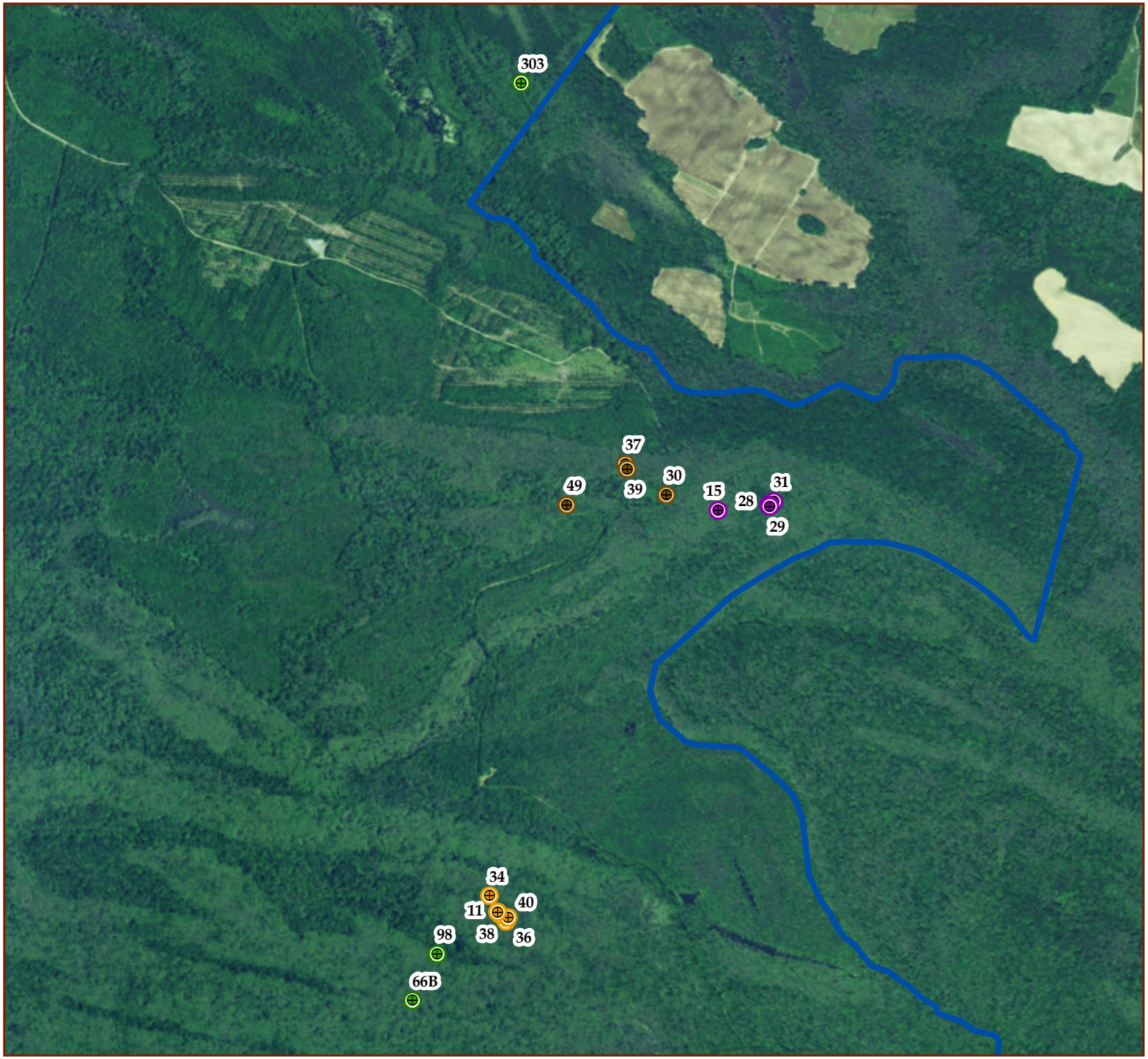


Figure 9. Roost trees located on the Buckridge Coastal Reserve Study Area during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project, Bertie, Bladen, Hyde, Martin, and Tyrrell counties, North Carolina.



COPPERHEAD
ENVIRONMENTAL CONSULTING

Roanoke River NWR
MYOSEP Roost Sites
Fall-Winter 2016/2017

Bertie County, North Carolina

Bat Transmitter Frequency (172.xxx)

- 064
- 125
- 364
- 483
- Roanoke River NWR

1:18,000
or
1 inch = 1,500 ft

N

0 1,500 Feet

Coordinate System: NAD 1983 StatePlane North Carolina FIPS 3200 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: USDA, ESRI, USGS, Copperhead Consulting, NCDOT
Date: 5/4/2017

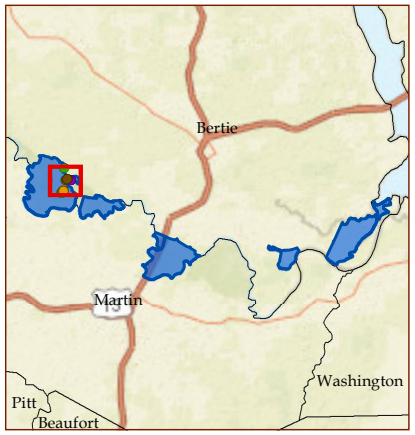


Figure 10. Roost trees located on the Roanoke River National Wildlife Refuge Study Area during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Study, Bertie, Bladen, Hyde, Martin, and Tyrell counties, North Carolina.

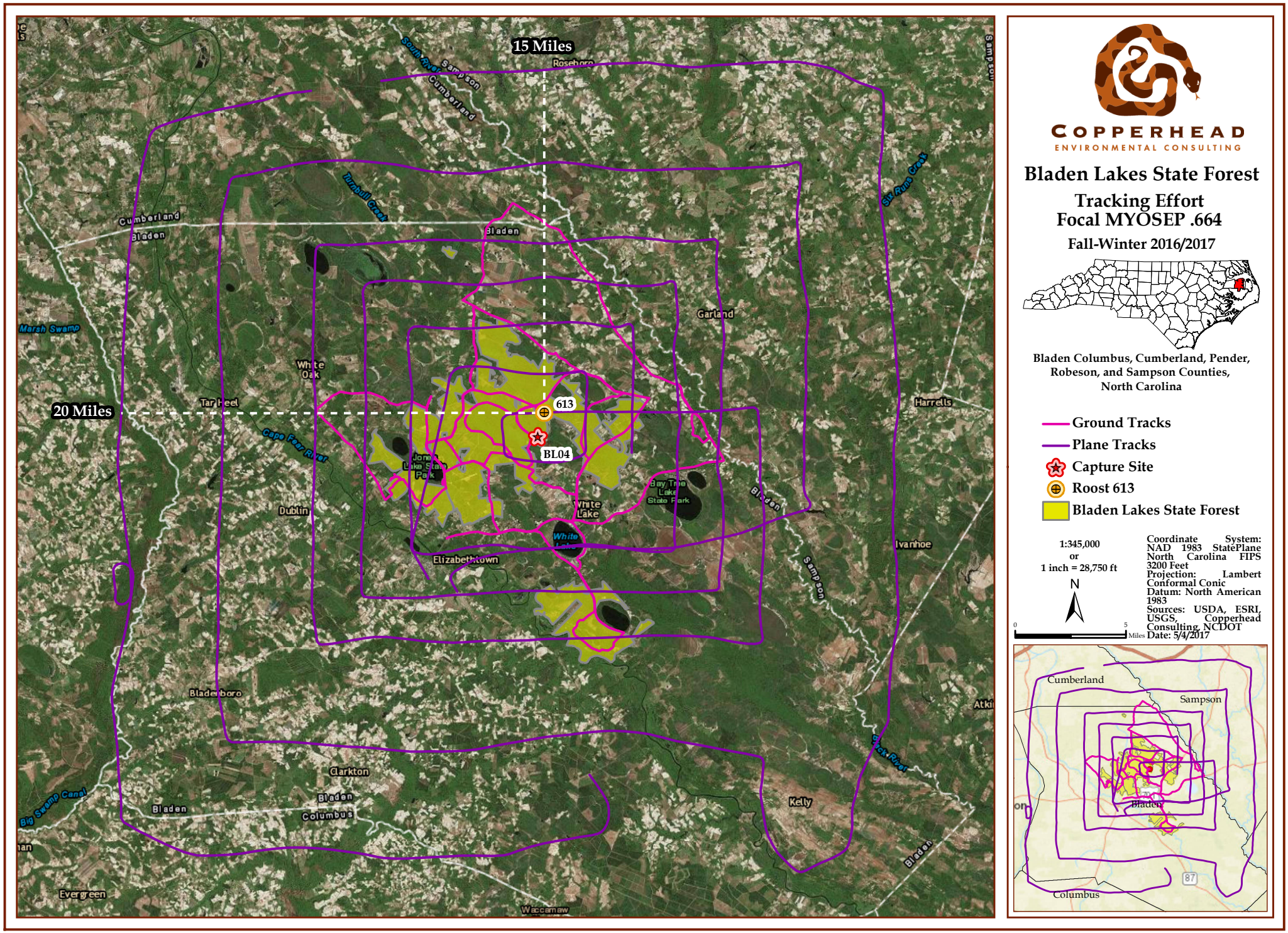


Figure 11. Aerial and ground tracking efforts conducted in search lost focal bat 172.664 during the Fall 2016/Winter 2017 NCDOT Northern Long-eared Bat Research Project.

Appendix C
Completed Mist Netting and Acoustic Survey Dataforms

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Tyrrell	**Site#:**	AR01	**Night#:**	1	**Site Name:**	Alligator River	**Date:**	06 Dec 2016
Latitude: 35.91181		Longitude: -76.13689						Datum: NAD83	Elevation: 24 ft	ID By: Nick Kovacs	
Observers: A. Cable								Start Time: 1649		End Time:	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1645	66.5°F	1	50%	1930	62.5°F	2	75%	2200	49.5°	2	75%

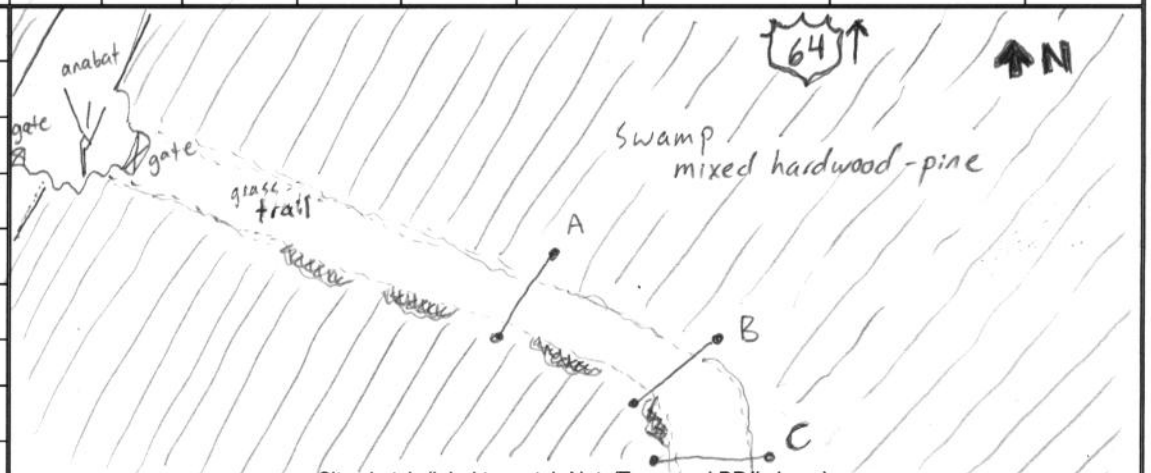
Moon Effect:	Start: 1810	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
WAX-CRES	Stop: 2000	mixed hardwood pine swamp

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.91568	-76.14255	Ext. High freq.	12ft	low	6	NA	NA	1645	2244	NK

Site Description, other than Habitat Info covered on pg 3:

Dominant veg includes:
Liquidambar styraciflua, Acer rubrum, Quercus nigra, and Pinus taeda.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Tyrrell Site# AR 01 Night# 1 Site Name: Alligator River Date: 06 Dec 2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1720	LASBOR	M	A	NR	40	7.25	9.75	B	2.5	O / NCDOT 1622	
2	1720	LASBOR	M	A	NR	40	7.25	9.75	A	2.5	OP / NCDOT 1623	
3	1730	LASBOR	M	A	NA	39.5	7.25	11.50	C	2	O / NCDOT 1625	Recap @ 1840 net A
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine Wet Hardwood Forest

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Tyrrell	**Site#:**	02	**Night#:**	1	**Site Name:**	AR02	**Date:**	6Dec 2016
Latitude: 35.92729		Longitude: - 76.13317						Datum: NAD83	Elevation: 45 ft	ID By: Taylor Culberson	
Observers: Chris Bullock								Start Time: 1651		End Time: 2151	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1700	66.5°F	1	75%	1936	58.5°F	4	75%	2145	52°F	2	75%

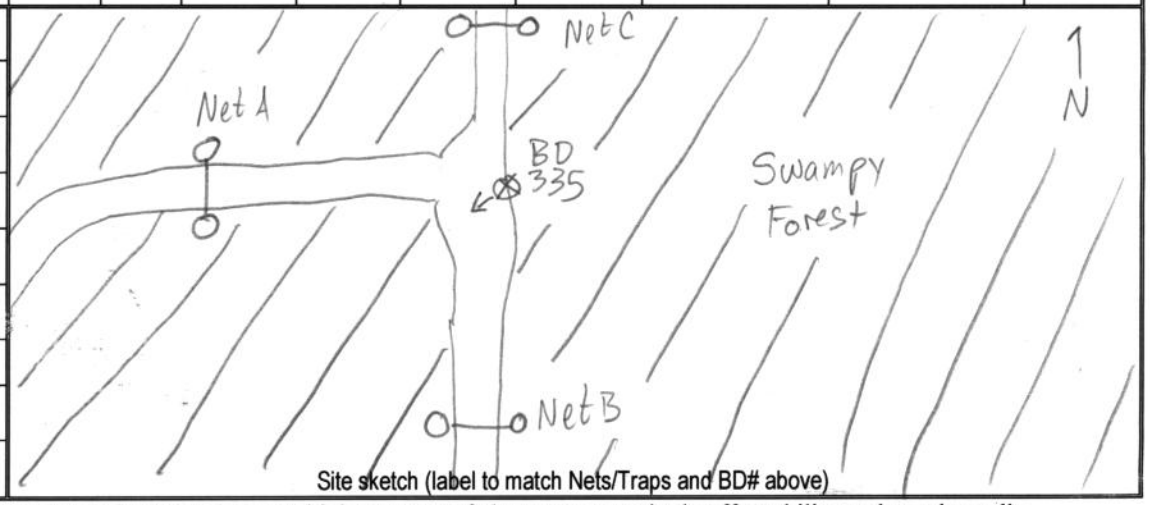
Moon Effect: WAX CRES	Start: NA Stop: NA	**Land Use:** Urban / Agriculture / Forest / Water / (Wetland) / Barren *(describe)*: Swamp

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
335	35.92729	-76.13317	Ext High Freq	12ft	low	65	NA	NA	1650	2215	TCiPhone

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation includes Acer rubrum and Pinus taeda. Nets set along roads running through swampy forest.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Tyrrell Site# 02 Night# 1 Site Name: AR02 Date: 6 Dec 2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	17:15	LASSEM	M	A	NR	41	7.75	17.5	C	3M	NCDOT 1769 / O	
2	18:10	MYOAUS	M	A	NR	37	7.75	15.5	B	1M	NCDOT 1756 / OP	TC iphone
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine Wet Hardwood Forest

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT MYSE	**County:**	Tyrrell	**Site#:**	AR03	**Night#:**	1	**Site Name:**	Alligator River	**Date:**	11-Jan-2017
Latitude: 35.88621		Longitude: -76.14713						Datum: NAD 83	Elevation: -17ft	ID By: G. Janos	
Observers: G. Janos, H. Braunreiter, S. Easterly								Start Time: 1710		End Time: 2015	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1705	70.5°F	0	25%	1830	43.5	0	25%	2015	42.5	0	0%

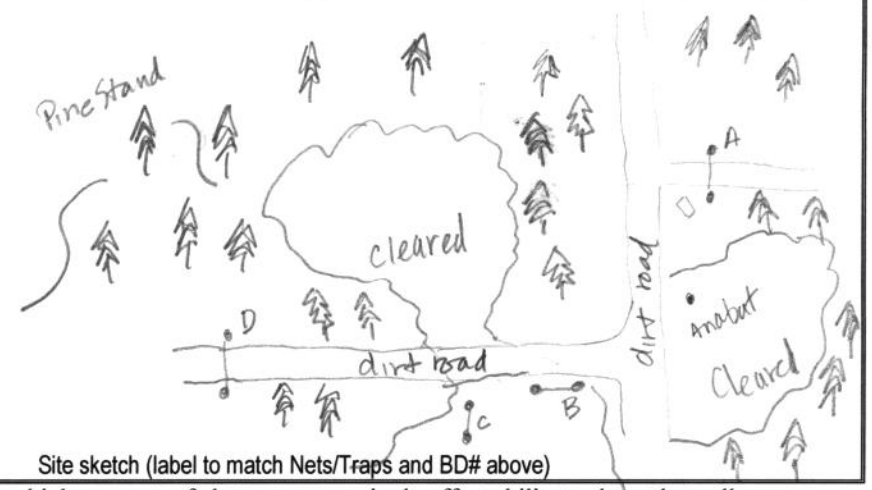
Moon Effect: Full	Start: 1715 Stop: 2015	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:

NETS/TRAPS:	**A:** 1x2H-9m	**B:** 1x2H-6m	**C:** 1x2H-6m	**D:** 1x2H-9m	**E:**	**F:**
Pool size WxL	N/A	6x6	N/A	N/A		
Swoop WxL	N/A	UNLIM	N/A	N/A		
Photo? or #	GJ's tablet	GJ's tablet	GJ's tablet	GJ's tablet		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.88621	-76.14713	Ext. Hi. Freq.	12ft	Edge	6	—	—	1710	2030	GJ's tablet

Site Description, other than Habitat Info covered on pg 3:

Dirt roads through pine stands + a few cleared field



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: NCDOT MYSE County: Tyrrell Site# AR03 Night# 1 Site Name: Alligator River Date: 11- Jan - 2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

No Bats

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nontidal Swamp Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT MYSE	**County:**	Tyrrell	**Site#:**	AR03	**Night#:**	2	**Site Name:**	Alligator River	**Date:**	12-Jan-2017
Latitude: 35.88621		Longitude: -76.14713						Datum: NAD 83	Elevation: -17 ft	ID By: G. Janos	
Observers: G. Janos, H. Braunreiter, S. Easterly								Start Time: 1710		End Time: 2210	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1710	66°F	0	25%	2010	52.5°F	3	25%	2210	47	0	25%

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Full	Stop: 2210	

NETS/TRAPS:	**A:** 1x2H-9m	**B:** 1x2H-6m	**C:** 1x2H-6m	**D:** 1x2H-9m	**E:**	**F:**
Pool size WxL	N/A	6x6	N/A	N/A		
Swoop WxL	N/A	UNLIM	N/A	N/A		
Photo? or #	GJ's tablet	GJ's tablet	GJ's tablet	GJ's tablet		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.88621	-76.14713	Ext. Hi Freq	12ft	Edge	6	—	—	1710	2210	GJ's tablet

Site Description, other than Habitat Info covered on pg 3:

Dirt roads through pine stands + a few cleared fields

See 11-Jan-2017 datasheet

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: NC DOT MYSE County: Tyrrell Site# AR03 Night# 2 Site Name: Alligator River Date: 12-Jan-2017

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

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:
Nonriverine Swamp Forest

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NLEB Winter Monitoring	**County:**	Tyrrell	**Site#:**	AR04	**Night#:**	1	**Site Name:**	Alligator River	**Date:**	1-11-17
Latitude: 35.92900°		Longitude: 76.12981°						Datum: NAD83	Elevation: 6 m	ID By: R. Stinson	
Observers: R. Stinson, C. Bullock, A. Dart-Padover								Start Time: 1711		End Time: 2013	

Conditions:	Time 1840	Temp 44°	Wind 0	Clouds 60%	Time 1730	Temp 42.5	Wind 6	Clouds 50%	Time 2015	Temp 42	Wind 0	Clouds 20%

Moon Effect: Full — Start: 1800 — Stop: —

Land Use: Urban / Agriculture / Forest / Water / (Wetland) / Barren *(describe)*: 61 - flooded forest

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

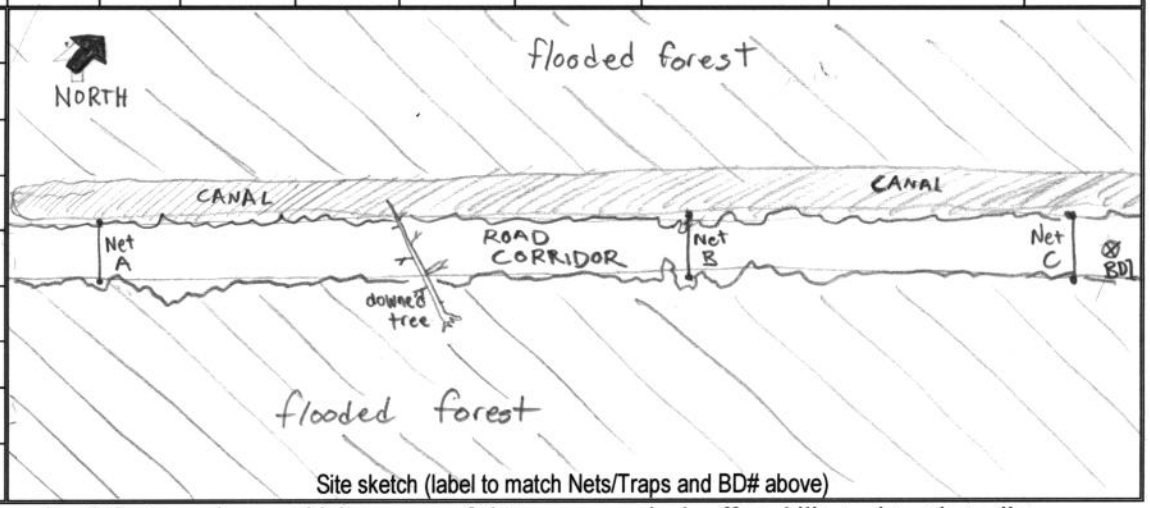
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.92900	76.12981	EXT HF	12ft	Medium	6			1711	2013	

Site Description, other than Habitat Info covered on pg 3:

Forested Wetland (61)

Pinus taeda, Quercus nigra

Tidal swamp



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 Winter NLEB Monitoring County: Tyrrell Site# AR04 Night# 1 Site Name: Alligator River Date: 1-11-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	NO BATS CAPTURED											
2												
3												
4												
5												
6												
7												
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18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded) / rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Tidal swamp (Cypress-Gum)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 Winter NLEB Monitoring	**County:**	Tyrrell	**Site#:**	AR04	**Night#:**	2	**Site Name:**	Alligator River	**Date:**	1-12-17
Latitude: 35.92900		Longitude: 76.12981						Datum: NAD83	Elevation: 6m	ID By: R. Stinson	
Observers: C. Bullock, A. Dart-Padover								Start Time: 1712		End Time:	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1751	54.5°	0	10%	1919	53	1	25	2212	50.2	0	25%

Moon Effect: FULL	Start: 1845 Stop:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 61 - Forested Wetland	

NETS/TRAPS:	**A:** 1×2H-6m	**B:** 1×2H-6m	**C:** 1×2H-6m	**D:** N/A	**E:** N/A	**F:** N/A
Pool size WxL	N/A	N/A	N/A	N/A	N/A	N/A
Swoop WxL	N/A	N/A	N/A	N/A	N/A	N/A
Photo? or #	RS Phone	RS phone	RS phone	N/A	N/A	N/A

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.92900	76.12981	EXT HF	3.6m	Medium	6			1712	2212	Y Robb's Phone

Site Description, other than Habitat Info covered on pg 3:

Tidal swamp - flooded forest

Pinus taeda, Quercus nigra

see AR04 1/11/2017

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 Winter NLEB Monitoring County: Tyrrell Site# AR04 Night# 2 Site Name: Alligator River Date: 1-12-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	Bag+Bat WT	Net #	Height	Band / WS	Comment / Photo #
1	1752	LASBOR	F	A	NR	41	7.25	17.75	C	1.5	N/A / 0	Found dead in net :(
2	1837	MYOAUS	M	A	SCR	37	7.25	14.00	A	2.5	NCWRC A0688 / 0	RS phone
3	1835	LASBOR	M	A	NR	40	6.5	18.00	C	4.5	A0700 / 0	RS phone
4	1832	MYOAUS	F	A	NR	37	7.25	15.00	B	3	A0699 / 0	RS phone
5	1847	MYOAUS	M	A	SCR	36.5	7.25	14.75	A	1.5	A0698 / 0	AD phone
6												
7												
8												
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13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Tidal Cypress - Gum Swamp

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT	**County:**	TYRRELL	**Site#:**	AR05	**Night#:**	1	**Site Name:**	Alligator River	**Date:**	2-27-17
Latitude: N 35.88696°		Longitude: W 076.13364°						Datum: NAD 83	Elevation: -17'	ID By: T. Wetzel	
Observers: T. Wetzel, H. Braunreiter								Start Time: 1800		End Time: 2015	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1800	61	0	100%	2015	54.5	0	25%	NA	NA	NA	NA

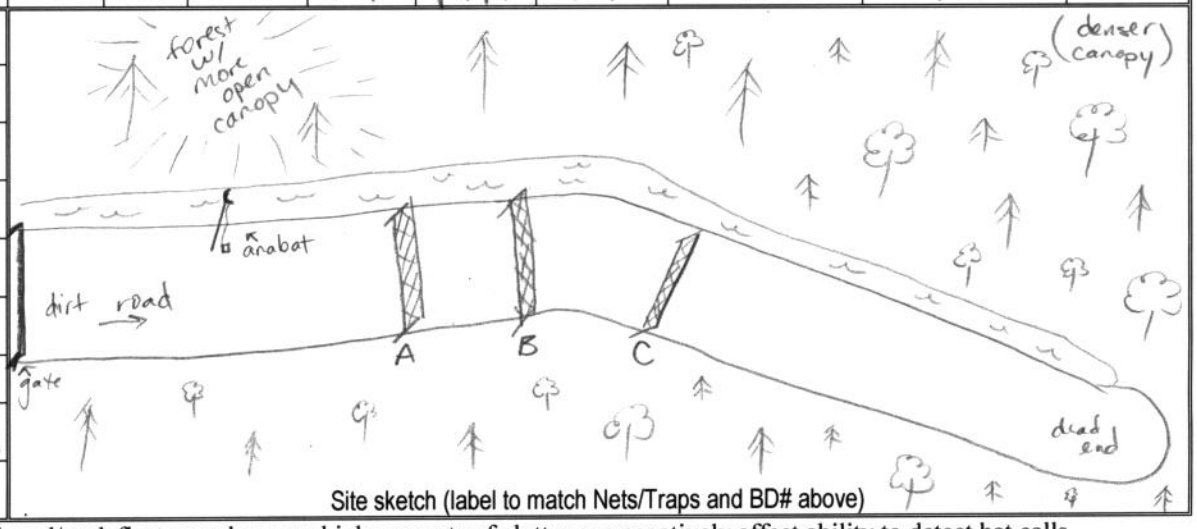
Moon Effect:	Start:	Stop:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Max. cves.	NA	NA	Mixed swamp forest

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
056	35.8859654	-76.1349361	Ext	4	NO	6	NA	NA	1755	2015	TW
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Site Description, other than Habitat Info covered on pg 3:

Nets placed along dirt road in a forested swamp. Pine plantations nearby & prescribed burns done recently w/in plantations. Dominant forest composition includes Pinus taeda, Liquidambar styraciflua, Quercus nigra, Acer rubrum, Ilex glabra, Morella cyfera, Nyssa biflora, Persia palustris. Many standing snags in the swamp. Also Fraxinus sp. & Magnolia virginiana.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

* Ultrasound detector: 1930-1947 female (#2) MYSE / 1947:1956- (on/pause/on) male (#3) MYSE

Bat Survey Data Form

Project: 537 NCDOT County: TYRRELL Site# AR05 Night# 1 Site Name: Alligator River Date: 2-27-17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA (mm)	Bag WT (g)	WT (g)	Net #	Height (m)	Band / WS	Comment / Photo #
1	1900	LASBOR	M	A	NR	40	7.75	17.5	B	3	CC1962/0	
2	1900	MYOSEP	F	A	NR	39	7.5	15.0	B	2.5	NCDOT 1628/0	172.542 (pulse .60) (#39) Theresa's phone
3	1950	MYOSEP *F1	M	A	NR	34	8	15.0	C	4	CC1963/0	172.605 (pulse .57) (#40) Theresa's phone
4	2015	(BAT ESCAPED NET A)							A	0.5		
5												
6												
7												
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Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine Wet Hardwood Forest (Schofale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT Fall/Winter NLEB	**County:**	Tyrrell	**Site#:**	6	**Night#:**	1	**Site Name:**	AR06	**Date:**	27-FEB-2017
Latitude: 35.87510		Longitude: -76.13111						Datum: NAD83	Elevation: -17 ft	ID By: T. Culbertson	
Observers: M. Hinds								Start Time: 1755		End Time: 2018	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1800	59.5	0	100	2018	52	0	100	—	—	—	—

Moon Effect: WAX	Start: —	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
	Stop: —	G1 - Forested

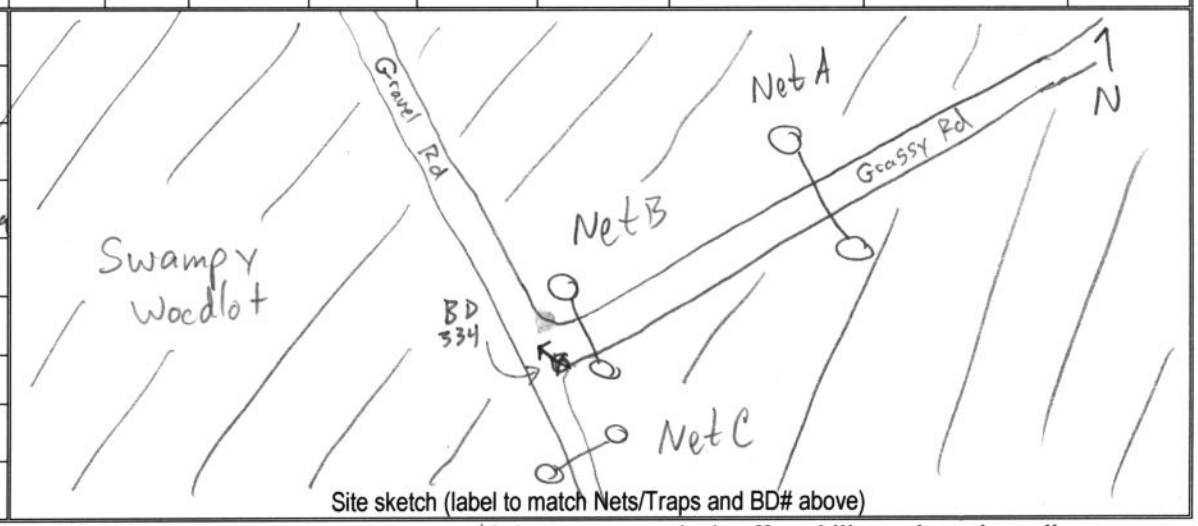
NETS/TRAPS:	**A:** 1x2H-6m	**B:** 1x2H-9m	**C:** 1x2H-12m	**D:**	**E:**	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
334	35.8790	-76.13111	Ext High Freq	4m	Edge	6.5	NA	NA	1755	2018	TC iphone

Site Description, other than Habitat Info covered on pg 3:

Gravel Road through swamp, and side grassy road. Vegetation includes Pinus taeda, Liquidambar styraciflua Quercus nigra, Acer rubrum.

Tidal-Swamp



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

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Page _____ of _____

Project: NCDOT Fall/winter NLEB County: Tyrrell Site# 6 Night# 1 Site Name: AR06 Date: 27 FEB 2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT g	WT g	Net #	Height m	Band / WS	Comment / Photo #
1	18:40	NYC HUM	M	A	SCR	35	7.75	15.5	C	2.5	CC1658/O-D	Right wing punctures
2	19:10	MYO SEP	M	A	NR	37	7.5	13.75	A	2	CC1659/O	172.183/+c Iphone
3	19:50	EPT FUS	M	A	NR	47	7.75	23.75	B	3	CC1660/O	
4												
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19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine Wet Hardwood Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

NCDOT 537 NLEB

Project:	537 NCDOT NLEB	**County:**	Bladen	**Site#:**	01	**Night#:**	1	**Site Name:**	BL01	**Date:**	15-Nov-2016
Latitude:	34.72667	Longitude:	-78.54366					Datum: NAD 83	Elevation: 31m	ID By: Taylor Culbertson	
Observers:	Kaleigh DeBeck							Start Time:	1709	End Time:	2209

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1709	55°F	0	0%	1940	48°F	0%	0	2209	43°F	0	25%

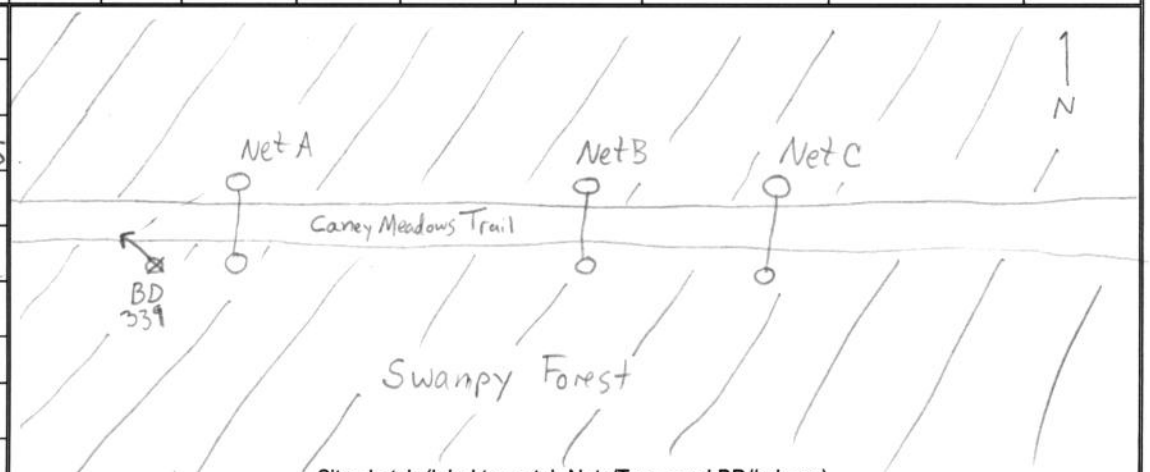
Moon Effect:	Start:	Stop:	**Land Use:** Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 43 mixed.
WAN. GIB.	2100	2209	

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
339	34.72667	-78.54366	External	4m	High	6			17:00	2209	Red Pentax

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation includes Acer rubrum and Gordonia lasianthus. The site is surrounded by swampy forest providing adequate water and roost trees.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bladen Site# 01 Night# 1 Site Name: BL01 Date: 15-Nov-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1740	Unknown	—	—	—	—	—	—	C	4 m	—	Escape from net
2	1752	LASBOR	—	—	—	—	—	—	B	3.5 m	—	Escape from net
3	1901	LASNOC	M	A	NR	39	7.75	20.25 12.5	B	3 m	NCDOT 1751 / 0	
4												
5												
6												
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19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine Swamp Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bladen	**Site#:**	01	**Night#:**	2	**Site Name:**	BL01	**Date:**	16-Nov-2016
Latitude: 34.72667		Longitude: -78.54366						Datum: NAD 83	Elevation: 31 m	ID By: Taylor Culbertson	
Observers: Kaleigh DeBeck								Start Time: 1709		End Time: 2209	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1709	62°F	0	0%	1940	45°F	0	0%	2209	43°F	0	10

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

NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-9m	C: 1x2H-9m	D: N/A	E: N/A	F: N/A
Pool size WxL	N/A	N/A	N/A	N/A	N/A	N/A
Swoop WxL	N/A	N/A	N/A	N/A	N/A	N/A
Photo? or #	T.C	T.C	T.C	N/A	N/A	N/A

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
339	34.72667	-78.54366	External	4m	High	6			1709	2209	Red pentax

Site Description, other than Habitat Info covered on pg 3:

See night 1

See night 1 datasheet
15 Nov. 2016

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bladen Site# 01 Night# 2 Site Name: BL01 Date: 16 Nov 2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1805	LASBOR	M	A	NR	41	7.75	18g 10.25	A	1.5	NCDOT 1752 / 0	N/A
2	1805	LASBOR	M	A	NR	39	7.75	19.25 11.5	A	3	NCDOT 1753 / OP	N/A
3	1835	LASBOR	M	A	NR	39	7.75	17.0 9.25	C	4	NCDOT 1754 / 0	N/A
4												
5												
6												
7												
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19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Navirverne Swamp Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT	**County:**	Bladen	**Site#:**	BL02	**Night#:**	1	**Site Name:**	Bladen Lake	**Date:**	15-Nov-2016
Latitude:	34.57347	Longitude:	078.48586					Datum: NAD83	Elevation:	ID By:	R. Stinson
Observers:	R. Stinson T. Fagin							Start Time:	1700	End Time:	

*Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1700	55	0	25%	1930	46	0	25%	2205	45	0	25%

Moon Effect: WANING	Start: 1900 Stop:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:

NETS/TRAPS:	**A:** 1X2H-6M	**B:** 1X2H-6M	**C:** 1X2H-6M	**D:**	**E:**	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1			EXT	10FT	EDGE	6			1700	2210	ROBS Camera

Site Description, other than Habitat Info covered on pg 3:

Taxodium distichum
Pinus palustric
U. americana
N. sylvatica

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT MYSE County: Bladen Site# BL02 Night# 1 Site Name: Bladen Lake Date: 15-NOV-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	2010	UNK	—	—	—	—	—	—	B	5-0		escaped @ top of net Before ID could Be made
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Pond Pine Woodland

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT	**County:**	Bladen	**Site#:**	BL02	**Night#:**	2	**Site Name:**	Bladen Lake	**Date:**	16-Nov-2016
Latitude:	34.57347	Longitude:	078.48586	Datum:	NAD83	Elevation:		ID By:	R. Stinson		
Observers:	R Stinson T Fagin							Start Time:	1705	End Time:	2209

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1705	71	0	0	1930	45	0	0	2202	43	0	0

Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
WANGIB	1930		

NETS/TRAPS:	**A:**	**B:**	**C:**	**D:**	**E:**	**F:**
	1X2H-6M	1X2H-6M	1X2H-6M			
Pool size WxL						
Swoop WxL						
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
			EXT	10ft	Edge	6			1700	2210	

Site Description, other than Habitat Info covered on pg 3:

See sheet from 15 Nov 16

See 15 Nov 16

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537NCDOTNLEB County: BLADEN Site# BL02 Night# 2 Site Name: Bladen lake Date: 16 Nov 16

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

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Pond Pine woodland

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bladen	**Site#:**	BL03	**Night#:**	1	**Site Name:**	Bladen Lake (BL)	**Date:**	15-Nov-2016
Latitude: N 34.58569		Longitude: W 78.48931						Datum: NAD 83	Elevation: 11ft	ID By: Nick Kovacs	
Observers: N Kovacs, A. Cable, I. Burns								Start Time: 1709		End Time: 2209	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1705	55°F	0	25%	1930	48°F	0	0%	2209	43	0	0%

Moon Effect: WAN-GIB — Start: 2005 — Stop: 2209

Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: corridor to the east off of loop trail. Corridor off of orange gate 2

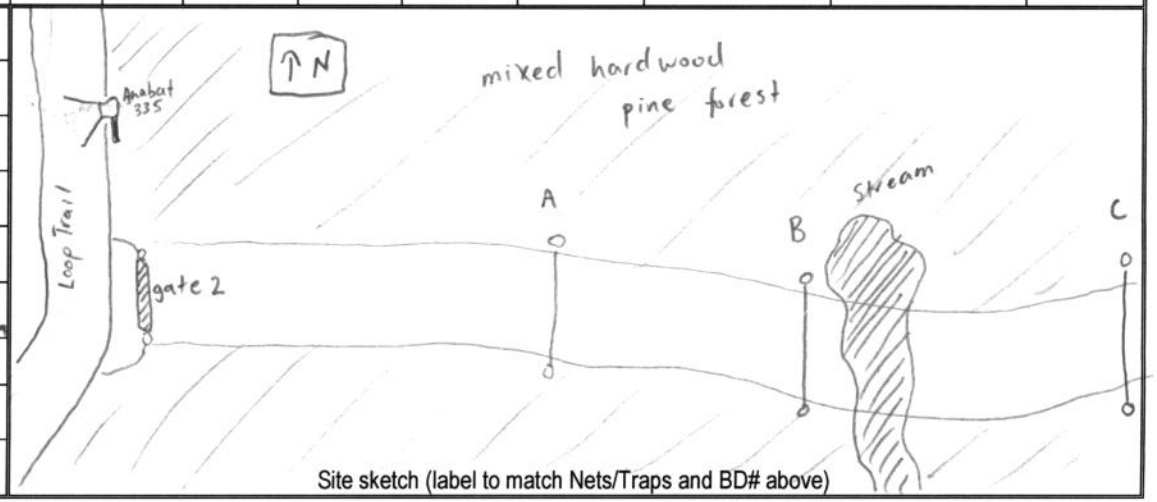
NETS/TRAPS:	**A:** 1x2H-9m	**B:** 1x2H-6m	**C:** 1x2H-4m	**D:**	**E:**	**F:**
Pool size WxL	NA	NA	NA			
Swoop WxL	NA	NA	NA			
Photo? or #	NK BL03-NetA	NK BL03-NetB	NK BL03-NETC			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	N 34.58570	W 078.48933	external high freq.	12ft	Low	6	16	8	1705	2222	NK

Site Description, other than Habitat Info covered on pg 3:

Anabat facing S261°W

Primary veg surrounding corridor. include Pinus taeda, Quercus nigra, Acer rubrum, and Liquidambar styraciflua



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bladen Site# BL03 Night# 1 Site Name: Bladen Lake (BL) Date: 15-Nov-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NO Bats

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Pond Pine woodland (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bladen	**Site#:**	BL03	**Night#:**	2	**Site Name:**	Bladen Lake (BL)	**Date:**	16-Nov-2016
Latitude: N 34.58569		Longitude: W 78.48931						Datum: NAD83	Elevation: 11 ft	ID By: Nick Kovacs	
Observers: N. Kovacs, A. Cable, I Burns								Start Time: 1706		End Time: 2209	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1708	68°F	0	0%	1930	48°F	0	0%	2209	43°F	0	0%

Moon Effect: WAN-GIB	Start: 2046 Stop:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: corridor to east of loop trail off of orange gate 2

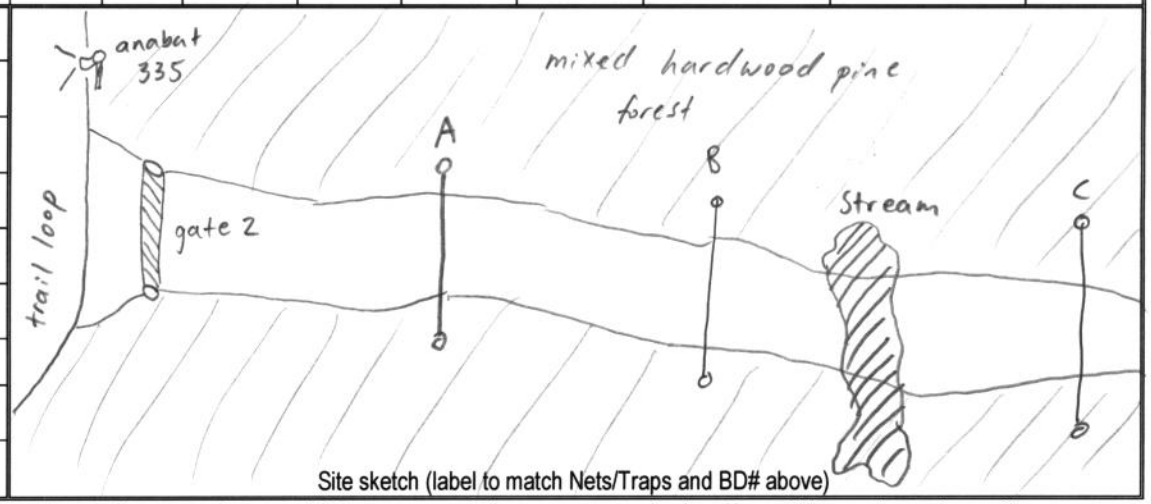
NETS/TRAPS:	**A:** 1x2H-9m	**B:** 1x2H-6m	**C:** 1x2H-4m	**D:**	**E:**	**F:**
Pool size WxL	NA	NA	NA			
Swoop WxL	NA	NA	NA			
Photo? or #	NK BL03-Net A	NK BL03-Net B	NK BL03-Net C			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	N 34.58570	W 078.48933	external high freq.	12ft	Low	6	16	8	1640	2232	NK

Site Description, other than Habitat Info covered on pg 3:

Anabat facing S261°W

Primary veg. surrounding corridor includes Pinus taeda, Quercus nigra, Acer rubrum, and Liquidambar styraciflua



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bladen Site# BL03 Night# 2 Site Name: Bladen Lake (BL) Date: 16-Nov-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
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No Bats

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Pond Pine Woodland (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bladen County	**Site#:**	04	**Night#:**	1	**Site Name:**	Bladen Lake (BL)	**Date:**	15-NOV-2016
Latitude: N34, 710711		Longitude: W 78.520655						Datum:	Elevation: 96 ft	ID By: J. Hawkins	
Observers: A. Dart								Start Time: 1706		End Time: 2206	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1706	72°F	0	0%	1936	48°F	0	0%	2206	43	0	0

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

NETS/TRAPS:	**A:** 1×2H×6m	**B:** 1×2H×6m	**C:** 1×2H×6m	**D:** 1×2H×6m	**E:** N/A	**F:** N/A
Pool size WxL	N/A	4.0 meters	N/A	N/A	N/A	N/A
Swoop WxL	N/A	unlimited	N/A	N/A	N/A	N/A
Photo? or #	J.H.	J.H.	J.H.	J.H.	N/A	N/A

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	N34.710711	W78.520655	External	12ft	Edge	7.0	N/A	N/A	1706	2206	Y

Site Description, other than Habitat Info covered on pg 3:

Please refer to datasheet dated 16 Nov 2016

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page 1 of _____

Project: #537 NCDOT FALL/WINTER NLEB County: Bladen Site# 04 Night# 1 Site Name: Bladen Lake (BL) Date: 15-Nov-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	(M) Height	Band / WS	Comment / Photo #
1	1748	LASBOR	M	JV	NR	38.0	8.0	18.5	C	2	NC-WRC A0750 / 0	N/A
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Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nets set on access road(s) running through forest.

Pond Pine Woodland (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	#537 NCDOT Fall/Winter NLEB	**County:**	Bladen	**Site#:**	04	**Night#:**	2	**Site Name:**	Bladen Lake (BL)	**Date:**	16-NOV-2016
Latitude: N. 34.710711		Longitude: W. 78.520655						Datum:	Elevation: 96 ft	ID By: J. Hawkins	
Observers: A. Dart, G. Jordan (USFWS)								Start Time: 1709		End Time: 2209	

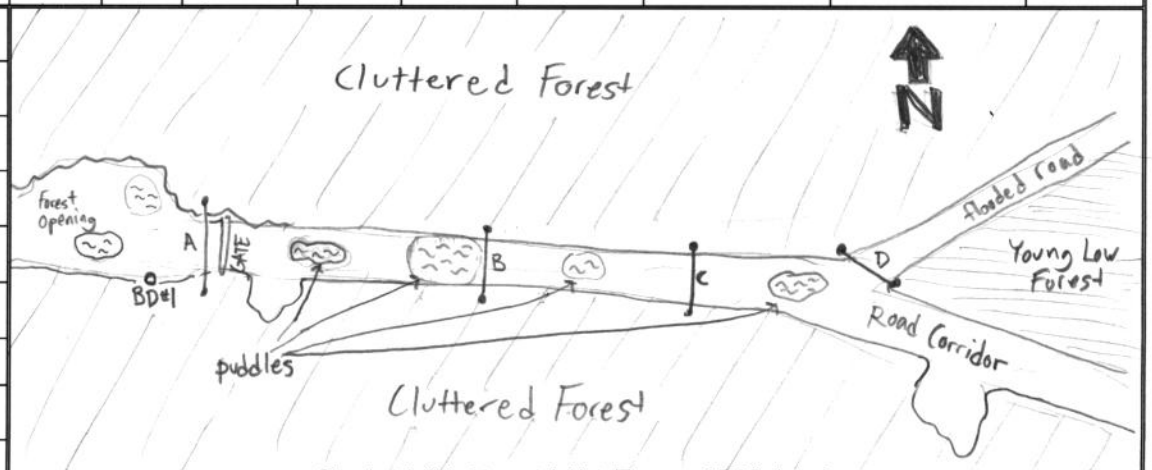
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1710	68	0	0%	1932	50	0	0%				

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
WAN GIB	2015	
	Stop:	

NETS/TRAPS:	**A:** 1×2H×6m	**B:** 1×2H×6m	**C:** 1×2H×6m	**D:** 1×2H×6m	**E:** N/A	**F:** N/A
Pool size WxL	N/A	4 m	N/A	N/A	N/A	N/A
Swoop WxL	N/A	UNLIM	N/A	N/A	N/A	N/A
Photo? or #	J.H.	J.H.	J.H.	J.H.	N/A	N/A

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	N34.710711	W 78.520655	External	12ft	Edge/None	6.5	N/A	N/A	1709	2209	Y

Site Description, other than Habitat Info covered on pg 3:



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page 1 of _____

Project: #537 NCDOT FAHP/WRP NLEB County: Bladen Site# 04 Night# 2 Site Name: Bladen Lakes (BL) Date: 16-NOV-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1736	LASBOR	M	JV	NR	39mm	18 7.5	10.5	A	3.0	NC-WRC A0731/0-P	
2	1806	MYOSEP	F	A	PL	40.0	7.75	16.25	C	1.0m	NC-WRC A0732/0	172.664 -0503 (Tray 52°) -0502 -0499 100-0497, -0498
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Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Pond Pine woodland (Schofale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bladen	**Site#:**	BL04	**Night#:**	3	**Site Name:**	Bladen Lake (BL)	**Date:**	17-Nov-2016
Latitude: N 34.710711		Longitude: W -78.520655						Datum: NAD 83	Elevation: 92 ft	ID By: Nick Kovacs	
Observers: N. Kovacs, A. Cable								Start Time: 1704		End Time: 2204	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1705	58°F	0	0%	1930	51°F	0	0%	2208	46°F	0	0%

Moon Effect: WAN-GIB — Start: NA — Stop: NA

Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Corridor surrounded by mixed hardwood forest

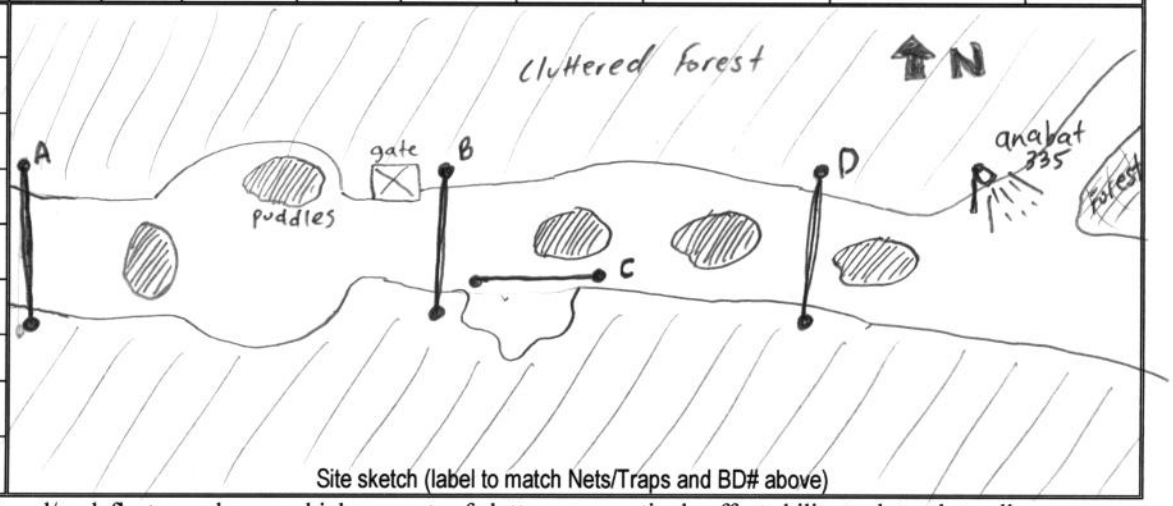
NETS/TRAPS:	**A:** 1x2H-9m	**B:** 1x2H-9m	**C:** 1x2H-12m	**D:** 1x2H-9m	**E:**	**F:**
Pool size WxL	NA	NA	NA	NA		
Swoop WxL	NA	NA	NA	NA		
Photo? or #	NK	NK	NK	NK		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	N 34.71054	W -78.51921	Ext. high freq.	12ft	Edge	6	N/A	N/A	1656	2244	NK

Site Description, other than Habitat Info covered on pg 3:

Anabat facing: S 177° E

Dominant Veg consists of Pinus taeda Acer rubrum, Quercus nigra, Gordonia lasianthus, Juniperus virginiana. Mixed hardwood/pine forest with various swampy ponds and water sources surrounding corridor.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bladen Site# BL04 Night# 3 Site Name: Bladen Lake (BL) Date: 17-Nov-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1735	LASBOR	M	A	NR	NA	NA	NA	D	4 m	O-P/	Escaped from hand
2	1745	LASBOR	M	A	NR	41	NA	NA	B	3 m	O	Escaped before banded
3	1805	LASBOR	M	A	NR	39	7.5	9.25	C	2 m	NCDOT 1621	
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Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Pond Pine Woodland (schagale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bladen	**Site#:**	BL04	**Night#:**	4	**Site Name:**	Bladen Lake (BL)	**Date:**	01-Dec-2016
Latitude: N 34.710711		Longitude: W -78.520655						Datum: NAD83	Elevation: 92 ft	ID By: Zack Baer	
Observers: Zack Baer, Ian Burns								Start Time: 1707		End Time: 2207	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1700	58 *	1	25%	1920	51.5	0	0%	2222	44.5	0	0%

Moon Effect: NEW — Start: N/A — Stop: N/A

Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: corridor surrounded by mixed hardwood forest

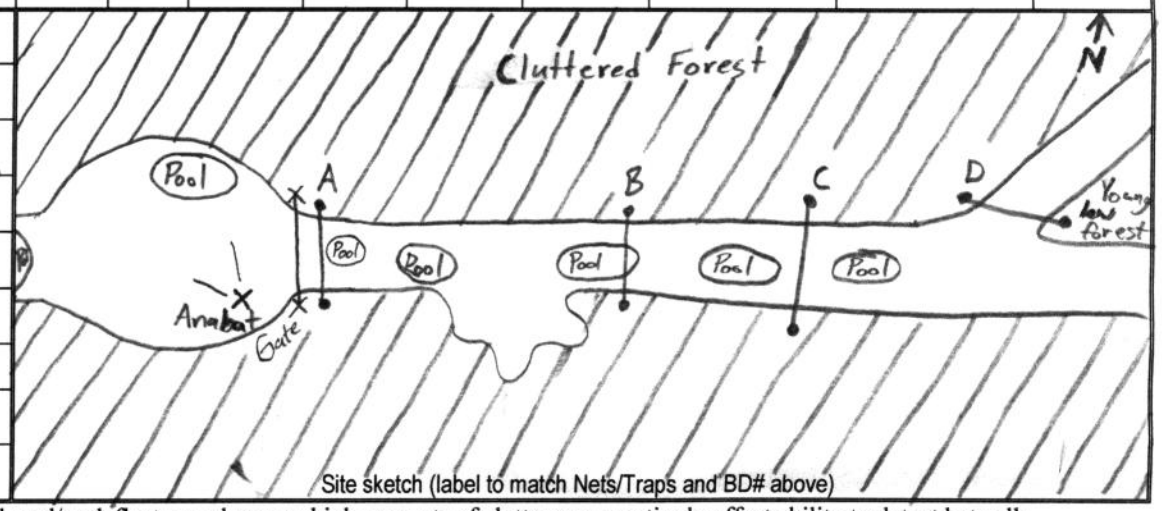
NETS/TRAPS:	A: 1 × 2H × 6m	B: 1 × 3H × 9m	C: 1 × 2H × 6m	D: 1 × 2H × 6m	E: N/A	F: N/A
Pool size WxL	N/A	4m	N/A	N/A		
Swoop WxL	N/A	UNLIM	N/A	N/A		
Photo? or #	ZB	ZB	ZB	ZB		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	N34.710711	W-78.520655	Ext High Freq.	12 ft	LOW	6	N/A	N/A	1645	2222	ZB

Site Description, other than Habitat Info covered on pg 3:

Dominate Veg. consists of: Pinus taeda, Acer rubrum, Quercus nigra, Gordonia lasianthus, Juniperus virginiana. Mixed hardwood/pine forest with various swampy ponds and water sources surrounding corridor

* Data logger was not acclimated to correct temp., it was recording 71.5 @ 1700



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bladen Site# BL04 Night# 4 Site Name: Bladen Lake (BL) Date: 01-Dec-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	mm FA	Bag WT	g WT	Net #	m Height	Band / WS	Comment / Photo #
1	1720	LASBOR	M	A	NR	40	7.5	10.25	D	4	NC-WRC A0725/1-P	~3mm hole in R wing Two ~3mm hole L wing
2	1805	LASBOR	M	A	NR	41	7.5	9.5	C	5	CALYX0115 /0	Recapture
3	2005	MYOSEP	F	A	NR	36	7.5	6.25	C	1	NC-WRC A0726 /0	Transmittered Freq 172.905 Heard better @ 172.907
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Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Pond Pine woodland (Schogola)

★

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: 537 NCDOT NLEB	**County:** Bladen	**Site#:** BL04	**Night#:** 4	**Site Name:** Bladen Lake				**Date:** 02-Dec-2016	
Latitude: N 34.710711	Longitude: W -78.520655			Datum: NAD83	Elevation: 92 ft			ID By: Zack Baer	
Observers: Zack Baer, Ian Burns				Start Time: 1707				End Time: 2030	

Conditions:	Time 1730	Temp 48	Wind 0	Clouds 0%	Time 1925	Temp 44	Wind 0	Clouds 0%	Time 2030	Temp 39.5	Wind 0	Clouds 0

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

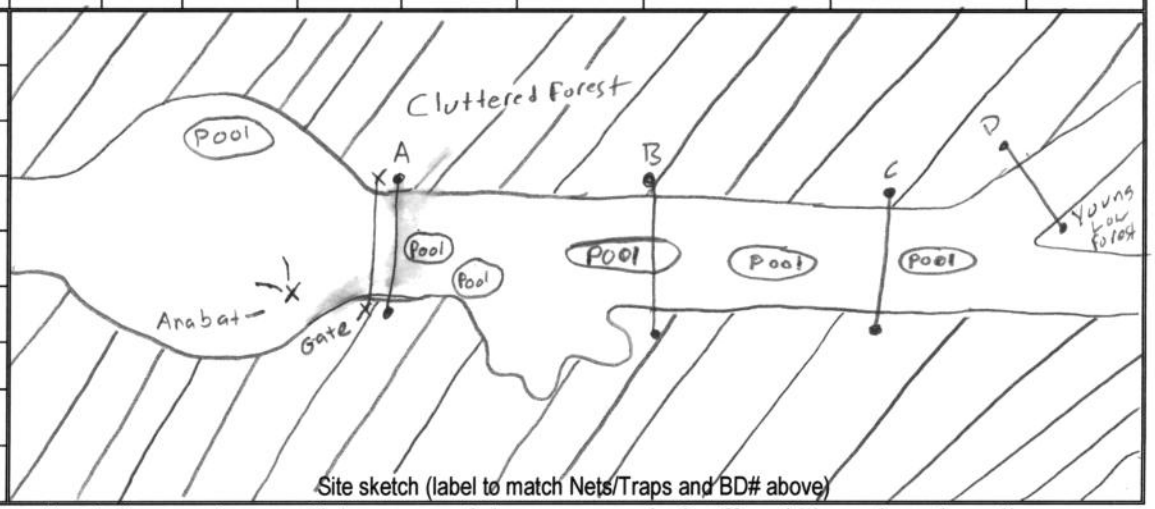
Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: Corridor surrounded by mixed hardwood forest

NETS/TRAPS:	**A:** 1X2HX6m	**B:** 1X3HX9m	**C:** 1X2HX6m	**D:** 1X2HX6m	**E:** N/A	**F:** N/A
Pool size WxL	N/A	4m	N/A	N/A		
Swoop WxL	N/A	Unlim.	N/A	N/A		
Photo? or #	ZB	ZB	ZB	ZB		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	N34.710711	W-78.520655	EXT High freq	12 ft	Low	6	N/A	N/A	1700	2115	ZB

Site Description, other than Habitat Info covered on pg 3:

Dominate veg. consists of: Pinus taeda, Acer rubrum, Quercus nigra, Gordonia lasianthus, Juniperus virginiana. Mixed hardwood / Pine Forest with various swampy ponds & water sources surrounding corridor



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bladen Site# BL04 Night# 4 Site Name: BL04 Date: 02 Dec 2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
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NO BATS

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Pond Pine Woodland (Schofale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT MYSE	**County:**	Bladen	**Site#:**	BL04	**Night#:**	5	**Site Name:**	Bladen Lakes	**Date:**	14 Jan 17
Latitude:	34.710711	Longitude:	-78.520655	Datum:	NAD83	Elevation:	92 Ft	ID By:	R. Stinson		
Observers:	C. Bullock			Start Time:	1723			End Time:	2023		

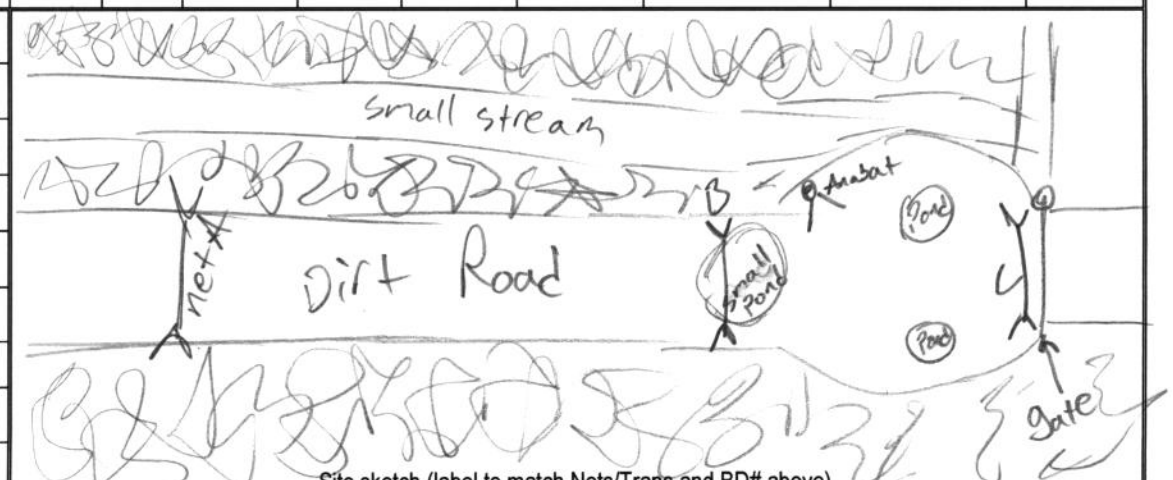
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1723	30	0	25%	1926	46	0	50%	2023	41.5	0	25

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

NETS/TRAPS:	**A:** 1X2H-6M	**B:** 1X2H-9M	**C:** 1X2H-6M	**D:**	**E:**	**F:**
Pool size WxL		4m				
Swoop WxL		unlimited				
Photo? or #	RS	RS	RS			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	34.710711	-78.520655	EXT Hi-Freq	10ft	med	6	—	—	1720	2023	Robs phone

Site Description, other than Habitat Info covered on pg 3:



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT County: Bladen Site# BL04 Night# 5 Site Name: Bladen Lakes Date: 14 Jan/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	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												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:
Pond Pine woodland (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bladen	**Site#:**	BL05	**Night#:**	1	**Site Name:**	Bladen Lake	**Date:**	18-Nov-2016
Latitude: N 34.59077		Longitude: W. 078.48973						Datum: NAD 83	Elevation: 55 Ft	ID By: Nick Kovacs	
Observers: A. Cable								Start Time: 1704		End Time: 2207	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1707	71°	0	0%	1930	54° F	0	0%	2208	49°	0	0%

Moon Effect: WAN-GIB — Start: / Stop:

Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: Pine stands across from early successional field

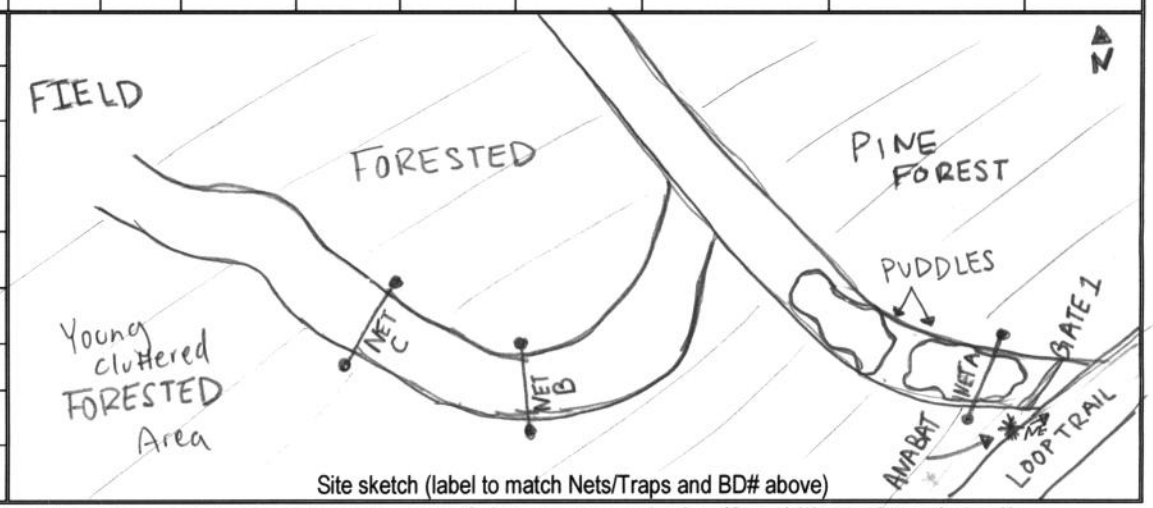
NETS/TRAPS:	**A:** 1x2H-9m	**B:** 1x2H-9m	**C:** 1x2H-9m	**D:**	**E:**	**F:**
Pool size WxL	11ft.9in x 26ft	NA	NA			
Swoop WxL	UNLIMITED	NA	NA			
Photo? or #	NK	NK	NK			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	N 34.59026	W 078.48862	ext high freq.	12ft	NO	6			1653	2250	NK

Site Description, other than Habitat Info covered on pg 3:

Anabat facing: N 7 E

Dominant vegetation: Pinus palustris, Pinus taeda, Liquidambar styraciflua, Quercus nigra



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bladen Site# BL05 Night# 1 Site Name: Bladen Lake Date: 18-Nov-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NO BATS

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Pond Pine Woodland (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	#537 NCDOT Fall/Winter NLEB	**County:**	Bladen	**Site#:**	06	**Night#:**	1	**Site Name:**	Bladen Lake (BL)	**Date:**	18-NOV-2016
Latitude: N 34.73811		Longitude: W.78.57140						Datum: WGS84	Elevation: 29'	ID By: J. Hawkins	
Observers: A. Dart								Start Time: 1708		End Time: 2208	

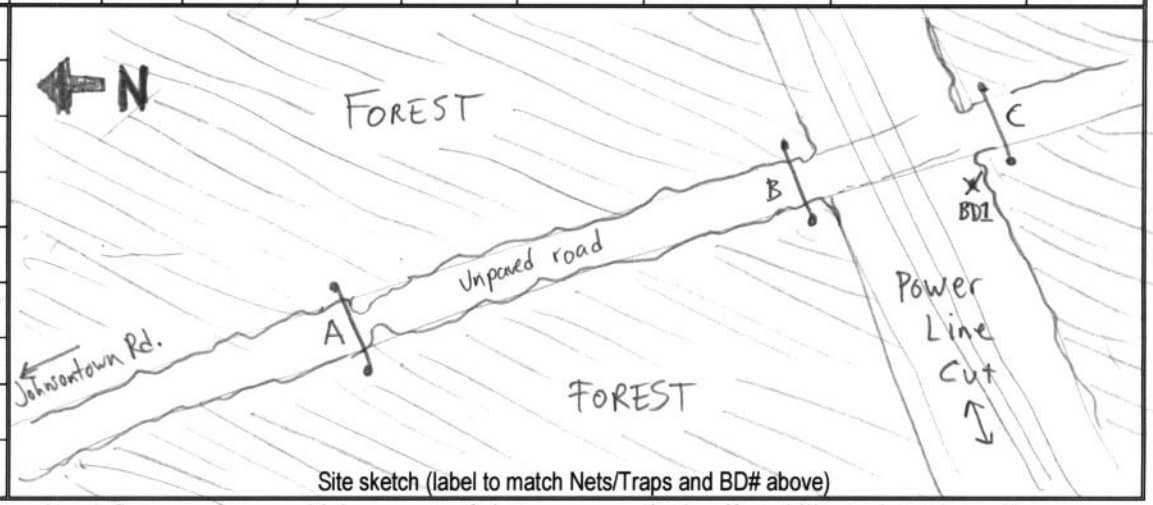
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1708	69	0	0%	1915	51	0	0%	2200	45.5	0	0

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

NETS/TRAPS:	**A:** 1×2H×9m	**B:** 1×2H×9m	**C:** 1×2H×9m	**D:** N/A	**E:** N/A	**F:** N/A
Pool size WxL	N/A	N/A	N/A	N/A	N/A	N/A
Swoop WxL	N/A	N/A	N/A	N/A	N/A	N/A
Photo? or #	JH	JH	JH	N/A	N/A	N/A

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
SN(T) 83341	N 34.73811	W. 78.57140			Edge	7	Audio Div 16	Data Div 8	1900.		

Site Description, other than Habitat Info covered on pg 3:



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: #537 NEDOT Fall/Winter NEB County: Blaine Site# 06 Night# 1 Site Name: BL06 Date: 18 NOV 2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1740	LASBOR	M	JV	NR	43	8.0	17.5	B	3	—/0	—
2	1800	LASBOR	M	JV	NR	40	8.0	18.5	B	4	—/0	—
3												
4												
5												
6												
7												
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17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine Wet Hardwood Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	#537 NCDOT FALL WINTER MEB	**County:**	Bladen	**Site#:**	06	**Night#:**	2	**Site Name:**	BL06	**Date:**	19 Nov 16
Latitude: N 34.73811		Longitude: W 78.57140						Datum: WGS84	Elevation: 29'	ID By: J. Hawkins	
Observers: T. Fagin								Start Time: 1700		End Time: 1915	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1701	70°F	5		1915	58°	6	1	Called due to wind			

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

NETS/TRAPS:	**A:** 1x24x9m	**B:** 1x24x2m	**C:** 1x24x9M	**D:**	**E:**	**F:**
Pool size WxL	N/A	N/A	N/A			
Swoop WxL	N/A	N/A	N/A			
Photo? or #	Yes	Yes	Yes			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
SN 83341	N34.73811	W78.57140							1700	1915	Yes

Site Description, other than Habitat Info covered on pg 3:

See data sheet dated 18 Nov 2016

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

19.75

Bat Survey Data Form

Project: #587 NCDOT County: Bladen Site# 06 Night# 2 Site Name: BL06 Date: 19 Nov 2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1745	LASBOR	M	JV	NR	39.0	7.3	19.75 12.4	A	3	NC WCS A0743/0-P	
2	1800	LASCIN	M	A	S	51.0	7.5	30.0 26.0	C	3	NC DOT 2246/0	
3	1800	LASCIN	M	JV	NR	50.0	8.0	30.0 22.0	C	3.5	NCDOT 2237/0	
4	1810	LASBOR	M	A	S	37.0	7.3	17.3 10.0	C	3.0	NC WCS A0736/0	
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine Wet Hardwood Forest (Schafale

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT Fall/Winter NLEB	**County:**	Bladen	**Site#:**	06	**Night#:**	2	**Site Name:**	BL-06 Lake	**Date:**	1-Dec-2016
Latitude: 34.73811		Longitude: 78.57140						Datum: WGS 84	Elevation: 29	ID By: R. Stinson	
Observers: K. DeBeck								Start Time: 1703		End Time: 2203	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1703	55°F	0	0%	1930	48°F	0	0%	2203	45	0	0

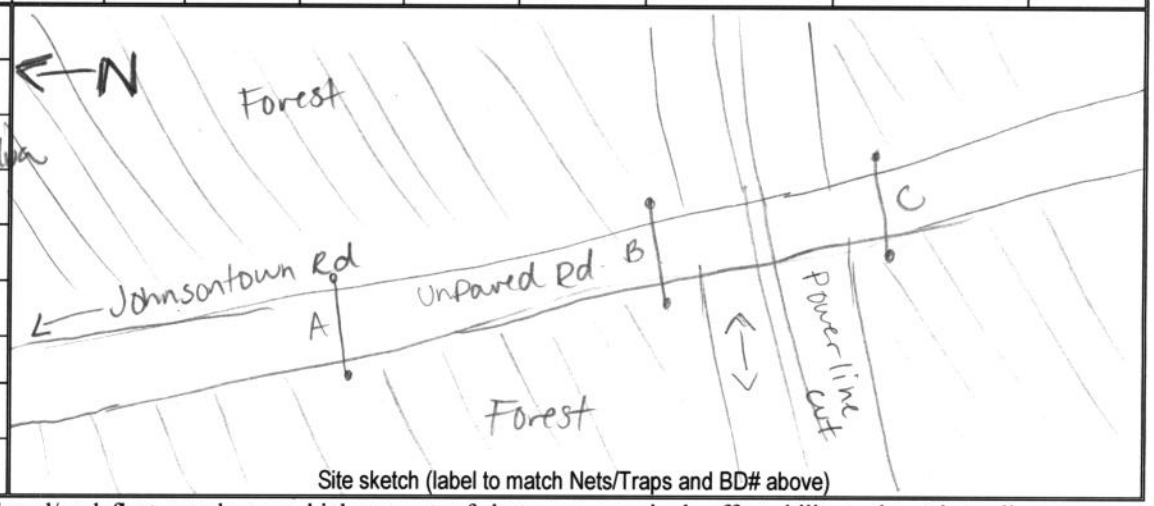
Moon Effect:	Start:	Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*:
WAX-CRES	Stop:	

NETS/TRAPS:	**A:** 1 x 2H x 9m	**B:** 1 x 2H x 9m	**C:** 1 x 2H x 9m	**D:** N/A	**E:** N/A	**F:** N/A
Pool size WxL	N/A	N/A	N/A	N/A	N/A	N/A
Swoop WxL	N/A	N/A	N/A	N/A	N/A	N/A
Photo? or #	R.S	R.S	R.S	N/A	N/A	N/A

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
343	34.73811	78.57140	External	4m	High	7	N/A	N/A	1630	2203	R.S

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation includes P. taeda, M. virginiana, and L. styraciflua



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT Fall/Winter NLEB County: Bladen Site# 06 Night# 2 Site Name: Bladen Lake Date: 1-Dec-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1805	LASBOR	M	A	NR	38	7.5	17.0	B	2 m	NGWRC A0674	*Recap @ 1820
2												
3												
4												
5												
6												
7												
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17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine wet Hardwood Forest (Sebofale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT MYSE	**County:**	Bladen	**Site#:**	BL04	**Night#:**	6	**Site Name:**	Bladen Lakes	**Date:**	15 Jan 17
Latitude: 34.710711			Longitude: -78.520655					Datum: NAD 83	Elevation: 92 ft	ID By: R. Stinson	
Observers: C. Bullock								Start Time: 1725		End Time: 2225	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1730	54	0	75%	1951	50.5	0	75%	2225	47.5	0	75

Moon Effect: wan-crest Start: Stop:

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

NETS/TRAPS:	**A:** 1 x 2H - 6M	**B:** 1 x 2H - 9M	**C:** 1 x 2H - 6M	**D:**	**E:**	**F:**
Pool size WxL		4m				
Swoop WxL						
Photo? or #	RS	RS	RS			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	34.710711	-78.520655	Ext Hi-Freq	10ft	Med	6	—	—	1720	2225	rob's phone

Site Description, other than Habitat Info covered on pg 3:

see sheet 1/4

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT County: Bladen Site# BL04 Night# 6 Site Name: Bladen Lakes Date: 15/Jan/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	NO	Bats	Ca	Pt	ured							
2												
3												
4												
5												
6												
7												
8												
9												
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11												
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15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

non riverine wet hardwood forests

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT MYSE	**County:**	Bladen	**Site#:**	BL06	**Night#:**	1	**Site Name:**	Bladen Lake	**Date:**	16-Jan-2017
Latitude: 34.73854		Longitude: -78.57161						Datum: NAD 83	Elevation: 70ft	ID By: G. Janos	
Observers: G. Janos, S. Easterly								Start Time: 1726		End Time: 2226	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1726	58	0	100	2000	51.5	0	100	2226	51	0	100

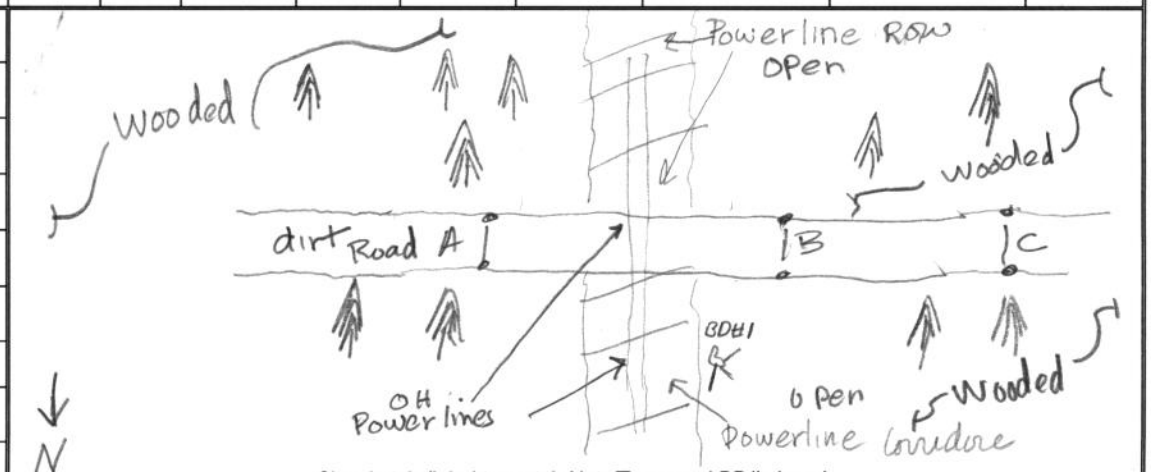
Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
WAIN GIB	Stop:	

NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-9m	C: 1x2H-9m	D:	E:	F:
Pool size WxL	NA	NA	3x3			
Swoop WxL	NA	NA	unlimited			
Photo? or #	GJ's Tablet	GJ's Tablet	GJ's Tablet			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	34.73854	-78.57161	EXT HI MIC	12	Edge	6	NA	NA	1726	2226	GJ tablet

Site Description, other than Habitat Info covered on pg 3:

Dirt road with trees lining road - trees are predominantly pine



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: NCDOT MYSE County: Bladen Site# BL06 Night# 1 Site Name: Bladen Lake Date: 16-Jan-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
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16												
17												
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19												
20												

No Bats

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine Wet Hardwood Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT MYSE	**County:**	Bladen	**Site#:**	BL06	**Night#:**	2	**Site Name:**	Bladen Lake	**Date:**	17-Jan-2017
Latitude: 34.73854			Longitude: -78.57161					Datum: NAD 83	Elevation: 70ft	ID By: G. Janos	
Observers: G. Janos, S. Easterly								Start Time: 1727		End Time: 2227	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1727	60	0	50	2000	53.5	0	25	2227	53.5	0	25

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

NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-9m	C: 1x2H-9m	D:	E:	F:
Pool size WxL	NA	NA	3x3			
Swoop WxL	NA	NA	unlimited			
Photo? or #	GJ's Tablet	GJ's Tablet	GJ's Tablet			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	34.73854	-78.57161	EXT HI mic	12	Edge	6	NA	NA	1727	2227	GJ's tablet

Site Description, other than Habitat Info covered on pg 3:

See notes from
16-Jan-2017 data Sheet

See Photo from 16-Jan-2017
data Sheet

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: NCDOT MYSE County: Bladen Site# BL06 Night# 2 Site Name: Bladen Lake Date: 17-Jan-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1730	Lase	M	A	NR	40mm	7g	11g	B	4m		Wing Score 0-P
2	1800	LABO	M	B	NR	38mm	5g	11g	B	3m		wing Score 0-P
3	1805	Lase	M	A	NR	40mm	7g	12g	A	4m		wing Score 0
4												
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20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine but Hardwood Forest (Schofield)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bladen	**Site#:**	BL07	**Night#:**	1	**Site Name:**	Bladen Lake	**Date:**	19-Nov-2016
Latitude: 34.60697		Longitude: -78.47770						Datum: NAD 83	Elevation: 60 ft	ID By: Nick Kovacs	
Observers: A. Cable								Start Time: 1705		End Time: 2000 Wind out	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1711	68°F	4	50%	1930	55°F	3	0%	2040	49	4	0%

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

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

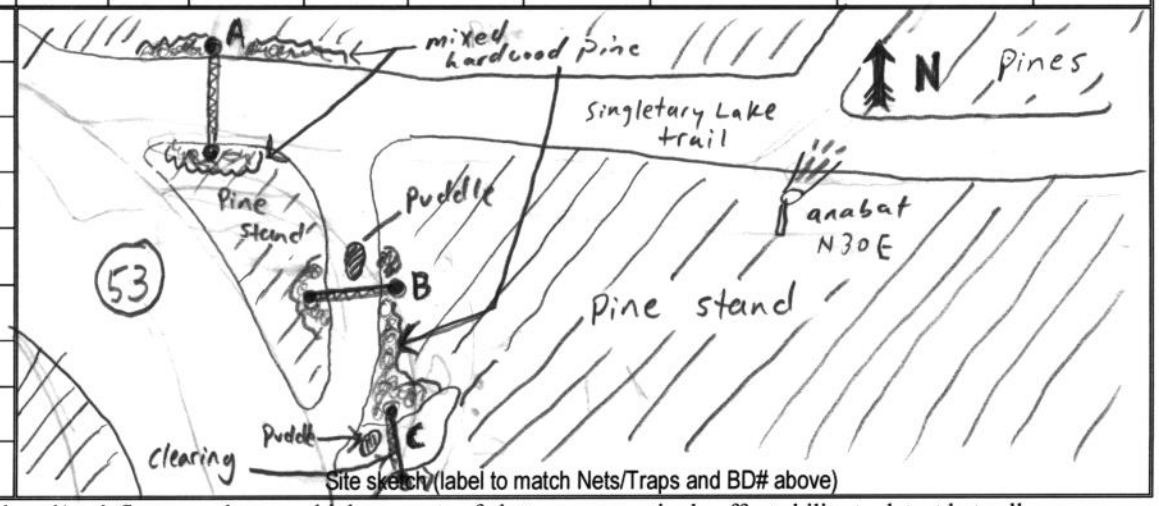
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	N 34.60695	W-78.47437	Ext high freq.	12ft	Low	6.5			1705	2101	NK

Site Description, other than Habitat Info covered on pg 3:

Anabat face: N 30 E

Dominant Vegetation consists of Pinus palustris, Pinus taeda, Liquidamber styraciflua, Acer rubrum, and Gordonia lasianthus

Wind Out



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bladen Site# BL07 Night# 1 Site Name: Bladen Lake Date: 19-Nov-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1945	LASBOR	M	A	NR	40	7.25	8.5	A	4m	NCDOT 1645 O	
2	1940	NYCHUM	F	A	NR	36	7.25	10.75	B	4m	NCDOT 1644 O-P	
3												
4												
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16												
17												
18												
19												
20												

WIND OUT

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bladen	**Site#:**	BL07	**Night#:**	2	**Site Name:**	Bladen Lake	**Date:**	01 Dec 2016
Latitude: 34.60697		Longitude: -78.47770						Datum: NAD 83	Elevation: 60 ft	ID By: Nick Kovacs	
Observers: A. Cable, C. Bullock								Start Time: 1704		End Time: 2204	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1704	58°F	0	0%	1930	50°F	0	0%	2204	44°F	0	0%

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
WAX CRES	Stop: NA	Pine stand

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	34.60695	-78.47437	Ext. High Freq.	12ft	Low	6	NA	NA	1650	2240	NK

Site Description, other than Habitat Info covered on pg 3:

Same as 19 Nov 2016

Same as 19 Nov 2016

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bladen Site# BL07 Night# 2 Site Name: Bladen Lake Date: 01 Dec 2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NO BATS

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537/NCDOT NCE13	**County:**	Bladen	**Site#:**	08	**Night#:**	1	**Site Name:**	BL08	**Date:**	1-Dec-2016
Latitude:	34.72630	Longitude:	-78.51562	Datum:	NAD83	Elevation:	127 ft	ID By:	Taylor Culbertson		
Observers:	Taylor Fagin			Start Time:	1704			End Time:	2204		

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1707	58°F	0	0	1925	48°F	0	0	2204	45.5°F	0	0

Moon Effect: Wax Cres — Start: NA — Stop: NA

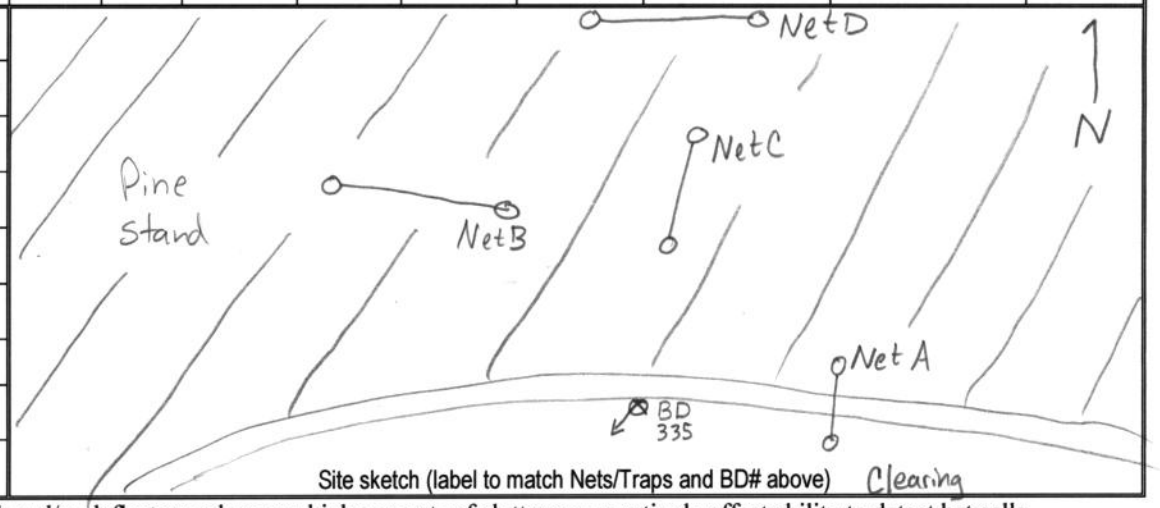
Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: Pine stand

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
335	34.72630	-78.51562	Ext High Freq.	12 ft	Low	6.5	NA	NA	1644	2235	TC iphone

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation consists mostly of Pinus palustris, and some Quercus laevis. Site is near the edge of a clearing, but within a pinestand. Noting also that RT613 is close by.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT NLEB County: Bladen Site# 08 Night# 1 Site Name: BL08 Date: 1-Dec-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	17:50	LASBOR	M	A	NR	40	7.75	17.75 (10.0)	C	5	NC-WRC A0717 / 0	
2												
3												
4												
5												
6												
7												
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Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT Fall/Winter NLEB	**County:**	Bladen	**Site#:**	09	**Night#:**	1	**Site Name:**	BL-09	**Date:**	2-Dec-2016
Latitude: 34.73148		Longitude: 78.56898						Datum: NAD 83	Elevation: 28 m	ID By: R. Stinson	
Observers: K. DeBeck								Start Time: 1703		End Time: 2003	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1703	46	0	0%	1930	39.5	0	0%	2003	37.5	0	0%

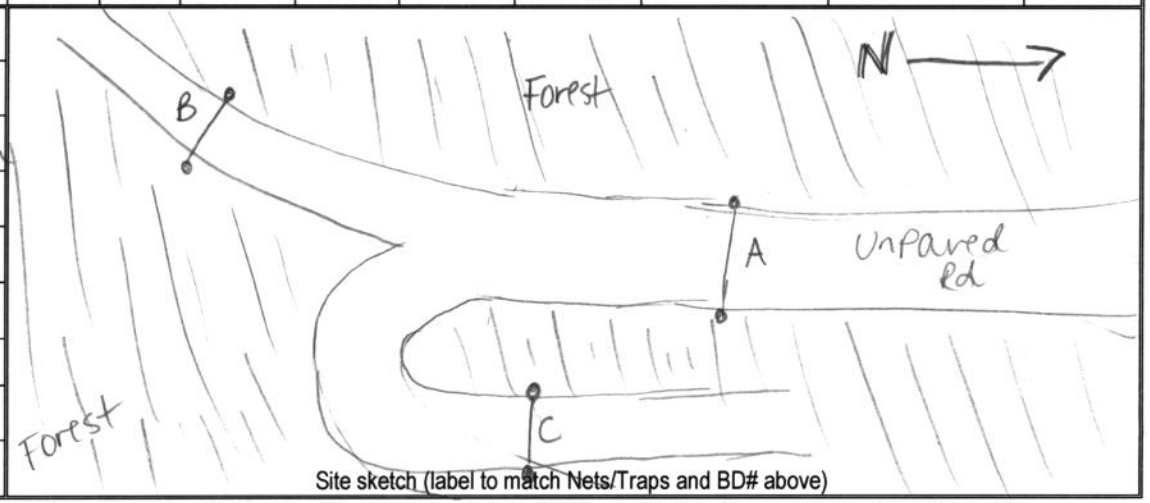
Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wax-Cres	Stop:	

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
343	34.73148	78.56898	External	4m	High	7	N/A	N/A	1630	2003	R.S.

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation includes P. taeda, M. virginiana, and L. styraciflua



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT Fall/winter NLEB County: Bladen Site# 09 Night# 1 Site Name: BL-09 Date: 2-Dec-2016

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

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes: N/A

Pond Pine Woodland (Schnapale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT Fall/Winter NLEB	**County:**	Bladen	**Site#:**	09	**Night#:**	2	**Site Name:**	BL-09	**Date:**	3-Dec-2016
Latitude: 34.73148		Longitude: 78.56898						Datum: NAD-83	Elevation: 28 m	ID By: R. Stinson	
Observers: K. DeBeck								Start Time: 1703		End Time: 2203	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1703	49.5 °F	0	75%	1930	43.5	0	75	2203	43	0	75

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

NETS/TRAPS:	**A:** 1x 2H-6m	**B:** 1x2H-9m	**C:** 1x2H-9m	**D:** N/A	**E:** N/A	**F:** N/A
Pool size WxL	N/A	N/A	N/A	N/A	N/A	N/A
Swoop WxL	N/A	N/A	N/A	N/A	N/A	N/A
Photo? or #	R.S.	R.S.	R.S.	N/A	N/A	N/A

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
343	34.73148	78.56898	External	4m	High	7	N/A	N/A	1630		R.S.

Site Description, other than Habitat Info covered on pg 3:

See night 1

See night 1

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NC DOT Fall/winter NLEB County: Bladen Site# 09 Night# 2 Site Name: BL-09 Date: 3-Dec-2016

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

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes: N/A

Pond Pine Woodland (Schofale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: 537 NC DOT NLEB	**County:** Bladen	**Site#:** BL10	**Night#:** 1	**Site Name:** Bladen Lake		**Date:** 03-Dec-2016			
Latitude: N 34.69074	Longitude: W -78.56855			Datum: NAD83	Elevation: 153 ft	ID By: Zack Baer			
Observers: Zack Baer, Ian Burns				Start Time: 1703		End Time: 2003			

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1710	49.5	0	100%	1910	43.5	0	100%	2203	42	0	100%

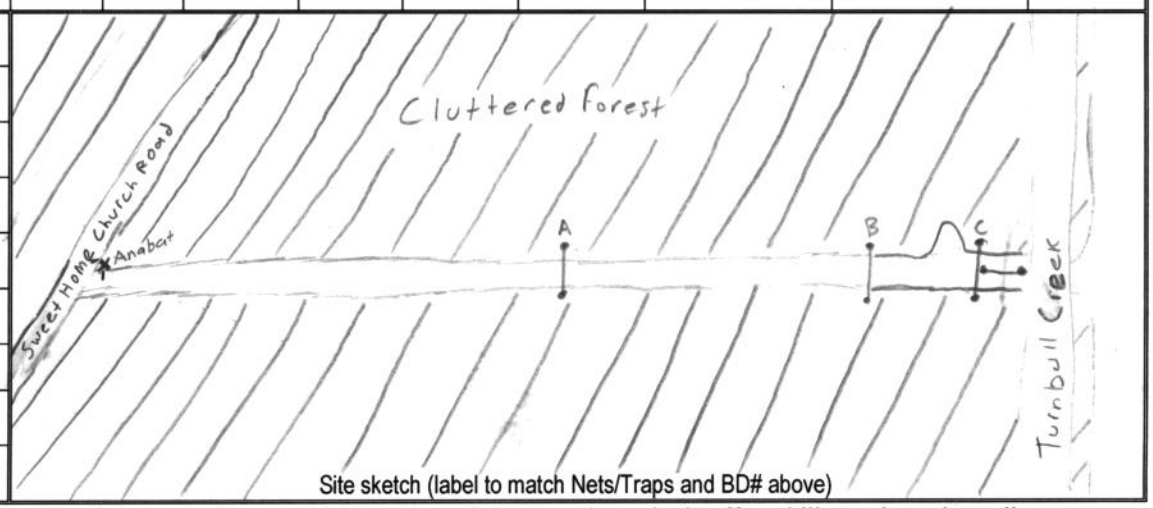
Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*:
WAX-CRES	N/A	N/A	43 Mixed

NETS/TRAPS:	A: 1X3H X9m	B: 1X2H X9m	C: ~~1X2H X9m~~ + 1X2H X6-T	D: N/A	E: N/A	F: N/A
Pool size WxL	N/A	N/A	N/A			
Swoop WxL	N/A	N/A	N/A			
Photo? or #	2B	2B	2B			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	N 34.69074	W-78.56855	Ext High Freq	12ft	Low	6	N/A	N/A	1630	2220	2B

Site Description, other than Habitat Info covered on pg 3:

Dominant veg consists of: Pinus taeda, Quercus nigra, Liquidambar Styraciflua, Quercus marilandica, Betula nigra. With a stream at the end of corridor



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bladen Site# BL10 Night# 1 Site Name: Bladen Lake Date: 03-Dec-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NO BATS

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine Wet Hardwood Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bladen	**Site#:**	BL10	**Night#:**	2	**Site Name:**	Bladen Lake	**Date:**	05-Dec-2016
Latitude: N 34.69074		Longitude: W -78.56855						Datum: NAD 83	Elevation: 153 ft	ID By: Zack Baer	
Observers: Zack Baer, Ian Burns								Start Time: 1703		End Time: 2203	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1700	54°	1	100 %	1930	51°	1	100%	2204	50	2	100 %

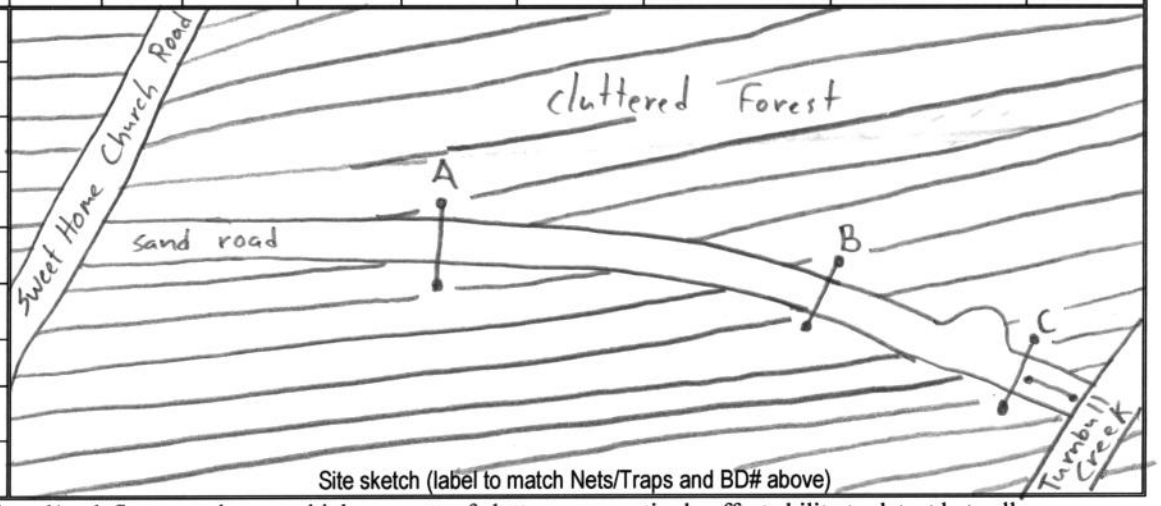
Moon Effect: Wax - Cres	Start: N/A Stop: N/A	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 mixed

NETS/TRAPS:	A: 1×3H×9m	B: 1×2H×9m	C: 1×2H×9m + 1×2H×6-T	D: N/A	E: N/A	F: N/A
Pool size WxL	N/A	N/A	N/A			
Swoop WxL	N/A	N/A	N/A			
Photo? or #	2B	2B	2B			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	N 34.69074	W-78.56855	Ext. High Freq	12 ft	Low	6	N/A	N/A	1630	2242	2B

Site Description, other than Habitat Info covered on pg 3:

Dominent veg consits of: Pinus taeda Quercus nigra, Liquidambar styraciflua Quercus marilandica, Betula nigra. With stream at the end of corridor



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NC DOT NLEB County: Bladen Site# BL10 Night# 2 Site Name: Bladen Lake Date: 05-DEC-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1750	LASSEM	M	A	NR	41	7.5	10.75	A	5	NC-WRC A0727 / 0	NONE
2	1825	LASSEM	M	A	NR	40	7.5	10.75	B	1	NC-WRC A0728 / 0	1. three milmeter hole in left wing not WNS
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine Wet Hardwood Forest (Schofale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT Fall/Winter NLEB	**County:**	Bladen	**Site#:**	11	**Night#:**	1	**Site Name:**	BL-11	**Date:**	5-Dec-2016
Latitude: 34.67091		Longitude: -78.61828						Datum: NAD-83	Elevation:	ID By: R. Stinson	
Observers: K. DeBeck								Start Time:		End Time:	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1703	56°F	0	25%	1930	51.5	1	100%	2203	51°F	1	100%

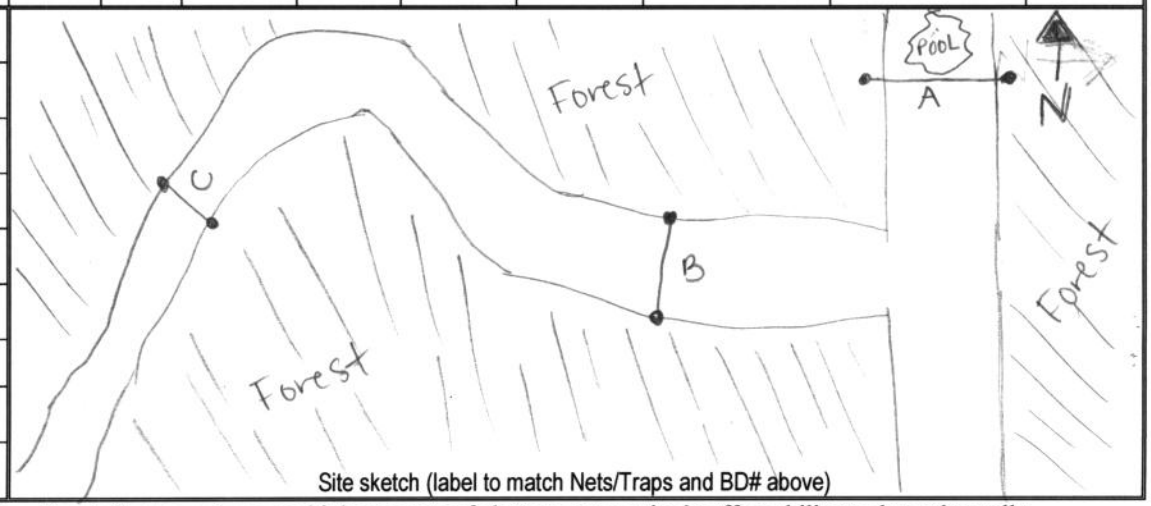
Moon Effect:	Start:	Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*:
Wax - Cres	Stop:	

NETS/TRAPS:	**A:** 1 x 2H-12m	**B:** 1 x 2H-6m	**C:** 1 x 2H-6m	**D:** N/A	**E:** N/A	**F:** N/A
Pool size WxL		N/A	N/A	N/A	N/A	N/A
Swoop WxL	Unlimited	N/A	N/A	N/A	N/A	N/A
Photo? or #	R.S.	R.S.	R.S.	N/A	N/A	N/A

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
343	34.67091	-78.61828	External	4m	High	7	N/A	N/A	1703	2203	R.S.

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation includes Q. phellos and P. paulustris. Q. nigra



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT Fall/Winter NLEB County: Bladen Site# 11 Night# 1 Site Name: BL-11 Date: 5-Dec-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NO BATS CAPTURED

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes: N/A

Nonriverine Wet Hardwood Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT Fall/winter NLEB	**County:**	Bladen	**Site#:**	BL11	**Night#:**	2	**Site Name:**	Bladen lakes	**Date:**	16JAN17
Latitude:	34.67091	Longitude:	-78.61828	Datum:	NAD-83	Elevation:	26m	ID By:	R. Stinson		
Observers:	C Bullock			Start Time:	1728			End Time:	2228		

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1730	54	0	100	2000	51	0	25%	2228	51.0	0	25%

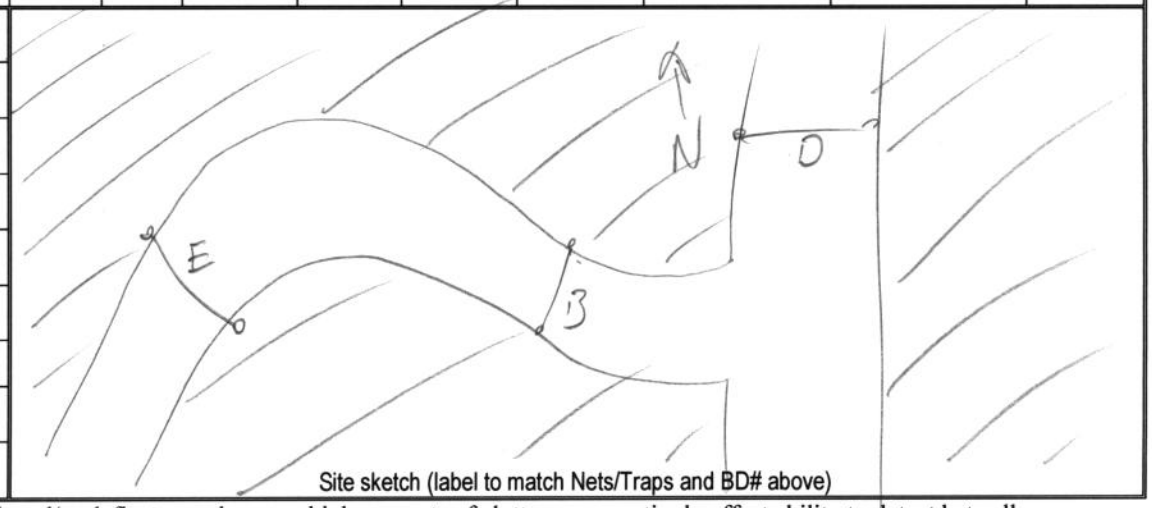
Moon Effect:	Start:	Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*:
WAN-CRES	Stop:	

NETS/TRAPS:	**A:**	**B:** 1X 2H -6M	**C:**	**D:** 1X2H-9M	**E:** 1X2H-4M	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
346	34.67091	-78.61828	Ext Hi freq	4m	High	7	NA	NA	1710	2230	Robs phone

Site Description, other than Habitat Info covered on pg 3:

Q phellos ? palustris
Q nigra



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT Fall/winter NLEB County: Bladen Site# BL11 Night# 2 Site Name: Bladen lakes Date: 16/Jan/17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	NLWRL Band / WS	Comment / Photo #
1	19:20	MYOAUS	F	A	NR	37	7.5	14.75	B	2M	ACB75 / 0	RS phone
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Mesic Pine Savanna
Nonriverine Wet Hardwood Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT Fall/winter NLEB	**County:**	Bladen	**Site#:**	BL11	**Night#:**	3	**Site Name:**	Bladen Lakes	**Date:**	17Jan17
Latitude: 34.67091		Longitude: -78.61828						Datum: NAD83	Elevation: 26m	ID By: R Stinson	
Observers: C Bullock								Start Time: 1729		End Time: 2229	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1750	57	0	25%	1930	53.5	0	25%				

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

NETS/TRAPS:	**A:**	**B:** 1X 2H-6M	**C:**	**D:** 1X 2H-9M	**E:** 1X2H-4M	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
346	34.67091	-78.61828	Ext Hi-freq	4m	High	7	NA	NA	1710	2330	Robs Phone

Site Description, other than Habitat Info covered on pg 3:

Q Phellos P Palustris
Q Nigra

see sheet from 16 JAN 17

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT Fall/winter NLEB County: Bladen Site# BL11 Night# 3 Site Name: Bladen Lakes Date: 17 Jan 17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nonriverine Wet Hardwood Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 Fall/winter NCDOT MYSE	**County:**	Bladen	**Site#:**	B112	**Night#:**	1	**Site Name:**	Bladen Lakes	**Date:**	18 Jan 17
Latitude:	34.71829	Longitude:	-78.59911	Datum:	NAD83	Elevation:	22m	ID By:	R Stinson		
Observers:	C. Bullock			Start Time:	1729			End Time:	2147		

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1731	62	1	0%	1925	49	0	25%	2147	42.5	0	0%

Moon Effect: WANCRES Start: Stop:

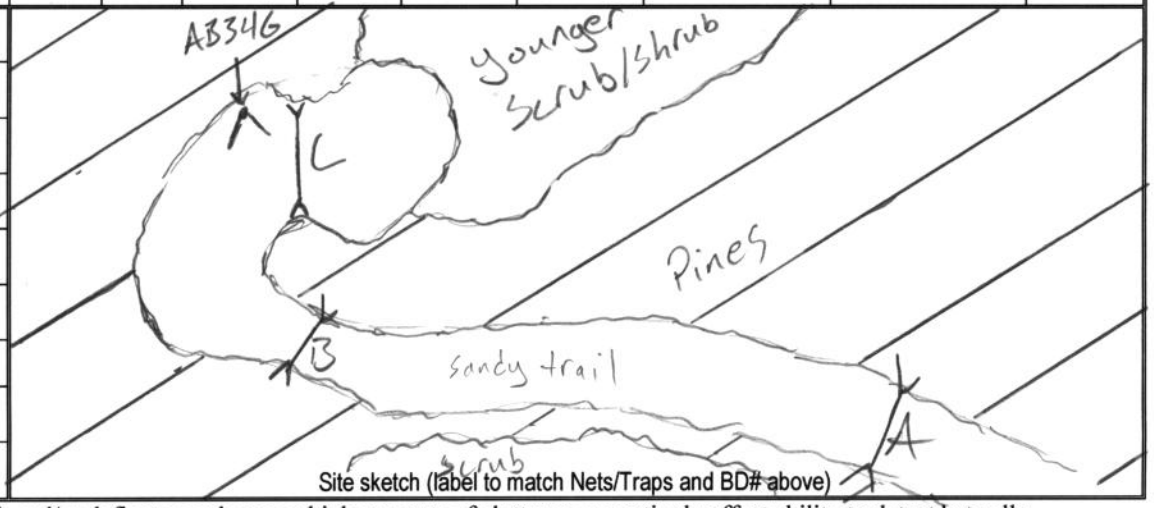
Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Pine Plantation / old clearcut

NETS/TRAPS:	**A:** 1X2H-9M	**B:** 1X2H-4M	**C:** 1X2H-6M	**D:**	**E:**	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
346	34.71829	-78.59911	Hi rez Ext	10ft	High	6	–	–	1729	2147	Robs Phone

Site Description, other than Habitat Info covered on pg 3:

P. palustris



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 FALL WINTER NCDOT MYSE County: Bladen Site# B112 Night# 1 Site Name: Bladen Lakes Date: 18 Jan 17

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

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Mesic Pine Savannah

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 Fall/winter NCDOT MYSE	**County:**	Bladen	**Site#:**	B112	**Night#:**	2	**Site Name:**	Bladen Lakes	**Date:**	19 Jan 17
Latitude:	34.71829	Longitude:	-78.59911					Datum: NAD83	Elevation: 22M	ID By:	R Stinson
Observers:	L Bullock							Start Time:	1729	End Time:	2224

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1736	50.5	0	25%	1930	44	0	0%	22:24	42.5	0	0%

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

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
346	34.71829	-78.59911	HiFreq EXT	10ft	high	6	—	—	1729	2224	Robs Phone

Site Description, other than Habitat Info covered on pg 3:

P. palustris

See sheet from 18 Jan 17

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT MYSE FAll winter County: Bladen Site# B112 Night# 2 Site Name: Bladen lakes Date: 19JAN17

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

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Mesic Pine Savannah

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT MYSE	**County:**	Bladen	**Site#:**	BL13	**Night#:**	1	**Site Name:**	Bladen Lake	**Date:**	18-Jan-2017
Latitude: 34.72714		Longitude: -78.54411						Datum: NAD83	Elevation: 16 ft	ID By: G. Janos	
Observers: G. Janos, S. Easterly								Start Time: 1728		End Time: 2228	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1728	54.5	0	0	2000	47.5	0	0	2228	44.5	0	0

Moon Effect: WAN-GIB Start: Stop:

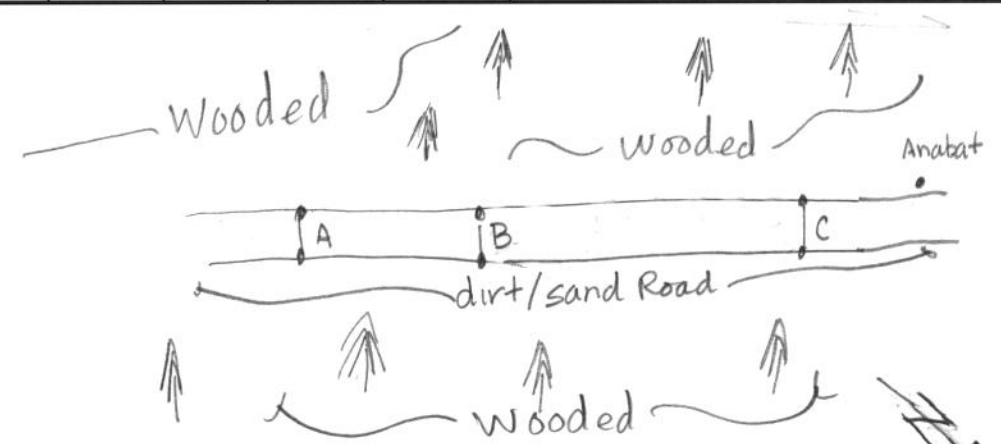
Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*:

NETS/TRAPS:	**A:** 1x2H-9m	**B:** 1x2H-9m	**C:** 1x2H-9m	**D:**	**E:**	**F:**
Pool size WxL	NA	NA	NA			
Swoop WxL	NA	NA	NA			
Photo? or #	GJ's Tablet	GJ's Tablet	GJ's Tablet			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	34.72714	-78.54411	High Freq Mic	12	Edge	6	NA	NA	1728	2228	GJ's Tablet

Site Description, other than Habitat Info covered on pg 3:

Sandy road with trees and shrubs lining it.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: NCDOT MYSE County: Bladen Site# BL13 Night# 1 Site Name: Bladen Lake Date: 18-Jan-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NO BATS

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Mesic Mixed Hardwood Forest (Coastal Plain Subtype)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT MYSE FALL WINTER	**County:**	Bladen	**Site#:**	B113	**Night#:**	2	**Site Name:**	Bladenlake	**Date:**	20 Jan 17
Latitude:	34.72714	Longitude:	-78.54411	Datum:	NAD83	Elevation:	16ft	ID By:	RStinson		
Observers:	C Bullock			Start Time:	1730					End Time:	2230

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1740	64	0	0%	1940	53	0	0%	2230	50.0	0	0%

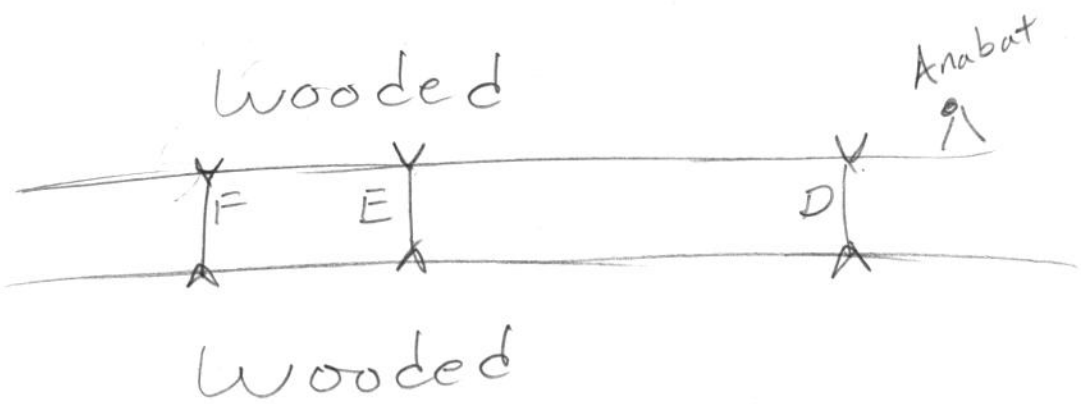
Moon Effect: WANGIB	Start:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:	
	Stop:		

NETS/TRAPS:	**A:**	**B:**	**C:**	**D:**	**E:**	**F:**
	—	—	—	1X2H-6M	1X2H-9M	1X2H-9M
Pool size WxL						
Swoop WxL						
Photo? or #				Robs Phone	Robs Phone	Robs Phone

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
346	34.72714	-78.54411	Hi freq ext	12	Edge	6	—	—	1730	2230	

Site Description, other than Habitat Info covered on pg 3:

Sandy Road flanked by forest



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT MYSE FALL WINTER County: Bladen Site# B13 Night# 2 Site Name: Bladen Lakes Date: 20 Jan 17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	NCWRC Band / WS	Comment / Photo #
1	19:10	LASNOC	M	A	NR	40	7.75	15.5	D	1.5	A0676/0	RS phone
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Mesic mixed hardwood forest
(coastal Plain Subtype)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT-MYSE	**County:**	TYRELL	**Site#:**	BR01	**Night#:**	1	**Site Name:**	Buck Ridge	**Date:**	1/13/17
Latitude: 35.73766		Longitude: −76.07271						Datum: NAD 83	Elevation: −22	ID By: Gregg Janos	
Observers: Gregg Janos, Heidi Braunreiter, Sara Easterly								Start Time: 1711		End Time: 2211	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1711	49	1	0	1910	45.5	1	0	2211	47	2	100

Moon Effect: Full — Start: 1930 — Stop:

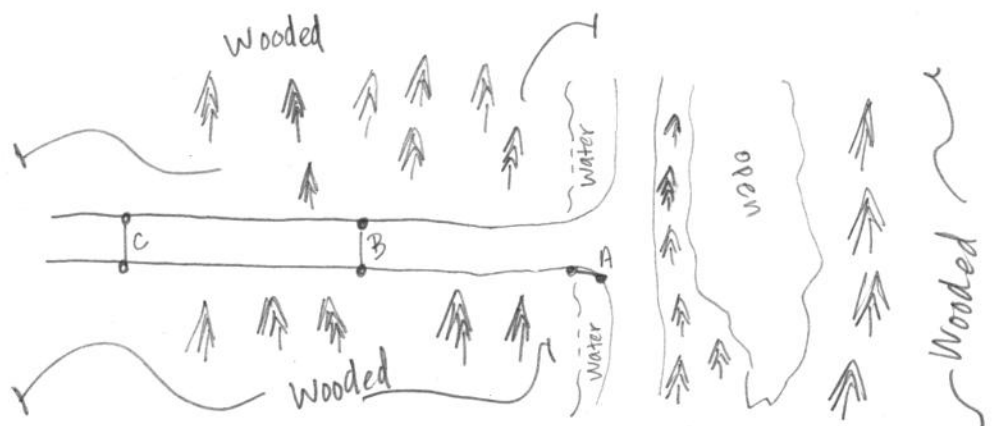
Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:

NETS/TRAPS:	**A:** 1x2H-9m	**B:** 1x2H-6m	**C:** 1x2H-4m	**D:**	**E:**	**F:**
Pool size WxL	12x100	NA	NA			
Swoop WxL	unlimited	NA	NA			
Photo? or #	GJ's Tablet	GJ's Tablet	GJ's Tablet			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.73766	−76.07271	EXT Hi.MC	12	Edge	6	—	—	1711	2211	GJ's Tab

Site Description, other than Habitat Info covered on pg 3:

Grassy trail along ditch surrounded by Scrub Shrub with few mature trees



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: NCDOT - MYSE County: Tyrrell Site# BR01 Night# 1 Site Name: Buck Ridge Date: 1/13/17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1815	MYSE	M	A	NR	36mm	7.25g	14.25g	C	3m	NC-WRC. A0729	172.423 Transmitter
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Non Riverine Swamp forest / Mixed subtype

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT MYSE	**County:**	Tyrrell	**Site#:**	BR01	**Night#:**	2	**Site Name:**	Buckridge	**Date:**	14-Jan-2017
Latitude: 35.73766		Longitude: -76.07271						Datum: NAD 83	Elevation: -22ft	ID By: G. Janos	
Observers: G. Janos, S. Easterly								Start Time: 1712		End Time:	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1720	47	1	100	1940	46	0	100	2212	45.5	0	100

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

NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-6m	C: 1x2H-4m	D:	E:	F:
Pool size WxL	12x100	N/A	N/A			
Swoop WxL	UNLTM	N/A	N/A			
Photo? or #	GJ's tablet	GJ's tablet	GJ's tablet			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.73766	-76.07271	Ext. Hi Mic	12ft	Edge	6	-	-	1712		GJ's tablet

Site Description, other than Habitat Info covered on pg 3:

See 1/13/17 data sheet

See 1/13/17 data sheet

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: NCDOT MYSE County: Tyrrell Site# BR01 Night# 2 Site Name: Buckridge Date: 14-Jan-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

No Bats

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Nontidal fresh water swamp/ Mixed subtype

NCDOT Mist-Netting & Acoustic Survey Data Form

423 424

Project:	537 NCDOT MYSE	**County:**	Tyrrell	**Site#:**	~~2~~ 02	**Night#:**	1	**Site Name:**	Buckridge	**Date:**	13 Jan 2017
Latitude:	35.72433	Longitude:	-76.07439					Datum: NAD83	Elevation: 5.5m	ID By:	R Stinson
Observers:	A. Dart C. Bullock							Start Time:	17H	End Time:	2211

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1713	50.5	1	0	1919	47.5	1	0	2213	45	1	25%

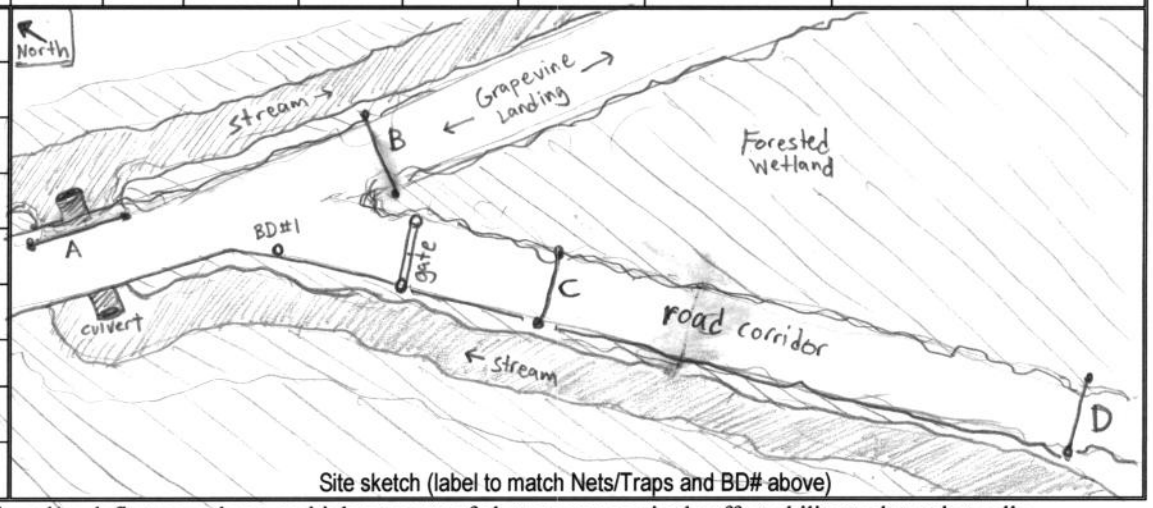
Moon Effect: full — Start: 1940 — Stop:

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

NETS/TRAPS:	**A:** 1X2H-9M	**B:** 1X2H-9M	**C:** 1X2H-6M	**D:** 1X2H-6m	**E:**	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.72433	-76.07439	Ext Hi-freq	10ft	Edge	6	–	–	1711	2222	Rob's Phone

Site Description, other than Habitat Info covered on pg 3:



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT County: Tyrrell Site# BR02 Night# 1 Site Name: Buck Ridge Date: 13-Jan-2016

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

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:
P. taeda, Non Riverine Swamp forest / Mixed subtype

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT MYSE	**County:**	Tyrrel	**Site#:**	BR02	**Night#:**	2	**Site Name:**	Buckridge	**Date:** 27 Feb 2017
Latitude: 35.72433		Longitude: -76.07439						Datum: NAD83	Elevation: 5.5m	ID By: R. Stinson
Observers: I. Burns								Start Time: 1800		End Time: 2055

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1817	58	0%	50%	1910	54	0	50%	2100	50.5	0	25%

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

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.72433	-76.07435	EXT Hi Freq	10Ft	Edge	6	–	–	1800	2100	Robs Phone

Site Description, other than Habitat Info covered on pg 3:

See Data Sheet From 13 Jan 2017

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT MYSE County: Tyrrel Site# BR02 Night# 2 Site Name: Buckridge Date: 27 Feb 2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1845	LASSEM	M	A	NR	40		16	fur	1	CC1994	small holes in tail membrane
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

P. taeda, Non Riverine Swamp Forest

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: 537 NCDOT Fall/winter NLEB	**County:** Martin	**Site#:** 01	**Night#:** 1	**Site Name:** LR01		**Date:** 17 Nov 2016			
Latitude: 35.88410	Longitude: -77.144912			Datum: NAD83	Elevation: 59 ft	ID By: Taylor Culbertson			
Observers: Kateigh De Beck				Start Time: 1659		End Time: 2159			

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1659	60	0	0%	1945	44	0	0%	2159	42	0	0%

Moon Effect: Wan. Gib. Start: NA Stop: NA

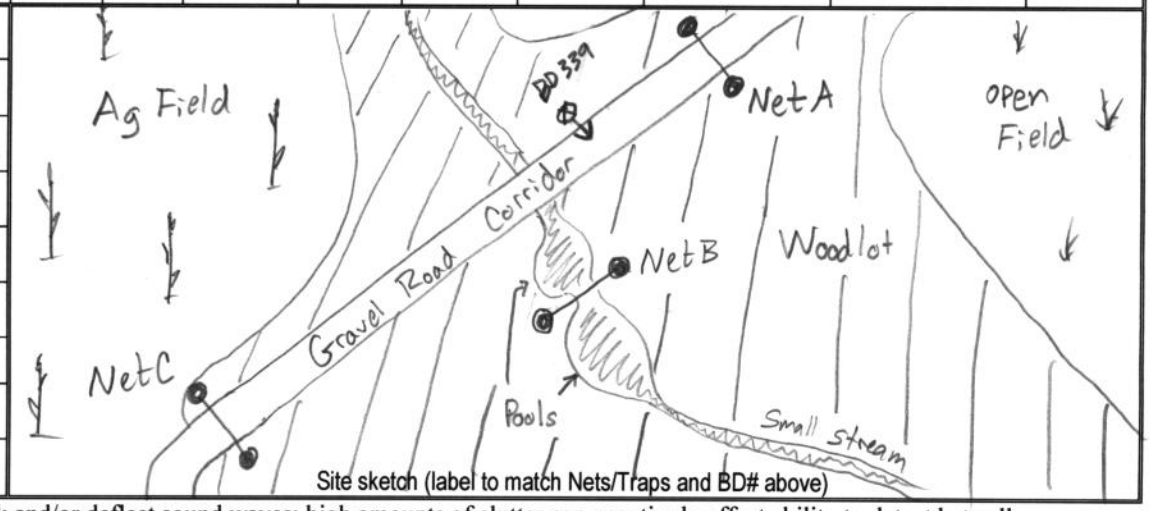
Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: Corridor and road on edge of Ag field and forest.

NETS/TRAPS:	**A:** 1x2H-6m	**B:** 1x2H-9m	**C:** 1x2H-9m	**D:** NA	**E:** NA	**F:** NA
Pool size WxL	NA	5x12 m	NA	NA	NA	NA
Swoop WxL	NA	2x4 m	NA	NA	NA	NA
Photo? or #	TC	TC	TC	NA	NA	NA

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
339	35.88410	-77.144912	External	4m	High	6			1650	2159	TC Red Pantax

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation includes Acer rubrum, Liquidambar styraciflua, Liriodendron tulipefera The site contains a small stream with pool, wooded area on one side of the corridor and ag fields on the other.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT Fall/Winter NLEB County: Martin Site# 01 Night# 1 Site Name: LR01 Date: 17-Nov-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1725	MYOAUS	F	A	NR	40.0	7.75	15.50 7.75	A	2.5	NC-WRC/A0703/0	KD iphone
2	1736	MYOAUS	M	A	NR	40.0	7.75	14.25 6.5	A	3.0	A0704/0	KD iphone
3	1745	MYOAUS	M	A	NR	36.0	7.75	14.0 6.25	C	2.0	A0705/0	KD iphone
4	1749	MYOAUS	F	A	NR	38.0	7.75	16.25 8.5	C	5.0	A0706/0	KD iphone
5	1759	CORRAF	M	A	NR	42.0	7.75	17.35 9.6	B	2.0	A0707/0	
6	1925	MYOAUS	F	A	NR	39.0	7.75	15.25 7.5	C	2.0	A0708/0	KD iphone
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes: NA

Non Riverine Swamp Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT Fall/Winter NLEB	**County:**	Martin	**Site#:**	01	**Night#:**	2	**Site Name:**	LR01	**Date:**	18-Nov-2016
Latitude: 35.88410		Longitude: -77.144912						Datum: NAD 83	Elevation: 59 ft	ID By: Taylor Culbertson	
Observers: Kaleigh DeBeck								Start Time: 1659		End Time: 2159	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1659	72°F	0	0%	1945	45	0	0%	2159	44°F	0	0%

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

NETS/TRAPS:	**A:** 1x2H-6m	**B:** 1x2H-9m	**C:** 1x2H-9m	**D:** N/A	**E:** N/A	**F:** N/A
Pool size WxL	N/A	5 x 12m	N/A	N/A	N/A	N/A
Swoop WxL	N/A	2x4 m	N/A	N/A	N/A	N/A
Photo? or #	T.C	T.C	T.C	N/A	N/A	N/A

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
339	35.88410	-77.144912	External	4m	High	6			1645	2159	T.C Red Pentax
	*Anabat batteries	died at 2032									

Site Description, other than Habitat Info covered on pg 3:

See night 1

See night 1

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT Fall/winter NEB County: Martin Site# 01 Night# 2 Site Name: LR01 Date: 18-Nov-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1740	LASBOR	M	A	NR	36.0	7.75	17.25 9.5	C	2m	NC-WRC A0709/OP	
2	1740	LASBOR	M	A	NR	41.0	7.75	18.75 11.0	C	2m	A0710/O	
3	1740	MYOAUS	M	A	NR	40.0	7.75	14.25 6.5	C	2.5m	A0704/O	Recap from 17Nov2016
4	1804	CORRAF	F	A	NR	44.0	7.75	18.0 10.25	A	3m	A0711/O	
5	1856	CORRAF	F	A	NR	44.0	7.75	17.0 9.25	B	1.5m	A0712/OP	
6	1935	MYOAUS	M	A	NR	38.0	7.75	14.5	C	3.5m	A0713/O	Swabbed/KD iphone
7	2033	MYOAUS	M	A	NR	39.0	7.75	14.75	A	2.5m	A0714/O	Swabbed-Guano/KD iphone
8	2105	MYOAUS	M	A	NR	40.0	7.75	14.5	A	2.5m	A0715/O	Swabbed-Guano/KD iphone
9	2106	CORRAF	M	A	NR	41.0	7.75	17.25	A	3m	A0716/O	
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:
Two bats (possibly CORRAF) seen roosting in culvert near net B.
Nonriverine Swamp Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT Fall/Winter NLEB	**County:**	Martin	**Site#:**	01	**Night#:**	1	**Site Name:**	LR01
Date:	22Feb2017								
Latitude:	35.88410	Longitude:	-77.144912	Datum:	NAD83	Elevation:	59ft	ID By:	Theresa Wetzel
Observers:	T. Wetzel, Ian Burns			Start Time:	1757	End Time:	2257		

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1800	61.5	0	75%	2045	57	0	50%	2257	53	0	25%

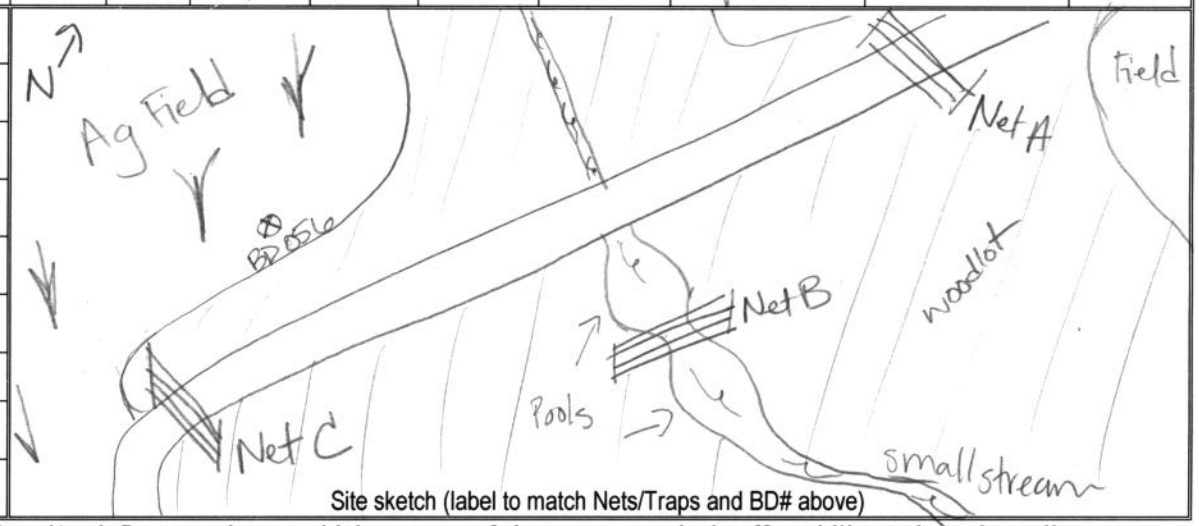
Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wan. Cres	NA	NA	on edge of ag. field and forest

NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-6m	C: 1x2H-9m	D: NA	E: NA	F: NA
Pool size WxL	NA	5 x 12m	NA	NA	NA	NA
Swoop WxL	NA	2 x 4m	NA	NA	NA	NA
Photo? or #	TW	TW	TW	NA	NA	NA

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
056	35.88354	-77.145666	External	4m	No	6	NA	NA	1745	2330	TW Phone
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Site Description, other than Habitat Info covered on pg 3:

Dominant vegitation includes Acer rubrum, Liquidambar styraciflua, Liriodendron tulipifera. The site contains a small stream with pools. Wooded area on SE side of road, ag field on other.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537-NCDOT Fall/Winter NLEB County: Martin Site# 01 Night# 1 Site Name: LR01 Date: 22 Feb 2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1815	LAS BOR	M	A	NR	41	8.0	17.5	A	3.0	NC WRS A0710/0	recapture / TW
2	1830	LAS BOR	M	A	NR	39	8.0	17	C	2.5	A0742/0	TW
3	1930	LAS BOR	M	A	NR	40	8.0	17.25	A	3.0	A0743/0	TW
4	1930	LAS SEM	M	A	NR	42	8.0	17.0	C	3.5	A0744/0	TW
5	1950	COR RAF	M	A	NR	44	8.0	16.25	B	0.5	A0745/0	TW
6	2205	LAS BOR	M	A	NR	41	8.0	15.5	C	3.5	A0746/0	
7	2220	MYO AUS	M	A	SC	39	8.0	15.0	A	1.0	A0747/0	Guano + swabbed
8												
9												
10												
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Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

NA

Nonriverine Swamp Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

537 NCDOT

Project:	Fall/Winter NLEB	**County:**	Martin	**Site#:**	01	**Night#:**	2	**Site Name:**	LR01	**Date:**	23 Feb 2017
Latitude: 35.88410		Longitude: -77.144912						Datum: NAD83	Elevation: 59ft	ID By: Theresa Wetzel	
Observers: T. Wetzel, Ian Burns								Start Time: 1758		End Time: 2258	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1800	66	0	25%	2030	59	0	0%	2255	55	0	0%

Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wan. Cres	NA	NA	on edge of ag. field and forest

NETS/TRAPS:	A:	B:	C:	D:	E:	F:
	1 x 2H-9m	1 x 2H-6m	1 x 2H-9m	NA	NA	NA
Pool size WxL	NA	5 x 12m	NA	NA	NA	NA
Swoop WxL	NA	2 x 4m	NA	NA	NA	NA
Photo? or #	NA	NA	NA	NA	NA	NA

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
056	35.88354	-77.14566	External	4m	No	6	NA	NA	1745	2315	TW
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Site Description, other than Habitat Info covered on pg 3:

See night 1
22 Feb 2017

See night 1
22 Feb 2017

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT Fall/Winter NLEB County: Martin Site# 01 Night# 2 Site Name: LR01 Date: 23Feb2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1820	LAS BOR	M	A	NR	41	8.0	16.75	C	0.5	NC WRC A0748/0	NA
2	1840	LAS BOR	M	A	NR	40	8.0	15.75	C	3.5	NC-WRC A0749/0	NA
3	2215	LAS BOR	M	A	NR	40	7.5	17.0	A	2.0	NC-DOT 1613/0	NA
4	2245	LAS BOR	M	A	NR	39	8.0	16.75	A	4.0	NCDOT 1614/0	NA
5	2245	MYO AUS	M	A	SC	39	8.5	15.50	A	2.0	NCDOT 1615/0	1B guano + phone WNS Swab
6	2255	MYO AUS	M	A	SC	40	8.0	15.25	A	3.0	NCDOT 1617/0	TN guano + phone WNS Swab
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Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

NA

Nonriverine Swamp Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT NLEB	**County:**	MARTIN	**Site#:**	LR02	**Night#:**	1	**Site Name:**	Lower Roanoke	**Date:**	17-NOV-2016
Latitude:	35.88636	Longitude:	W 077.04990	Datum:	NAD83	Elevation:	18m	ID By:	RStinson		
Observers:	RStinson I Burns			Start Time:	1659	End Time:	2159				

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1700	60	1	0	1930	51	0	0				

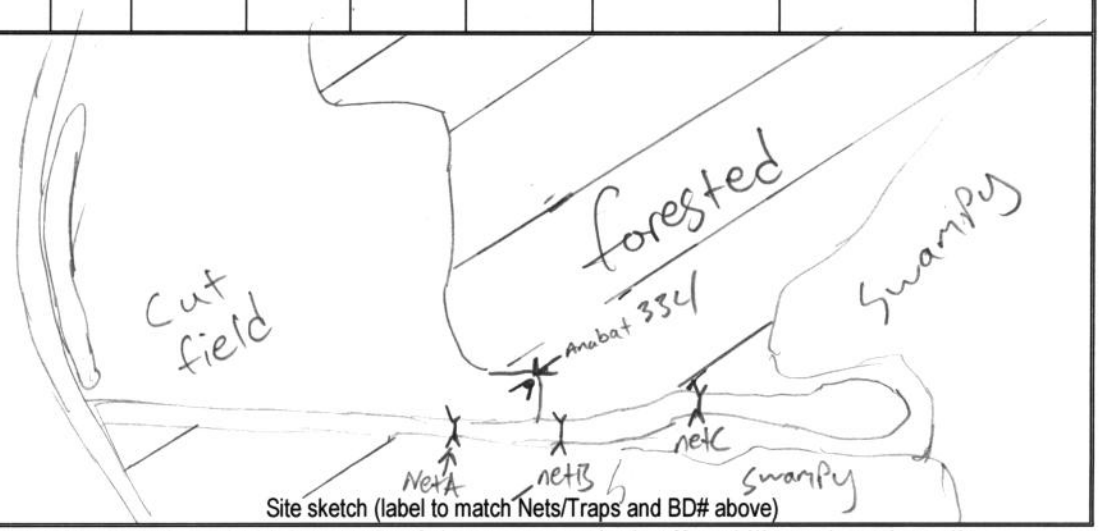
Moon Effect: WANING	Start:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Swampy area near cleard fields
	Stop:	

NETS/TRAPS:	**A:** 1X2H-9M	**B:** 1X2H-9M	**C:** 1X2H-6M	**D:**	**E:**	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #	RS Phone	RS Phone	RS Phone			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
334			Ext HF	10ft	NO	6			1645	2159	Rob's Phone

Site Description, other than Habitat Info covered on pg 3:

Disabled hunters access point off of main road.
Acer rubrum
L. styraciflua
Q. pinellos
B. nigra



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT County: Martin Site# LR02 Night# 1 Site Name: Lower Roanoke Date: 17NOV2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1755	LASBOR	U	U	U				C	5.0m		Escaped @ Net
2												
3												
4												
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20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land) / mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Coastal Plain Bottomland Hardwood Forest (Schlapale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: NCDOT NLEB	**County:** Martin	**Site#:** LR02	**Night#:** 2	**Site Name:** Lower Roanoke				**Date:** 18-NOV-16	
Latitude: 35.88636	Longitude: W 077.04990			Datum: NAD83	Elevation: 18 m			ID By: R Stinson	
Observers: R. Stinson, L. Burns				Start Time: 1659				End Time: 1959	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1700	55	0	0	1930	56.5	0	0	1950	48	0	0

Moon Effect: WANGIB — Start: NA — Stop: NA

Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Swampy area near cleared fields

NETS/TRAPS:	**A:**	**B:** 1X2H-9m	**C:** 1X2H-6m	**D:** 1X2H-9m	**E:**	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #	RS Phone	RS Phone	RS Phone	RS Phone		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
334			EX+ HF	10ft	No	6			1645	1950	RS Phone

Site Description, other than Habitat Info covered on pg 3:

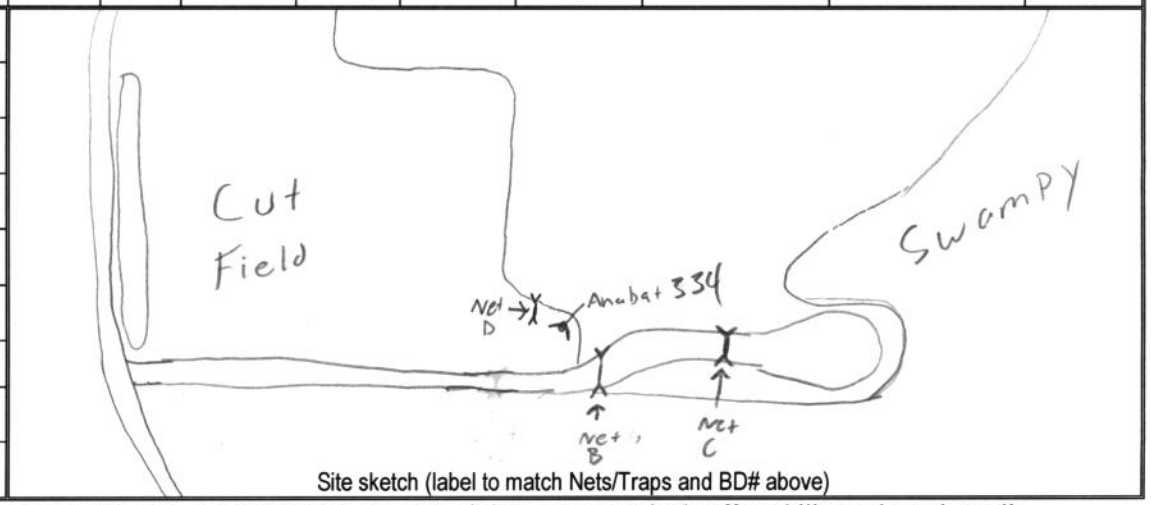
Disabled hunter's access Point off of main road

Acer rubrum

L. styraciflua

Q. Phellos

B. nigra



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT County: Martin Site# LR02 Night# 2 Site Name: Lower Roanoke Date: 18 Nov 2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	17:45	MYOAUS	F	A	NR	37	.5	7	B	2.5	NWRCA0687	
2	1833	MYOAUS	F	A	NR	41	.5	7.75	D	3.0	NWRCA0672	
3	1925	MYOAUS	F	A	NR	37	.25	7.25	B	2.0	NWRCA0673	
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Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land) mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Coastal Plain Bottomland Hardwoods (Schapale)

NCDOT Mist-Netting & Acoustic Survey Data Form

(LR02)

Project:	537 NCDOT	**County:**	Martin	**Site#:**	2	**Night#:**	3	**Site Name:**	Lower Roanoke	**Date:**	2-24-17
Latitude:	35.88636	Longitude:	N 077.04990					Datum: NAD83	Elevation: 18M	ID By:	R. Stinson
Observers:	R. Stinson, H. Braunreuth							Start Time:	1759	End Time:	2259

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1745	62.5	1	0%	2122	59.5	0	0%	2327	57	0	0%

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
WANCRES	Stop:	Swampy areas near open ag fields

NETS/TRAPS:	A: 1X2H-9M	B: 1X2H-9M	C: 1X2H-6M	D:	E:	F:
Pool size WxL						
Swoop WxL						
Photo? or #	RS phone	RS phone	RS phone			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
346	same		EXT HI FREQ	10'	Edge	6	NA	NA	1759	2259	Robs phone

Site Description, other than Habitat Info covered on pg 3:

Disabeled hunters access point off of main gravel road. P. heterophylla
Q. phellos L. styraciflua
Q falcata C. caroliniana
P. taeda Fraxinus sp Gleditsia sp.
B. nigra Ilex opaca
Nyssa sp. Q. lyrata
Taxodium distichum P. occidentalis

see data sheet from Nov. 17, 2016

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT County: Martin Site# LR02 Night# 3 Site Name: Lower Roanoke Date: 2-24-17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA(mm)	Bag WT g	WT g	Net #	Height	Band / WS	Comment / Photo #
1	1840	EPTFUS	F	A	NR	47	7.75	24	A	2.5	A0679/0	Robs phone
2	1840	EPTFUS *2	M	A	NR	44	7.75	19.75	B	2.5	A0680/0	
3	1840	EPTFUS	M	A	NR	44	7.75	20.25	B	2.5	NCDOT 1633/0	
4	1840	EPTFUS *2	M	A	NR	46	7.75	21.5	B	3.5	1640/0	
5	1840	EPTFUS *2	M	A	NR	45	7.75	21	B	1.5	1641/0	
6	1840	NYCHUM *2	M	A	NR	36	7.75	15	B	2	ran out of bands/0	saved one in case of Northern later
7	1915	EPTFUS	F	A	NR	46	7.75	22	C	1.5	X/0	
8	2250	CORRAF	M	A	SCR	43	7.75	15.5	B	1	1642/0	Used here
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35 → *1

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Coastal Plain Bottomland Hardwoods
(Blackwater subtype)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT	**County:**	MARTIN	**Site#:**	LR02	**Night#:**	4	**Site Name:**	Lower Roanoke	**Date:**	2-25-17
Latitude: 35.88636		Longitude: N077.04990						Datum: NAD83	Elevation: 18M	ID By: R. Stinson	
Observers: R. Stinson H. Braunreiter								Start Time: 1800		End Time: 2300	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1900	68	0	25%	2145	58.5	2	25%	2300	54.5	0	25%

Moon Effect: WAN CRES	Start:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Swampy forest near open ag fields
	Stop:	

NETS/TRAPS:	**A:** 1X2H-9M	**B:** 1X2H-9H	**C:** 1X2H-6M	**D:**	**E:**	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #	RS. phone →					

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
346	same		EXT HI FREQ	10'	Edge	6	NA	NA	1800	2300	Robs phone

Site Description, other than Habitat Info covered on pg 3:

Q. phellos, Q. lyrata, Q. falcata, T. distichum, P. taeda, B. nigra, Nyssa sp., Fraxinus sp., I. opaca, P. occidentalis, Gleditsia sp., C. caroliniana, P. heterophylla, L. styraciflua

Disabled hunters access point off main gravel road.

see map from Nov. 17, 2016

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT County: MARTIN Site# LR02 Night# 4 Site Name: Lower Roanoke Date: 2-25-17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA (mm)	Bag WT g	WT g	Net #	(M) Height	Band / WS	Comment / Photo #
1	1840	EPTFUS	M	A	NR	45	7.75	21.25	C	0.5	CC2000/0	NA
2	1840	LASBOR	M	A	NR	39	7.5	18.25	B	1.5	CC1999/0	NA
3	1840	EPTFUS	M	A	NR	46	7.75	22.5	B	2.0	CC1998/0	NA
4	1910	EPTFUS	F	A	NR	46	7.75	23.0	B	3.5	CC1997/0	NA
5	2100	LASBOR	M	A	NR	40	7.75	15.75	C	5	CC1996/0	NA
6	2120	MYOAUS	M	A	SC	37	7.75	17	B	3.5	CC1995/0	Rob's phone
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Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Coastal Plain Bottomland Hardwood Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

537 NCDOT Fall/Winter NLEB

Project:		**County:**	Martin	**Site#:**	03	**Night#:**	1	**Site Name:**	LR03	**Date:**	19-NOV-2016
Latitude: 35.865295		Longitude: -77.044022						Datum: NAD83	Elevation: 12 ft	ID By: Taylor Culbertson	
Observers: Kaleigh DeBeck								Start Time: 1658		End Time: 1928	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1658	72°F	6	50%	1928	50°F	6	50%	N/A	N/A	N/A	N/A

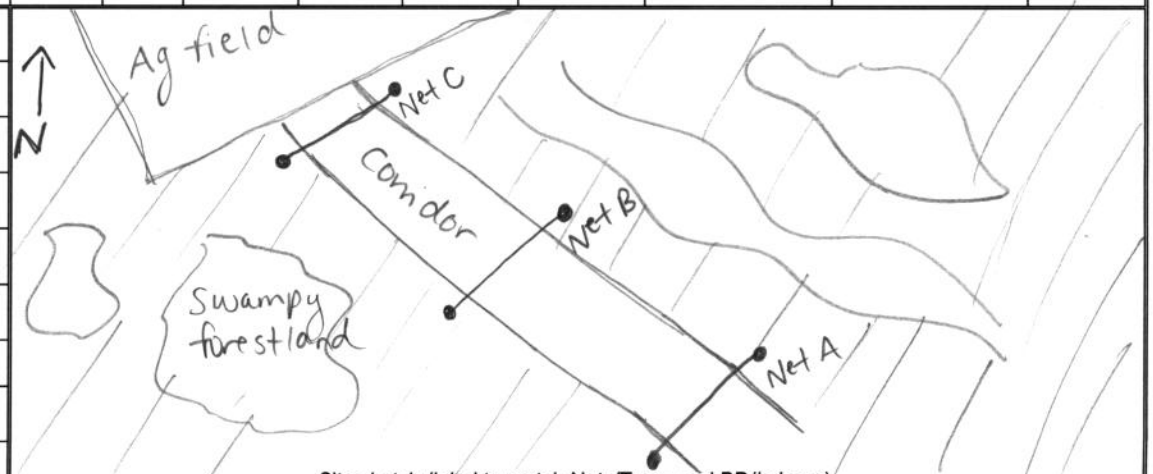
Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
WAN. GIB.	Stop: N/A	

NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-9m	C: 1x2H-9m	D: N/A	E: N/A	F: N/A
Pool size WxL	N/A	N/A	N/A	N/A	N/A	N/A
Swoop WxL	N/A	N/A	N/A	N/A	N/A	N/A
Photo? or #	T.C	T.C	T.C	N/A	N/A	N/A

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
339	35.865295	-77.044022	External	4m	Medium	6			1656	2032	Red Pentax

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation includes Acer rubrum, Platanus occidentalis, and Liquidambar styraciflua. Swampy forestland borders both sides of the corridor.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT Fall/winter NLEB County: Martin Site# 03 Night# 1 Site Name: LR03 Date: 19-NOV-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	NO CAPTURES WIND OUT @ 1928											
2												
3												
4												
5												
6												
7												
8												
9												
10												
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12												
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16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes: N/A

Nonriverine Swamp Forest (Schafall)

NCDOT Mist-Netting & Acoustic Survey Data Form

537 NCDOT

Project:	Fall/Winter NLEB	**County:**	Martin	**Site#:**	03	**Night#:**	1	**Site Name:**	LR03	**Date:**	24 Feb 2017
Latitude: 35.865295		Longitude: -77.044022						Datum: NAD83	Elevation: 12 ft	ID By: Theresa Wetzel	
Observers: T. Wetzel, Ian Burns								Start Time: 1758		End Time: 2258	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1800	69	1	0%	2030	63	0	0%	2250	56.5	0	0%

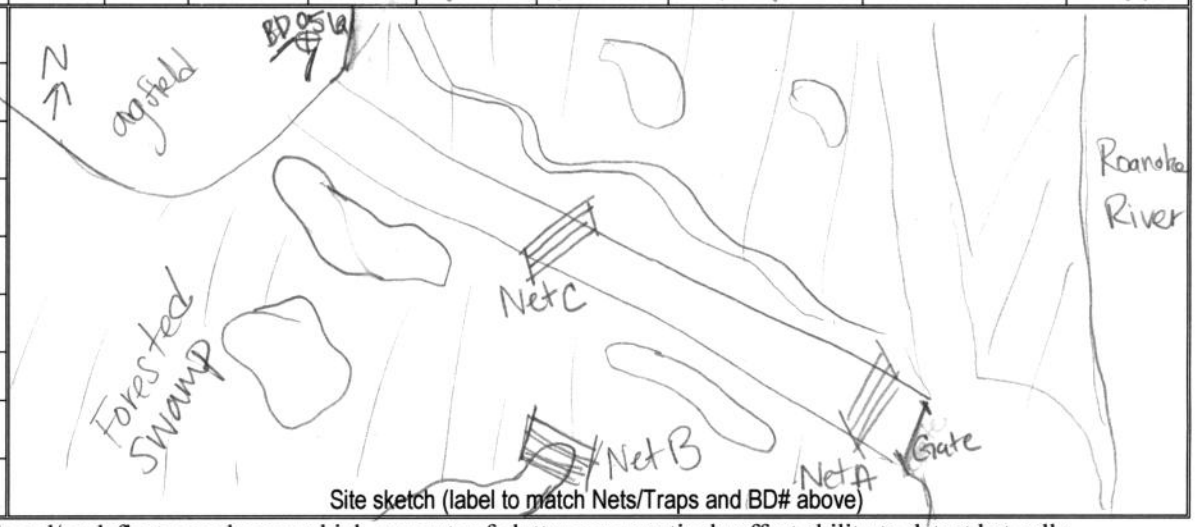
Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wan. Cres	Stop: NA	wooded swamp with road corridor

NETS/TRAPS:	A: 1x2H-12m	B: 1x2H-9m	C: 1x2H-12m	D: NA	E: NA	F: NA
Pool size WxL	NA	4x10m	NA	NA	NA	NA
Swoop WxL	NA	6m x UNLIM	NA	NA	NA	NA
Photo? or #	TW	TW	TW	NA	NA	NA

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
056	35.86659	-77.04472	Extern	4m	No	6	NA	NA	1750	2330	TW
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation includes Liquidambar styraciflua, Acer rubrum, Platanus occidentalis. Forested swamp borders road corridor on both sides.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT Fall/Winter NLEB County: Martin Site# 03 Night# 1 Site Name: LR03 Date: 24 Feb 2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1820	EPT FUS	F	A	NR	48	7.5	21.25	A	4.0	304KS No 0989 / 0	Recapture
2	1835	NYC HUM	M	A	NR	36	8.0	14.75	C	2.0	NCDOT 1618 / 0	
3	1835	LAS BOR	M	A	NR	40	7.5	18.0	C	3.5	— / 0	
4	1835	NYC HUM	F	A	NR	40	7.5	16.75	C	3.0	— / 0	
5	1835	EPT FUS	F	A	NR	50	8.0	22.75	C	3.5	— / 0	
6	1835	NYC HUM	F	A	NR	38	7.75	16.0	C	3.5	— / 0	
7	1835	EPT FUS	M	A	NR	46	7.5	20.25	C	4.0	— / 0	
8	1845	LAS BOR	M	A	NR	42	8.0	19.75	A	4.0	— / 0	
9	1900	NYC HUM	F	A	NR	39	7.75	16.25	C	2.0	— / 0	
10	2210	LAS BOR	M	A	NR	39	7.75	15.25	C	2.5	— / 0	
11	2258	MYO ACS	M	A	SC	39	7.75	15.25	C	2.0	NCDOT 1619 / 0	IB
12	2258	MYO ACS	M	A	SC	40	8.0	14.75	C	2.0	NCDOT 1620 / 0	IB
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

NA

Nonriverine Swamp Forest (schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

537 NCDOT

Project:	Fall/Winter NLEB	**County:**	Martin	**Site#:**	03	**Night#:**	2	**Site Name:**	LR03	**Date:**	25 Feb 17
Latitude: 35.865295		Longitude: -77.044022						Datum: NAD83	Elevation: 12	ID By: Theresa Wetzel	
Observers: T. Wetzel, Ian Burns								Start Time: 1759		End Time: 2259	

Conditions:	Time 1800	Temp 72.5	Wind 1	Clouds 0%	Time 2030	Temp 65.5	Wind 2	Clouds 100%	Time 2300	Temp 56.5	Wind 1	Clouds 0%

Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (*describe*):
Wan. cres.	NA	NA	wooded swamp with road corridor

NETS/TRAPS:	A: 1 x 2H-12m	B: 1 x 2H-9m	C: 1 x 2H-12m	D: NA	E: NA	F: NA
Pool size WxL	1 x NA	4 x 10m	NA	NA	NA	NA
Swoop WxL	NA	6m x Unlim	NA	NA	NA	NA
Photo? or #	TW	TW	TW	NA	NA	NA

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
056	35.86659	-77.04472	External	4m	No	6	NA	NA	1715	2300	TW
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Site Description, other than Habitat Info covered on pg 3:

See night 1

Same as night 1

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: NCDOT 537 Fall/Winter NLEB County: Martin Site# 03 Night# 2 Site Name: LR03 Date: 25 FEB 2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1820	EPT FUS	F	A	NR	46	7.75	21.5	C	2.5	CC1953/0	Swabbed
2	1845	EPT FUS	M	A	NR	46	7.75	19.75	A	4.0	CC1956/0	recap from 24Feb Bat #7
3	1920	EPT FUS	F	A	NR	46	7.50	20.75	C	2.0	CC1957/0	Swabbed
4	1920	NYC HUM	F	A	NR	36	7.75	16.75	A	3.5	CC1958/0	NA
5	2130	EPT FUS	F	A	NR	53	7.75	23.25	B	0.5	CC1959/0	Swabbed
6	2155	MYO AUS	M	A	SC	39	7.75	14.75	C	4.5	NCDOT 1619 /0	recapture from 2/24
7	2155	MYO AUS	M	A	SC	40	7.5	15.25	C	4.5	30AKS NO 0259 /0	recapture
8	2235	EPT FUS	M	A	NR	48	7.75	20.25	C	3.5	CC1960/0	NA
9	2250	MYO AUS	F	A	NR	38	7.5	14.75	A	3.5	CC1961/0	NA
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

NA

Navirvine Swamp Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT	**County:**	Martin	**Site#:**	LR04	**Night#:**	1	**Site Name:**	Lower Roanoke	**Date:**	19 Nov 2016
Latitude:	35.898417	Longitude:	-77.064756	Datum:	NAD83	Elevation:	17	ID By:	R. Stinson		
Observers:	I Burns R. Stinson					Start Time:	1658			End Time:	1928

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1658	72	6	25	2011	50	6	50				

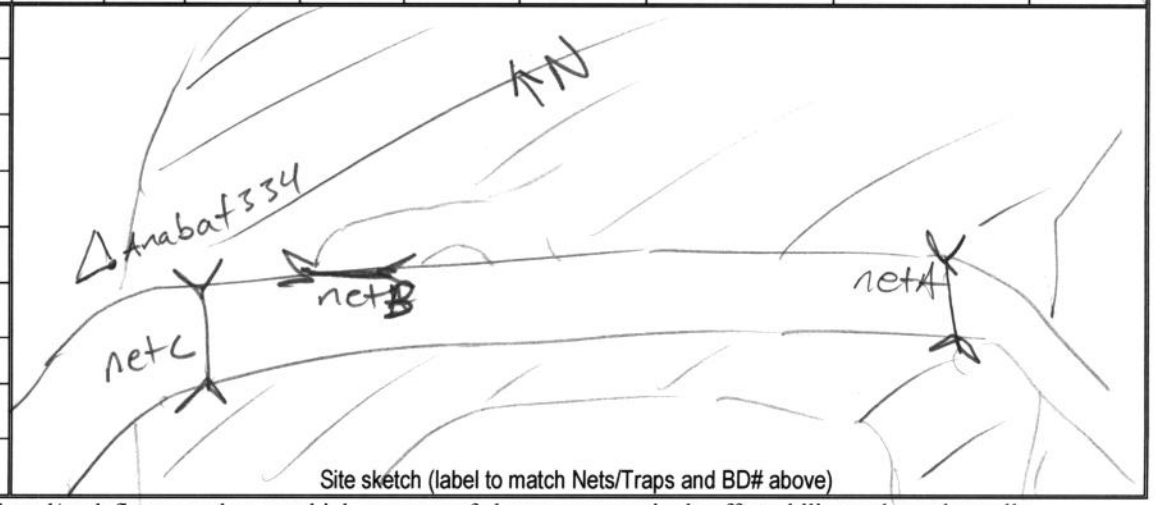
Moon Effect: WANGIB	Start: / Stop:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Ag lots next to forested wood lot

NETS/TRAPS:	**A:** 1X2H-9M	**B:** 1X2H-6M	**C:** 1X2H-9M	**D:**	**E:**	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
334			Ext Hi freq	10ft	low	6			1650	1940	Y

Site Description, other than Habitat Info covered on pg 3:

wind out @ 1928
A. rubrum
P. taeda
L. Styraciflua



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT County: Martin Site# LR04 Night# 1 Site Name: Lower Roanoke Date: 19 Nov 2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1715	MYO AUS	M	A	SC	39	.75	7.5	A	3	NCWRA0685	
2												
3												
4												
5												
6												
7												
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16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Mosaic Mixed Hardwood Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT	**County:**	Martin	**Site#:**	LR04	**Night#:**	2	**Site Name:**	Lower Roanoke	**Date:**	22 Feb 2017
Latitude: 35.898417		Longitude: -77.064756						Datum: NAD83	Elevation: 17	ID By: R Stinson	
Observers: H Braunreiter R Stinson C Bullock								Start Time: 1756		End Time: 2256	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1756	68.0	0	100%	2050	59.5	0	100%	2257	57.0	0	25%

Moon Effect: wan cres	Start:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Ag lots next to forested woodlands
	Stop:	

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
346	35.898417	-77.064756	Ext Hi-freq	4M	High	6	–	–	1750	2300	Robs Phone

Site Description, other than Habitat Info covered on pg 3:

A Rubrum
P taeda
L Styraciflua
recently burned
Q nigra

Mesic Pine flatwood

Refer to data sheet from 19 Nov 2016

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT County: Martin Site# LR04 Night# 2 Site Name: Lower Roanoke Date: 22 Feb 2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	NCWRC Band / WS	Comment / Photo #
1	1917	EPTFUS	M	A	NR	46mm	7.75g	21.25g	C	1.5M	A0730/0	Robs Phone
2	2010	MYOAUS	F	A	NR	40mm	7.75g	15 g	A	1.5M	A0684/0	Robs Phone
3	2031	MYOAUS	F	A	NR	39mm	7.75g	15g	A	2M	A0683/0	Robs phone
4	2232	MYOAUS	F	A	NR	39mm	7.75g	14.5g	C	2.5M	A0682/0	Robs phone
5	2252	COR RAF	M	A	SCR	42mm	7.75g	15.5g	A	1M	A0681/0	Robs phone
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Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Mesic Mixed Hardwood Forest

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT	**County:**	Martin	**Site#:**	LR04	**Night#:**	3	**Site Name:**	Lower Roanoke	**Date:**	23 Feb 2017
Latitude:	35.898417	Longitude:	-77.064756	Datum:	NAD83	Elevation:	17	ID By:	R Stinson		
Observers:	C Bulloch R Stinson H Braunreiter			Start Time:	1758			End Time:			

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1758	64	1	25%	2019	59	0	25%	2330	55	0	25%

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

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
346	35.898417	-77.064756	ext Hi-sq	4m	High	6	–	–	1750	2300	Robs iphone

Site Description, other than Habitat Info covered on pg 3:

A rubrum
P taeda
L styraciflua
Q nigra

mesic Pine flatwood

refer to data sheet
19 Nov 2016

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT County: MARTIN Site# LR04 Night# 3 Site Name: LOWER ROANOAKE Date: 2-23-17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	2155	CORRAF	M	A	SCR	44mm	8.0	16g	B	2	A0677/0	Rob's phone
2	2235 *	EPTFUS	M	A	NR	45mm	8.0	22g	A	2	A0678/0	Rob's phone
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest ~~or cutover~~

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Mesic Mixed Hardwood Forest

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bertie	**Site#:**	01	**Night#:**	1	**Site Name:**	Roanoke River NWR	**Date:**	02 DEC 2016
Latitude: 35.97079		Longitude: -77.14016						Datum: NAD83	Elevation: 35 ft	ID By: Nick Kovacs	
Observers: A. Cable								Start Time: 1654		End Time: 2108	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	17:00	48°F	0	0%	19:27	46°F	0	0%	2108	41°F	0	0%

Moon Effect:	Start:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
WAX-CRES	Stop:	mixed hardwood-pine

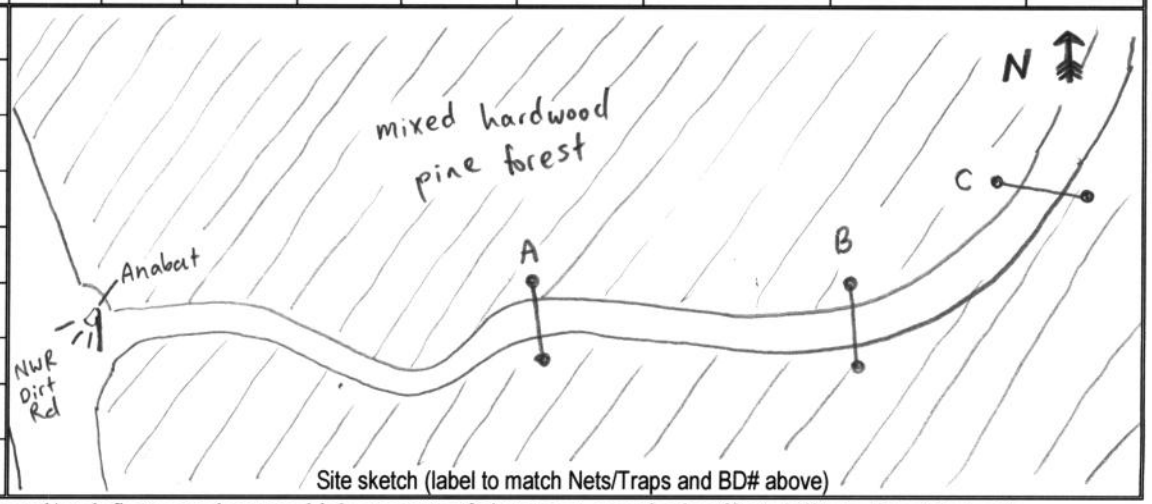
NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-9m	C: 1x2H-9m	D:	E:	F:
Pool size WxL	NA	NA	NA			
Swoop WxL	NA	NA	NA			
Photo? or #	NK	NK	NK			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.97116	-77.14217	Ext. High Freq.	12 Ft	edge	6	NA	NA	1658	2151	NK

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation includes: Ilex opaca, Fagus grandifolia, Acer rubrum, Carpinus caroliniana, and numerous Quercus spp.

Net C is located where MYSE was captured in past. (N35.970717, W077.139417)



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bertie Site# RR01 Night# 1 Site Name: RR01/Roanoke River NWR Date: 02 DEC 2016

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

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Cypress – Gum Swamp Forest (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bertie	**Site#:**	RR01	**Night#:**	2	**Site Name:**	Roanoke River NWR	**Date:**	05 Dec 2016
Latitude: 35.97079		Longitude: -77.14016						Datum: NAD 83	Elevation: 35 ft	ID By: Nick Kovacs	
Observers: A. Cable								Start Time: 1654		End Time: 2154	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1654	49.5°F	0	25%	1937	48.5°F	0	75%	2154	47.5°F	0	75%

Moon Effect: WAX-CRES	Start: NA Stop: NA	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: mixed hardwood-pine

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.97116	-77.14217	Ext. High Freq.	12ft	edge	6	NA	NA	1645	2215	NK

Site Description, other than Habitat Info covered on pg 3:

- See data sheet for RR01 dated: 02 Dec 2016.

- See data sheet for RR01 dated: 02 Dec 2016.

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bertie Site# RR01 Night# 2 Site Name: Roanoke River NWR Date: 05 Dec 2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	(meters) Height	Band / WS	Comment / Photo #
1	1755	MYOAUS	M	A	NR	36	7.25	5.75	B	2	NCDOT 1643 OD	NK
2												
3												
4												
5												
6												
7												
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12												
13												
14												
15												
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18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Cypress – Gum Swamp (Brownwater Subtype)
Schafale

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT Fall/winter NLEB	**County:**	Bertie	**Site#:**	RR01	**Night#:**	1	**Site Name:**	Roanoke River NWR
Date:	22-FEB-2017								

Latitude: 35.970717	Longitude: -77.139417	Datum: NAD 83	Elevation: 12
ID By: Taylor Culberson			
Observers: Matt Hinds		Start Time: 1757	End Time: 2257

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1830	62	0	100	2045	56.5	0	100	2300	56	0	100

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

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

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

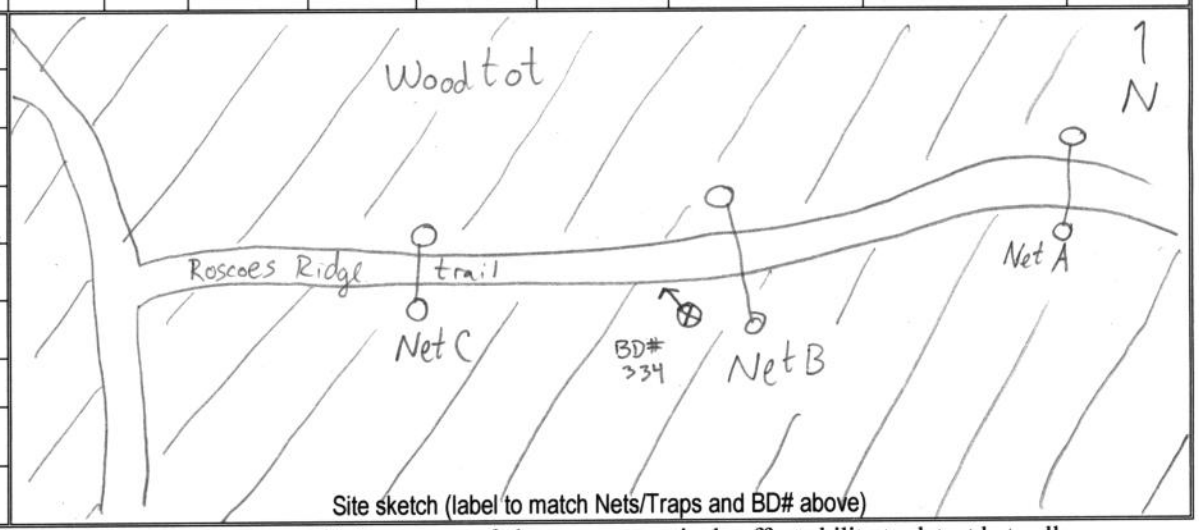
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
334	35.970717	-77.139417	High Freq.	4m	High	6.5	NA	NA	1750	2300	Yes

Site Description, other than Habitat Info covered on pg 3:

Small trail through woodlot adjacent to swampy wetland. Dominant vegetation: Pinus echinata, Quercus laevis, Quercus phellos, Carpinus caroliniana.

- Natural Communities of NC -

Cypress-Gum Swamp (Brownwater sub-type)



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: NCDOT Fall/winter NLEB County: Bertie Site# RR01 Night# 1 Site Name: Roanoke River NWR Date: 22-FEB-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT(g)	WT(g)	Net #	Height	Band / WS	Comment / Photo #
1	18:57	MYOSEP	M	A	NR	37mm	7.75	14.0	B	2	NCWRC A0734/0	tc Iphone Photo 172.483
2	18:57	MYOSEP	M	A	NR	35mm	7.75	13.75	B	4	NCWRC A0736/0	tc Iphone Photo 172.064
3												
4												
5												
6												
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14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:
Adjacent to swampy wetland.

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT Fall/Winter NLEB	**County:**	Bertie	**Site#:**	RR01	**Night#:**	2	**Site Name:**	Roanoke River NWR	**Date:**	24-FEB-2017
Latitude: 35.970717		Longitude: -77.139417						Datum: NAD 83	Elevation: 12	ID By: Taylor Culbertson	
Observers: Chris Bullock								Start Time: 1755		End Time: 2300	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1800	69°F	1	0	2030	59.5°F	0	0	2310	54	0	0

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

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
334	35.970717	-77.139417	ext. High Freq	4m	High	6.5	NA	NA	1800	2310	yes

Site Description, other than Habitat Info covered on pg 3:

See datasheet from night #1, 22-FEB-2017

See datasheet from night #1, 22-FEB-2017

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: NCDOT Fall/winter NLEB County: Bertie Site# RR01 Night# 2 Site Name: Roanoke River NWR Date: 24-FEB-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1835	CORRAF	-	-	-	-	-	-	B	1.5	-	Escape from Net
2	2135	LASBOR	-	-	-	-	-	-	A	2.5	-	Escape from Net
3	2210	CORRAF	F	A	NR	43mm	7.75g	16.5g	B	2	NA/0	ran out of bands / TC's phone
4												
5												
6												
7												
8												
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15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:
Adjacent to swampy wetland
Cypress - Gum Swamp

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bertie	**Site#:**	02	**Night#:**	1	**Site Name:**	RR02	**Date:**	2-Dec-16
Latitude: 35.97840		Longitude: -77.16090						Datum: NAD 83	Elevation: 23 ft	ID By: Taylor Culberton	
Observers: Chris Bullock								Start Time: 1654		End Time: 2100	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1700	51°F	0	0	1938	46°F	0	0	2100	38°F	0	0

Moon Effect: WAX CRES — Start: — Stop:

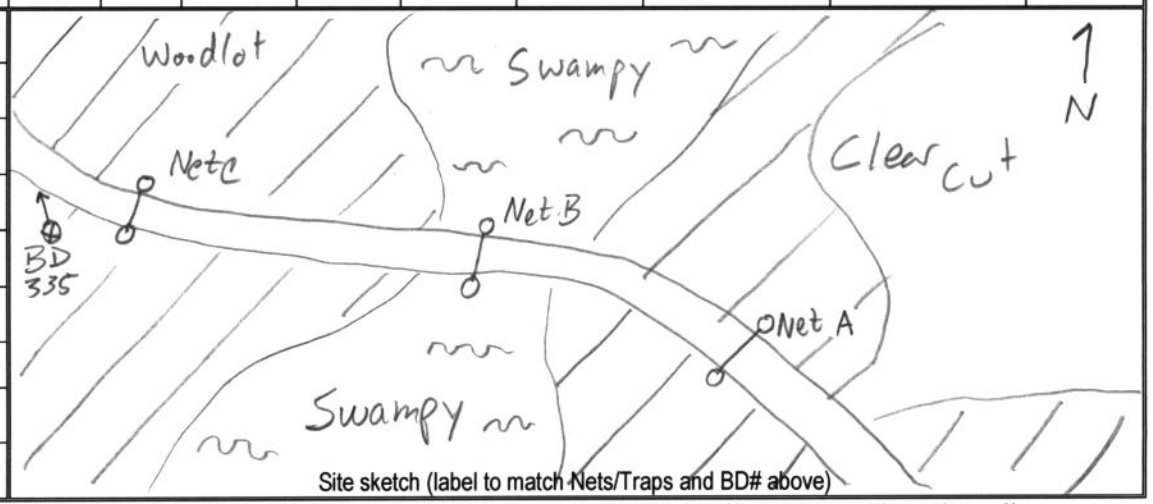
Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Forested wetland

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
335	35.97840	-77.16090	Ext High Freq	12ft	mid	6.5	NA	NA	1654	2140	TC iphone

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation consists of Quercus phellos, Liquidambar styraciflua, Acer rubrum, and Betula nigra. Nets set on dirt road through swampy woodlot and near a logged area.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: 537 NCDOT NLEB County: Batie Site# 02 Night# 1 Site Name: RR02 Date: 2-Dec-16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

No Captures

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Cypress - Gum Swamp (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bertie	**Site#:**	03	**Night#:**	1	**Site Name:**	RR03	**Date:**	05-Dec-2016
Latitude: 35.96010		Longitude: -77.14858						Datum: NAD83	Elevation: 23 ft	ID By: Taylor Culberson	
Observers: Chris Bullock								Start Time: 1654		End Time: 2254	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1700	49	0	2	1930	47	0	3	2150	47	0	3

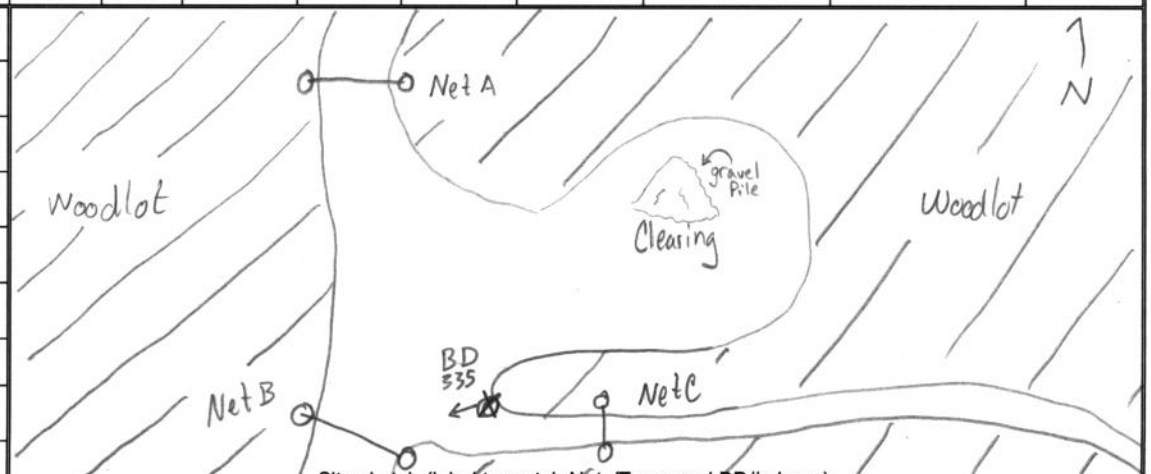
Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
WAX CRES	NA	
	Stop: NA	

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
335	35.96010	-77.14858	Ext. High Freq.	12ft	low	6.5	NA	NA	1650	2220	TC iPhone

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation includes Liquidambar styraciflua, Pinus taeda, + Platanus occidentalis, and Quercus falcata. Site is at intersection of 3 trails, and has small clearing with mountain of gravel/rock.



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: S37 NCDOT NLEB County: Site# 03 Night# 1 Site Name: RR03 Date: 05-Dec-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT g	Net #	Height	Band / WS	Comment / Photo #
1	17:15	MYOAUS	M	A	NR	36	7.75	14.5	A	3M	NCWRC A0719 / 0	TCI iphone
2	17:18	MYOAUS	M	A	NR	40	7.75	14.25	B	2.5M	NCDOT 1755 / 0	TC iphone
3	17:18	MYOAUS	M	A	NR	37	7.75	14.25	B	2M	NCWRC A0718 / OP	TC iphone
4	18:20	MYOAUS	M	A	NR	37.5	7.75	14.25	A	2M	NCDOT 1762 / OP	TC iphone
5	18:20	MYOAUS	M	A	NR	39	7.75	14.5	A	3M	NCDOT 1763 / OP	TC iphone
6	18:25	MYOAUS	M	A	NR	37	7.75	13.75	B	2.5	NCDOT 1767 / 0	TC iphone
7												
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20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Some obvious clearing near site, as well as large mountain of gravel/rock.
Cypress-Gum Swamp (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	537 NCDOT NLEB	**County:**	Bertie	**Site#:**	RR03	**Night#:**	1	**Site Name:**	Roanoke River	**Date:**	25-FEB-2017
Latitude: 35.96010		Longitude: -77.14858						Datum: NAD 83	Elevation: 23 ft	ID By: Zachary Baer	
Observers: Molly Gooden								Start Time: 1750		End Time: 2300	

Conditions:	Time 1800	Temp 65.5F	Wind 2	Clouds 25%	Time 2030	Temp 56.5	Wind 1	Clouds 0	Time 2319	Temp 48.5	Wind 1	Clouds 0

Moon Effect: WAN-CRES Start: Stop:

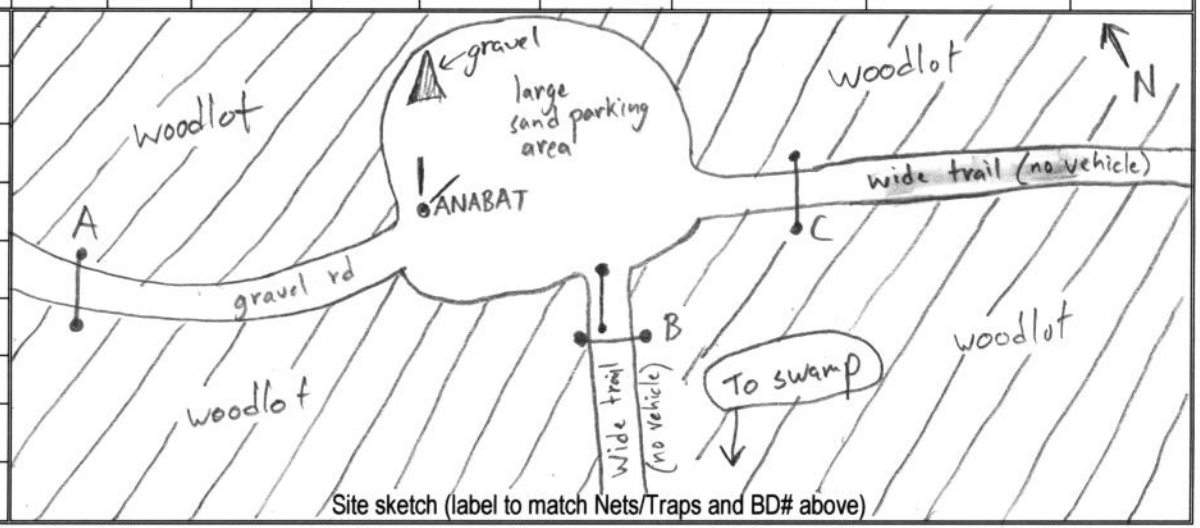
Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*:

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
1	35.96010	-77.14858	External	12ft	Low	6.5	N/A	N/A	1735	2343	yes

Site Description, other than Habitat Info covered on pg 3:

Dominant vegetation includes Liquidambar styraciflua, Pinus taeda, Platanus occidentalis, Quercus laevis. Site is at intersection of 3 trails and has small clearing with mountain of gravel / rock



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: 537 NCDOT NLEB County: Bertie Site# RR03 Night# 1 Site Name: Roanoke River Date: 25-FEB-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	Total/Bat WT	Net #	Height	Band / WS	Comment / Photo #
1	1820	LASBOR	F	A	NR	43	7.75	16.75/8.5	B	2.5	CC1671/0	
2	1820	MYOAUS	M	A	NR	36	7.75	13.25/5.5	C	3	CC1672/0	Swab taken
3	1820	EPTFUS	M	A	S	43	7.75	20.25/12.5	B	2.5	CC1673/0	Swab taken
4	1900	MYOSEP	F	A	NR	34	7.75	13.5/5.75	B	2.0	CC1674/0	zach's phone Fq 364
5	1900	EPTFUS	M	A	NR	46	7.75	20.75/13	C	.5	CC1675/0	
6	1900	EPTFUS	M	A	S	42	7.75	19.75/12	C	2.5	CC1676/0	
7	1900	NYCHUM	F	A	NR	38.5	7.75	16.75/9	B	/	CC1677/0-P	
8	1900	NYCHUM	F	A	NR	37	7.75	17.25/9.5	B	/	CC1678/0-P	hole in right wing ½mm
9	1900	LASBOR	M	A	NR	38.5	7.75	18.25/10.5	B	/	CC1679/0-P	hole in left wing 4mm
10	1900	EPTFUS	—	—	—	—	—	—	B	/	—	chewed trough bag/escaped
11	1925	EPTFUS	M	A	NR	45	7.75	21.75/14	B	2	CC1680/0	
12	1900	NYCHUM	F	A	NR	37	7.75	17.25/9.5	B	/	CC1681/0-P	puncture in left wing ½mm
13	2010	LASBOR	M	A	NR	36	7.75	16/8.25	C	.5	CC1682/0-P	puncture (1mm right wing)
14	2054	CORRAF	F	A	NR	44	7.75	15.75/8.0	B	.5	CC1683/0	
15	2115	EPTFUS	M	A	S	45	7.75	21.5/13.75	B	2.5	CC1684/0	
16	2115	EPTFUS	F	A	NR	47	7.75	23.25/15.5	B	3.5	CC1685/0	
17	2215	CORRAF	M	A	S	43	7.75	16.5/8.75	B	2.5	CC1686/0	
18	2215	CORRAF	M	A	S	42	7.75	16.5/8.75	A	.5	CC1687/0	
19	2245	PERSUB	F	A	NR	33	7.75	13.5/5.75	B	3.5	CC1688/0	Zack's phone
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Some obvious clearing near site as well as large mountain of gravel/rock
Cypress-Gum Swamp (Schafale)

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Winter Monitoring	**County:**	Bertie	**Site#:**	RR04	**Night#:**	1	**Site Name:**	Roanoke River	**Date:**	2/22/2017
Latitude:	35.970193	Longitude:	-77.141856					Datum: NAD 83	Elevation: 16 ft	ID By:	Z. Baer
Observers:	A. Dart Padover							Start Time: 1757		End Time: 2257	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1800	65.0	0	100%	2130	60°F	0	100%	2253	58°F	0	100

Moon Effect: Wan - Cres	Start: — Stop: —	**Land Use:** Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 43: Mixed Forest near 62: Forested Wetland

NETS/TRAPS:	**A:** 1×2H-9m+1×2H-12m-T	**B:** 1×2H-6m	**C:** 2×2H-9m-T	**D:** N/A	**E:** N/A	**F:** N/A
Pool size WxL	N/A	N/A	30m × UNLIM	N/A	N/A	N/A
Swoop WxL	N/A	N/A	5m×30m	N/A	N/A	N/A
Photo? or #	Z.B.	Z.B.	Z.B.	N/A	N/A	N/A

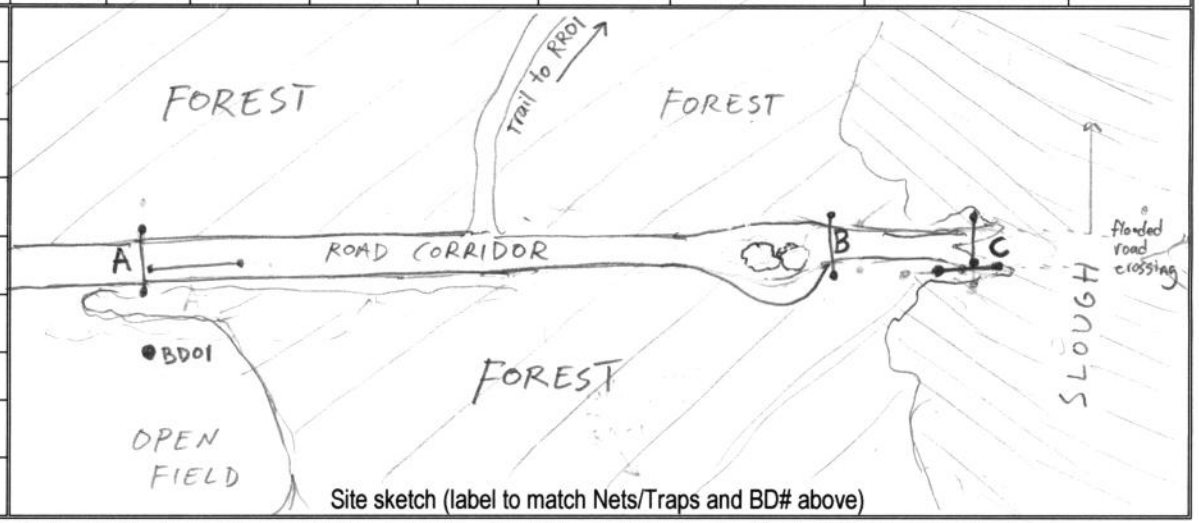
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
01	35.970193	-77.141856	Ext High Freq	12ft	Low	6	N/A	N/A	1740	2315	ZB

Site Description, other than Habitat Info covered on pg 3:

Dominent veg. consists of:
Quercus laevis, Quercus phellos, Pinus echinata, Nyssa spp.

Corridor / dirt road going through woods leading to slough with tupelo

CYPRESS-GUM SWAMP



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Project: NCDOT NLEB Winter Monitoring County: Bertie Site# RR04 Night# 1 Site Name: Roanoke River Date: 2-22-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	bag+bat / bat only WT	Net #	Height	Band / WS	Comment / Photo #
1	1815	MYOAUS	F	A	NR	38.5	8.75	15.75/7.0	A	2m	NCWRC-A0689/0	
2	1817	MYOAUS	F	A	NR	37.0	8.75	15.0/6.25	B	2m	NCWRC A0690 /0	
3	1840	MYOAUS	F	A	NR	39.0	8.75	16.75/8.0	A	1m	A0691/0	
4	1845	MYOAUS	F	A	NR	39.5	8.75	15.5/6.75	B	1m	A0692/0	Guano
5	1845	EPTFUS	M	A	NR	43.0	8.75	22.25/13.5	C	4m	A0693/0	Guano
6	1927	MYOAUS	F	A	NR	37.5	8.75	15.5/6.75	B	4m	A0694 /0	Guano
7	1930	EPTFUS	F	A	NR	47.0	8.75	23.25/14.5	B	3m	A0695 /0	
8	2003	EPTFUS	M	A	NR	47.5	8.75	22/13.25	B	3m	A0696 /0	
9	2005	MYOAUS	F	A	NR	39.0	8.75	16/7.25	C	2m	A0697 /0	Guano
10	2052	MYOAUS	F	A	NR	38.0	8.75	15.25/6.5	A	2m	A0739 /0	Guano
11	2120	MYOAUS	M	A	S	37.6	8.75	15.25/6.5	B	1m	A0740/0	Guano
12	2145	MYOAUS	F	A	NR	40.0	8.75	16/7.25	B	3m	A0741/0	Guano
13	2220	LASBOR	M	A	NR	38.0	8.75	17/8.25	A	3.5m	NO BAND / 0	Pin hole R-wing Escaped before Banded
14	2300	EPTFUS	M	A	NR	43.5	8.75	20.5/11.75	B	2	NCDOT 1626 / 0	old break in 3 digit left wing
15	2315	MYOAUS	F	A	NR	37.0	8.75	15.25/6.5	A	1	NCDOT 1627/ 0	
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT NLEB Winter Monitoring	**County:**	Bertie	**Site#:**	RR04	**Night#:**	2	**Site Name:**	Roanoke River	**Date:**	23-FEB-2017
Latitude: 35.970193		Longitude: -77.141856						Datum: NAD 83	Elevation: 16 ft	ID By: T. Culbertson	
Observers: Matt Hinds								Start Time: 1755		End Time: 2300	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1800	67	0	0	21:00	51 °f	0	0	2300	50.0	0	0

Moon Effect: WAN-Cres	Start: – Stop: –	**Land Use:** Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 431 Mixed Forest near 621 Forested Wetland

NETS/TRAPS:	**A:** 1x2H-9m+1x2H-12m-T	**B:** 1x2H-6m	**C:** 2x2H-9m-T	**D:**	**E:**	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
334	35.970193	-77.141856	Ext High Freq.	12 ft	Low	65	NA	NA	1750	2303	ZB

Site Description, other than Habitat Info covered on pg 3:

See night #1, 22-FEB-2017

See night #1, 22-FEB 2017

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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: NCDOT NLEB Winter Monitoring County: Bertie Site# RR04 Night# 2 Site Name: Roanoke River Date: 23-feb-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT (g)	WT (g)	Net #	Height (m)	Band / WS	Comment / Photo #
1	18:30	Myo Aus	F	A	NR	38	7.75	14.0	B	4	NCWRC / A0737 / 0	tc Iphone Swab
2	18:30	Myo Aus	F	A	NR	37	7.75	14.25	B	3	NCWRC / A0738 / 0	tc Iphone Swab
3	18:30	Myo Aus	F	A	NR	39	7.75	14.25	B	2	NCDOT / 1757 / 0-1	guano Banded on right tc Iphone tear in wing Swab
4	19:20	LAS Bor	M	A	NR	39	7.75	17.75	A	3	NCDOT / 1758 / 0	
5	20:00	Cor Rof	F	A	NR	43	7.75	15.75	A	2	NA / 0	
6	20:06	Myo Aus	F	A	NR	38	7.75	14.00	C	3	NCDOT / 1759 / 0	tc Iphone
7	21:28	Myo Aus	F	A	NR	38	7.75	15.00	A	3	NA / 0	tc Iphone
8	21:33	Myo Aus	M	A	NR	37	7.75	14.00	B	2	NA / 0	tc Iphone
9	21:35	Myo Aus	F	A	NR	38	7.75	14.50	B	4	NA / 0	tc Iphone
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17												
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19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT Fall/winter NLEB	**County:**	Bertie	**Site#:**	05	**Night#:**	1	**Site Name:**	RR05	**Date:**	25-FEB-2017
Latitude: 35.96506		Longitude: -77.14962						Datum: NAD83	Elevation: 23 ft	ID By: T. Culbertson	
Observers: M. Hinds								Start Time: 1755		End Time:	

Conditions:	Time 1800	Temp 65.5°F	Wind 2	Clouds 25%	Time 2030	Temp 56.5	Wind 1	Clouds 0	Time 2319	Temp 48.5	Wind 1	Clouds 0

Moon Effect: WAN-CRES	Start: – Stop: –	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 41-deciduous near 61-forested

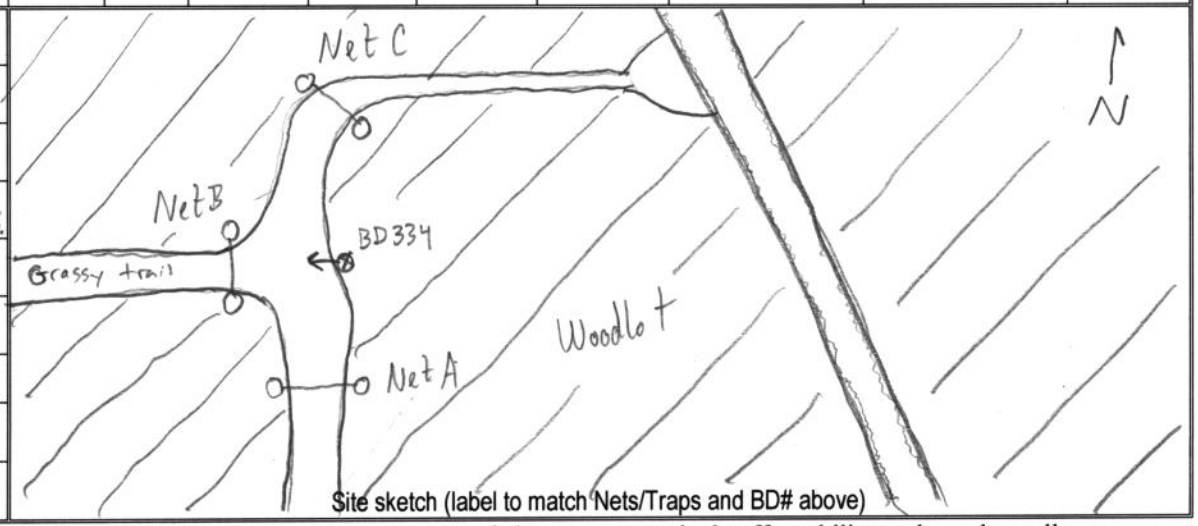
NETS/TRAPS:	**A:** 1x2H-6m	**B:** 1x2H-6m	**C:** 1x2H-6m	**D:**	**E:**	**F:**
Pool size WxL						
Swoop WxL						
Photo? or #	TC iPhone	TC iPhone	TC iPhone			

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
334	35.96506	-77.14962	Ext High Freq	4m	High	6.5	NA	NA	1755	2319	TC iPhone

Site Description, other than Habitat Info covered on pg 3:

Small trails through woodlot with evidence of flooding. Dominat vegetation Ulmus alata, Populus deltoides, Platus occidentalis.

Cypress - Gum Swamp (Brown water subtype)



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

Bat Survey Data Form

Page _____ of _____

Project: NCDOT Fall/Winter NLEB County: Bertie Site# 05 Night# 1 Site Name: RR05 Date: 25-FEB-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA (mm)	Bag WT	WT (g)	Net #	Height	Band / WS	Comment / Photo #
1	20:36	COR RAF	m	A	SCR	45	7.50	16.75	A	1.5	CC1657/OP	NA / NA
2	22:35	MYO SEP	M	A	NR	35	7.75	13.75	A	2.5	NCDOT 1629/O	tc Iphone / 172.125
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Mist Net Sites Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged

Mature forest / <20 years old forest or cutover

Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Mist Net Sites Clutter Estimate: record clutter as an **average number** representing the surrounding forest where all nets were set, looking at all strata. So, if you are in a *40-50 year unmanaged pine stand with a dense gallberry/bayberry understory*, average the strata together and then ask, is it greater than 75% cover or less than? So, let's say the canopy is 65%, mid is 35% and under is 90% (each strata represents its own canopy estimate up to 100%) the average for this scenario would then be 63%, which would put it in the med (3) category. If there is only one strata, a dense monoculture of young pines with 95% cover, then you would only have one estimate and that would fall in the high (4) category. If you are in a fairly mature long leaf pine/wiregrass savanna and the canopy is 55%, mid is 15% and under is 10%, the average would be 27% and you would be in the low (2) category. Think about cover estimates in this context: Physical/structural components of the environment that block and/or deflect sound waves. Don't think about cover in the typical vegetation monitoring sense of how much is shading the ground/veg beneath (vertically). Think of it instead as what would deflect sound waves as the bat moves through it horizontally. If the bat cannot move through it at all then that would be 90-100% like the gallberry understory example.

(1) sparse/no, < 10% cover
(2) low, 10–39% cover
(3) medium, 40–75% cover
(4) high, > 75% cover

Any Other Habitat Notes:

Appendix D
Completed Roost Tree Datasheets

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/F/172.664 Band # NCWRC A0732 Page 1 of 1

Roost Tree # 613 Project No./Project Name 537 / NCDOT NLEB Date First Found 17-Nov-2016

Location Pine plantation off Johsontown Rd. near Bladen Lakes SP

County Bladen Co. State North Carolina Quad

Lat-Long/UTM: N/E 34.72636 W/N -78.51562 Zone Datum: Observers: T. Fergin, A. Dart

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	613	Pinus palustris	26.3	14m		L	L	H	C	
2		Pinus palustris	23.3	14m		L	L	H	C	
3		P. palustris	23.8	14		L	L	H	C	
4		P. palustris	36.4	15		L	L	H	C	
5		P. palustris	31.3	15		L	L	H	C	
6		P. palustris	30.2	14		L	L	H	C	
7		P. palustris	31.6	14		L	L	H	C	
8		P. palustris	28.6	14		L	L	H	C	
9		P. palustris	27.5	14		L	L	H	C	
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
90	0	90

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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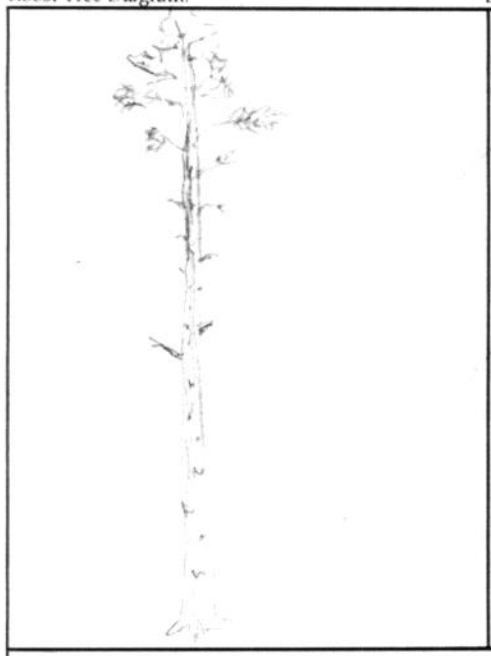
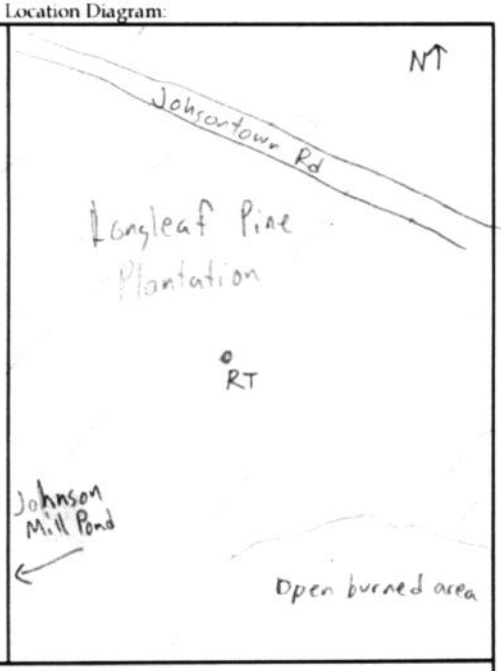
Roost Tree # 613 Bat Species/Sex/Frequency MYSE / F / 172.664 Band #

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	11/17/16	664		F	
2	11/18/16	664		F	In same roost tree
3	11/19/16	664		F	In same roost tree
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	11/17	59	clear	0	1508	-	-	-	-	T.F., A.D.
2	11/18	62	clear	0	1508	-	-	-	-	AD
3	11/19	70	windy, cloudy	1	1507	1613	1613	1613	1	AD
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:
Target bat never emerged from R.T. (17 Nov.) Transmitter was in same place the next day and night (11/18/2016)
One bat seen emerging from tree 5m away @ 1703 and at least 3 bats were seen flying around the roost tree after sunset

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Alexi Dark, Taylor Fagin **Date:** 11/17/2017

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

LAT 34.72630 **LONG** -78.51562

Property Owner: State (Bladen Lakes SF) **Phone#**_____

State NC **County** Bladen **Site #**_____

Roost # 613 **Roost Name:** RT 613

Roost Tree Data

Species: Pinus palustris **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 26.3 **Total Height (ft or m)** 14

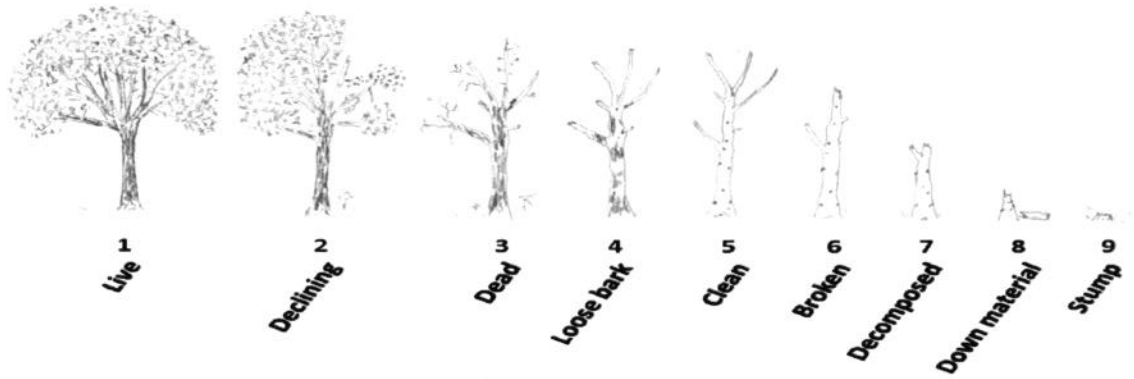
Height of roost area (if known) unk. **Dist. from capture site** 2.0 km

Roost position aspect (deg) unk

Exfoliating bark on bole (%)_____ **Describe: sloughing** __ **platy** ✓ **tight**__

Cavities present? unk **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 (%) 70%

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

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

Pine Plantation

Additional Comments MYSE/♀/Band # NCWRC A0732/Frq. 172.664

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 17-NOV-2016 **Surveyor(s) Full Name:** Taylor Fagin, Alexi Dart-Padover
State: NC **County:** Bladen **Project Name:** 537 NCDOT NLEB
Site Name/#: _____ **Roost Name/#** 613 **Bat #:** 172.664
Lat/Long or UTM of Roost: N 34.72630, W. -78.51562 Band # NCWRC A0733
Description of Roost/Habitat Feature Surveyed: Even-aged Longleaf Pine plantation

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

Other Suspected Bat Species (explain): _____

Weather Conditions during Survey (temperature, precipitation, wind speed):
59°F, no precipitation, no wind

Survey Start Time: 16:30 **Time of Sunset:** 17:08 **Survey End Time:** 18:09

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1703	—	One bat seen emerging from tree 5m away from roost tree. >3 bats seen flying around the area
1809	—	Target bat never emerged from roost tree

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** _____

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

* 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?

_____

_____

_____

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 18-NOV-2016 **Surveyor(s) Full Name:** Alexi Dart-Padover
State: NC **County:** Bladen **Project Name:** 537 NCDOT MLEB Fall/Winter
Site Name/#: _____ **Roost Name/#** 613 **Bat #:** _____
Lat/Long or UTM of Roost: N. 34.72630, W. -78.51562
Description of Roost/Habitat Feature Surveyed: Even-aged Longleaf Pine Plantation

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

Other Suspected Bat Species (explain): _____

Weather Conditions during Survey (temperature, precipitation, wind speed):
69°F

Survey Start Time: 1630 **Time of Sunset:** 1708 **Survey End Time:** 1808

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	0	Bat never emerged from RT. Other bats circled the area at sunset
		Still in tree @ 2300

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** _____

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?

_____

_____

_____

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 19-NOV-2016 **Surveyor(s) Full Name:** Alexi Dort-Padover
State: NC **County:** Bladen **Project Name:** 537 NCDOT NLEB Fall/winter
Site Name/#: ~~#~~ **Roost Name/#** 613 **Bat #:**
Lat/Long or UTM of Roost: N. 34.72630, W-78.51562
Description of Roost/Habitat Feature Surveyed: Even aged Longleaf Pine Plantation

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

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed):
70°F, no precipitation, wind = 12 mph gusts

Survey Start Time: 1635 **Time of Sunset:** 1707 **Survey End Time:** 1820

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1713	1	Too dark to visually see exiting bat
		Several bats flying in area around 1510

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** 613

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?

Tagged bat emerged over an hour after sunset and headed west, quickly leaving vicinity

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/F/172.905 Band # NC-WRC A0726 Page 1 of 1

Roost Tree # RT66(A) Project No./Project Name 537 / NCDOT Date First Found 12/2/2016

Location 1/4-mile South of BL04/capture site

County Bladen State NC Quad

Lat-Long/UTM: (N) E 34.70787 (W) N -78.52093 Zone Datum: WGS84 Observers: T. Fagin, I. Burns

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	66	Acer rubrum	12.9	6	4	L-D	L	H	SC	
2		A. rubrum	14.9	6	—	L-D	L	H	SC	
3		Persea borbonia	44.4	16	—	L	L	H	C	
4		A. rubrum	27.4	16	—	L	L	H	C	
5		A. rubrum	28.7	15	—	L	L	H	C	
6		A. rubrum	36.5	16	—	L	L	H	C	
7		A. rubrum	30.3	14	—	L	L	H	C	
8		A. rubrum	13.0	8	—	S	M	H	SC	
9		A. rubrum	35.9	17	—	L	L	H	C	
10		A. rubrum	44.9	16	—	L	L	H	C	
11		A. rubrum	38.8	17	—	L	L	H	C	
12		A. rubrum	49.7	16	—	L	L	H	C	
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
190	10	120

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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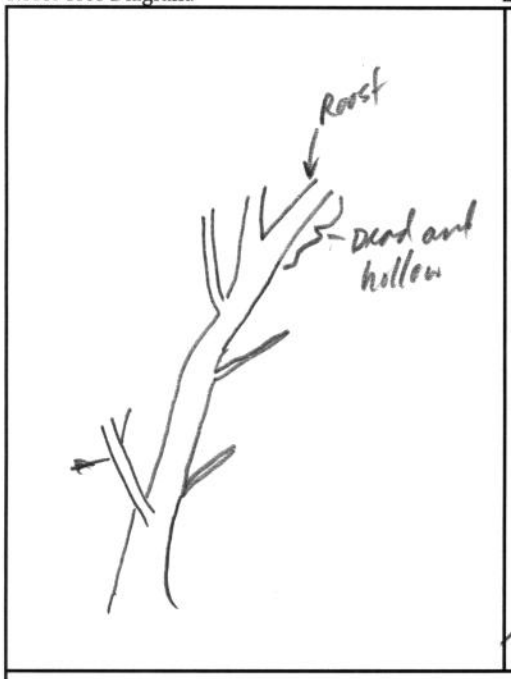
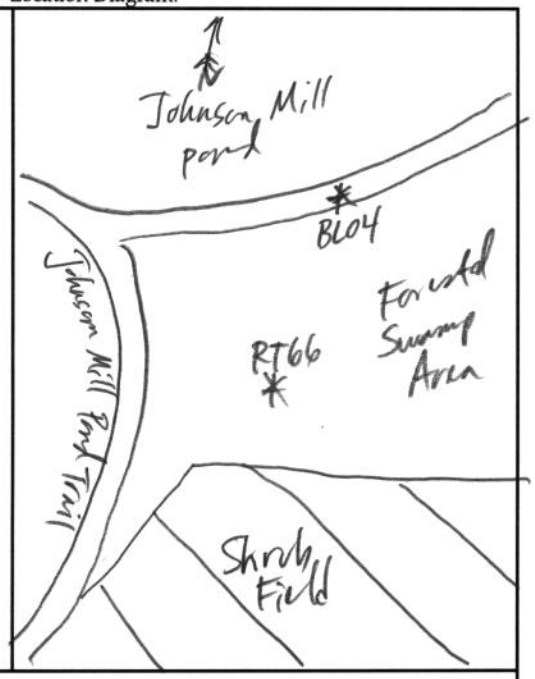
Roost Tree # 66(A) Bat Species/Sex/Frequency: MYSE/F/172.905 Band # NCWRC A0726

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	12/2	.905	NCWRC A0726	F	
2	12/3	.905	" "	F	
3	12/4	.905	" "	F	
4	12/5	.905	" "	F	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	12/2	48	Clear	0	1703	—	—	—	—	Did not emerge
2	12/3	48	cloudy	0	1705	—	—	—	—	Did not emerge
3	12/4	45	Clouds light rain	0	1705	—	—	—	—	Did not emerge
4	12/5				1705					

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Taylor Fagin Ian Burns **Date:**

UTM: Zone **Easting** **Northing** ***OR***

LAT 34.70787 **LONG** -78.52093

Property Owner: State (Bladen Lake State Forest) **Phone#**

State NC **County** Bladen **Site #**

Roost # 5 **Roost Name:** RT 66(A)

Roost Tree Data

Species: Acer rubrum **Live** __ **Snag** __ **Other** ✓

(if other, explain) Live - damaged

DBH (in or cm) 12.9 **Total Height (ft or m)** 6

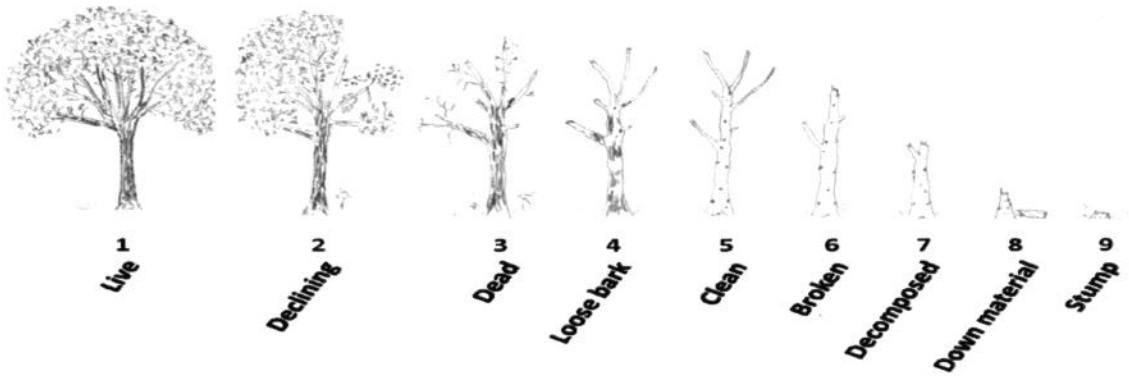
Height of roost area (if known) 4m **Dist. from capture site** 250m

Roost position aspect (deg) unk

Exfoliating bark on bole (%) **Describe: sloughing** __ **platy**__ **tight**__

Cavities present? yes **If so, describe:** dead and hollow section at terminus of upper branch / trunk

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 (%) 70%

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

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

Pond Pine woodland

Additional Comments MYSE/♀/Band# NCWRC A0726/Frg. 172.905

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 12-2-16 **Surveyor(s) Full Name:** Taylor Fagin, Ian Burns
State: NC **County:** Bladen **Project Name:** NC DOT
Site Name/#: BI 04 **Roost Name/#** BT66 (A) **Bat #:** NC-WBC A0726
Lat/Long or UTM of Roost: 34.70787 -78.52093
Description of Roost/Habitat Feature Surveyed: Dead and hollow branch, Live - Damaged A. rubrum
Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYSEP
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed):
45°F, clear.
Survey Start Time: 16:20 **Time of Sunset:** 17:03 **Survey End Time:** 17:45 (Dark)

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	—	Did not emerge

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: BL04 **Roost Name/#:** RT 66 (A)

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

* 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?

No bats observed in area

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 12-3-16 **Surveyor(s) Full Name:** Taylor Fagan
State: NC **County:** Bladen **Project Name:** NC DOT
Site Name/#: BL04 **Roost Name/#** BT46 (A) **Bat #:** NC - WRC A0726
Lat/Long or UTM of Roost: 34.70787 -78.52093
Description of Roost/Habitat Feature Surveyed: Dead and hollow branch
Live- damaged A. rubrum
Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYOSEP
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed):
48°F, clear
Survey Start Time: 16:20 **Time of Sunset:** 17:03 **Survey End Time:** 17:45 (Dark)

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
–	–	Did not emerge

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: BL04 **Roost Name/#:** RT 66 (A)

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

* 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?

No bats seen flying in area

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 12-4-16 **Surveyor(s) Full Name:** Taylor Fagin, Kaleigh D.
State: NC **County:** Bladen **Project Name:** NC DOT
Site Name/#: BL04 **Roost Name/#** BT66(A) **Bat #:** NC-WRC A07216
Lat/Long or UTM of Roost: 34.70787 -78.52093
Description of Roost/Habitat Feature Surveyed: Dead and hollow branch
Live - damaged A. rubrum
Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYOSEP
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed):
45°F, cloudy with light rain
Survey Start Time: 16:30 **Time of Sunset:** 17:05 **Survey End Time:** 18:00

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	—	Did not emerged

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: BL04 **Roost Name/#:** BT66 (A)

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

* 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?

BT66 is 0.25 miles into a swamp with dense underbrush. with impending rain, we sat in the truck and listened to the direction. Bat's signal pitch and direction never changed.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 12-5-16 **Surveyor(s) Full Name:** Taylor Fagan
State: NC **County:** Bladen **Project Name:** NC DOT
Site Name/#: BL04 **Roost Name/#** RT 66 (A) **Bat #:** NC-WRL-A0721
Lat/Long or UTM of Roost: 34.70737 -78.52093
Description of Roost/Habitat Feature Surveyed: Dead and hollow branch
Live - damaged A. rubrum
Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYOSEP
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed):
56°F / partly cloudy
Survey Start Time: 16:20 **Time of Sunset:** 17:04 **Survey End Time:** 17:50

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	—	Did not emerge

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: BL04 **Roost Name/#:** RT160

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

* 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?

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE / F / 172.907(5) Band # NCWRC A0726 Page 1 of 1

Roost Tree # 67 Project No./Project Name 537 / NCDOT Fall/Winter MYSE Date First Found 10 Dec 2016

Location Dirt road off of Susie Sandhill Rd.

County Bladen State NC Quad

Lat-Long/UTM: (N)/E 34.70890 (W)/N 78.520480 Zone Datum: Observers: Robert Simon, Ash Cable

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	67	Acer rubrum	14.9	18	10	L	L	H	C	
2		Magnolia virginiana	13.1	18	—	L-D	L	H	C	
3		Nyssa sp.	32.2	19	—	L	L	H	C	
4		M. virginiana	13.9	15	—	L	L	H	SC	
5		Acer rubrum	13.7	19	—	L	L	H	C	
6		M. virginiana	36.8	20	—	L	L	H	C	
7		Nyssa sp	30.2	21	—	L	L	H	C	
8		Nyssa sp.	21.2	20	—	L	L	H	C	
9		Nyssa sp.	29.7	19	—	L	L	H	C	
10		M. virginiana	29.0	18	—	L	L	H	C	
11		Nyssa sp.	44.9	20	—	L	L	H	C	
12		Nyssa sp.	49.3	19	—	L	L	H	C	
13		A. rubrum	29.6	19	—	L	L	H	C	
14		M. virginiana	29.3	19	—	L	L	H	C	
15		M virginiana	35.2	20	—	L	L	H	C	
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
(Interior)	Edge	Open

Canopy Cover at Roost		
Open	(Intermediate)	Closed

Basal Area		
Live Trees	Snags	All Trees
150	0	150

Roost Location		
Bark	(Cavity)	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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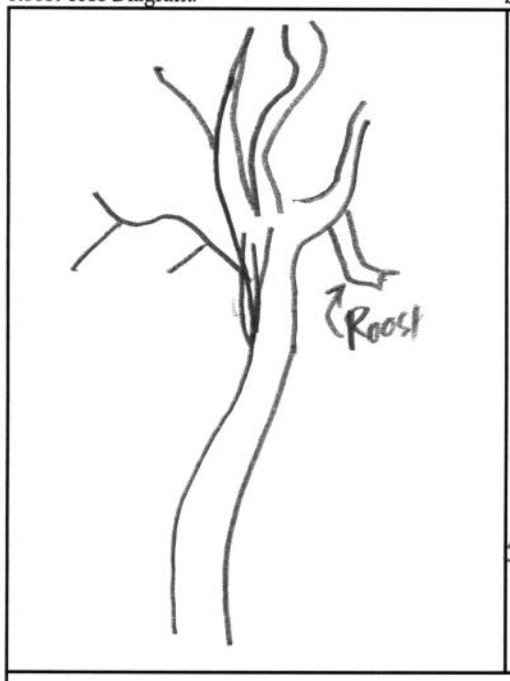
Roost Tree # 67

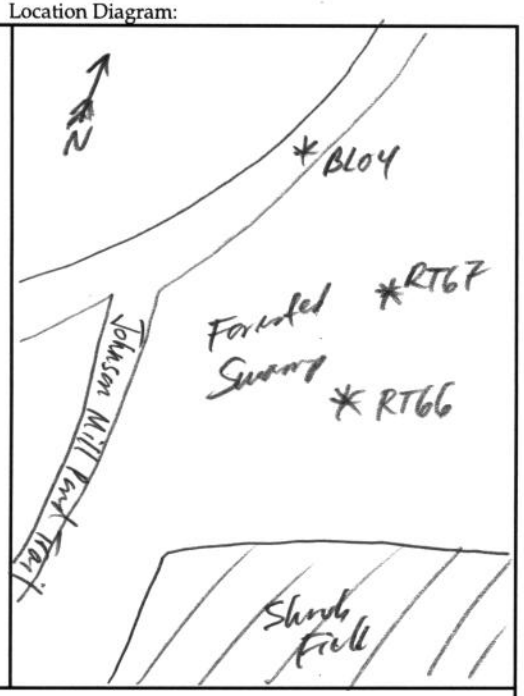
Bat Species/Sex/Frequency: MYSE/F/172.905

Band # NCDOT A0726

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	12/10	.905	A0726	F	
2	12/11	" "	" "	F	
3	12/13	" "	" "	F	
4	12/14	" "	" "	F	
5	12/16	" "	" "	F	
6	12/17	" "	" "	F	
7	12/18	" "	" "	F	
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	12/11	46	Partly Cloudy	0	1703	—	—	—	—	RS/AC
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Rob Stinson, Ash Cable **Date:** 10 Dec 2016

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 34.70890 **LONG** -78.520480

Property Owner: State (Bladen Lakes SF) **Phone#** _____

State NC **County** Bladen **Site #** _____

Roost # 2 **Roost Name:** RT67

Roost Tree Data

Species: Acer rubrum **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 14.9 **Total Height (ft or m)** 18

Height of roost area (if known) 10 m **Dist. from capture site** 250 m

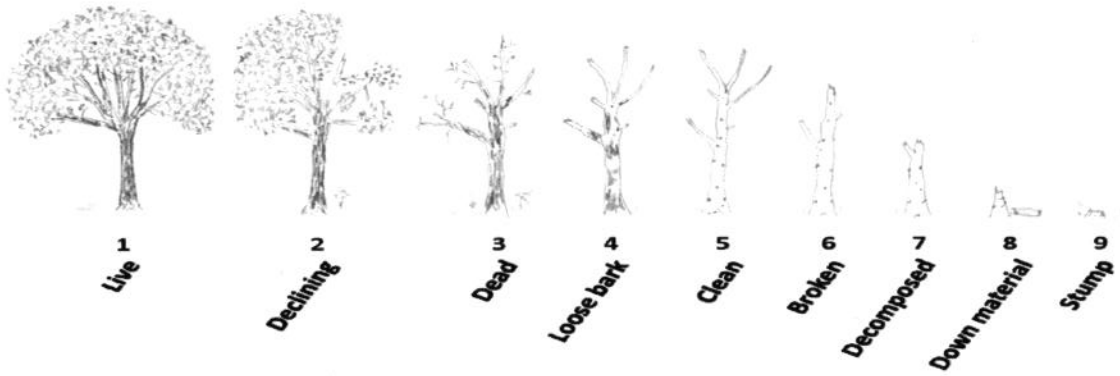
Roost position aspect (deg) Unk

Exfoliating bark on bole (%) _____ **Describe: sloughing** __ **platy** __ **tight** __

Cavities present? Unk **If so, describe:** possible cavity in dead branch

---

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)_____ **Distance to non-forest (ft or m)**_____

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

Pond Pine Woodland

Additional Comments MYSE/♀/Band # NCWRC A0726/Freq. 172.907(5)

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 12/11/2016 **Surveyor(s) Full Name:** Rob Stinson, Ash Cable
State: NC **County:** Bladen **Project Name:** NCDOT
Site Name/#: Bladenlake SF **Roost Name/#** R767 **Bat #:** 172.907(5)
Lat/Long or UTM of Roost: N34.70890, W78.520480 Bond # NCWRC A0726

Description of Roost/Habitat Feature Surveyed:
Live Acer rubrum w/ dead branch as possible roost

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

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed):
46°, H. cloudy, wind 0,

Survey Start Time: 1630 **Time of Sunset:** 1703 **Survey End Time:** 1750

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT67

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	No bats emerged

* 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?

_____

_____

_____

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/F/172.907(5) Band # A0726 Page 1 of 1

Roost Tree # 614 Project No./Project Name 537 / NCDOT MYSE Date First Found 12/18/2016

Location Dirt road off of Susie Sandhill Rd, East of RT67

County Bladen State NC Quad

Lat-Long/UTM: N/E 34.708830 (W)/N 78.520330 Zone Datum: Observers: T. Fagin, M. Hinds

#	Tree Tag #	Species	DBH (cm)	Height ft or m (m) Tree	Height ft or m (m) Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	614	Persea borbonia	28.6	20	12	L	L	H	S-C	
2		Nyssa sp.	32.8	25		L	L	H	C	
3		Nyssa sp.	43.8	26		L	L	H	C	
4		Nyssa sp.	43.1	25		L	L	H	C	
5		P. borbonia	38.6	23		L	L	H	C	
6		Nyssa sp.	24.2	22		L	L	H	C	
7	615	Nyssa sp.	29.5	25		L	L	H	C	
8		Nyssa sp.	21.8	20		L	L	H	C	
9		P. borbonia	33.8	25		L	L	H	C	
10		Nyssa sp.	46.6	26		L	L	H	C	
11		Nyssa sp.	40.6	26		L	L	H	C	
12		P. borbonia	24.5	20		L	L	H	S-C	
13		P. borbonia	47.8	26		L	L	H	C	
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
(Interior)	Edge	Open

Canopy Cover at Roost		
Open	(Intermediate)	Closed

Basal Area		
Live Trees	Snags	All Trees
130	0	130

Roost Location		
(Bark)	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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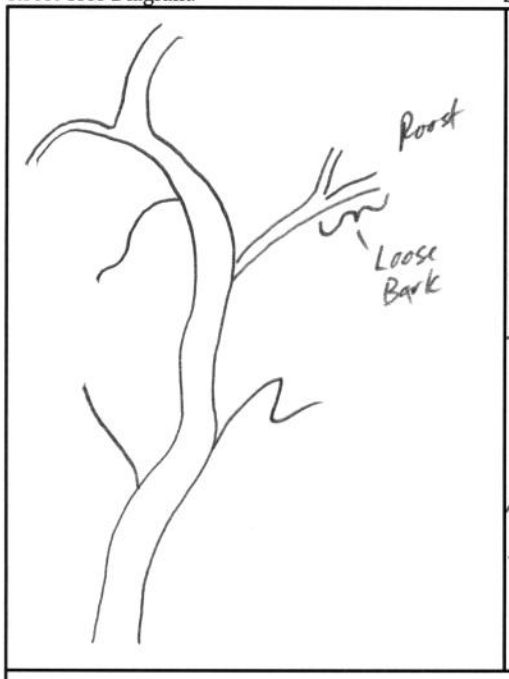
Roost Tree # 614

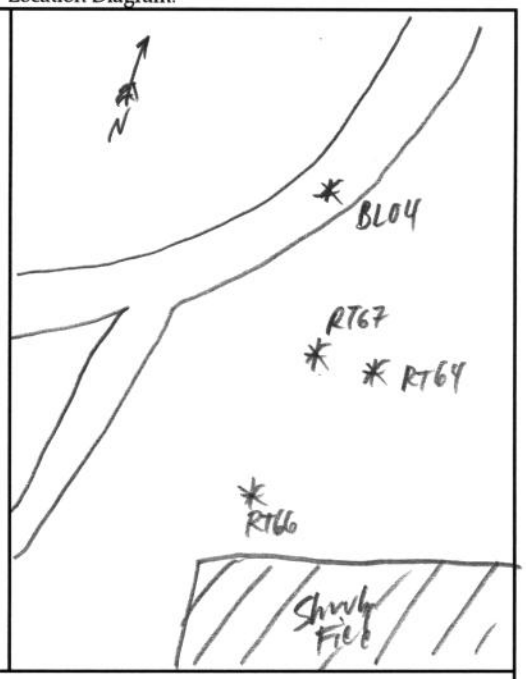
Bat Species/Sex/Frequency: MYSE/F/172.905(S)

Band # NCWRC A0726

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	12/18	172.905			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	12/18	70	Clear	1		1730	1730	1730	1	
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:
Storm hit @ 1755

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Taylor Fagin, Matt Hinds **Date:** 12/18/2016

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 34.708830 **LONG** -78.520330

Property Owner: State (Bladen Lakes State Forest) **Phone#** _____

State NC **County** Bladen **Site #** _____

Roost # 3 **Roost Name:** RT614

Roost Tree Data

Species: Persea borbonia **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 28.6 **Total Height (ft or m)** 20

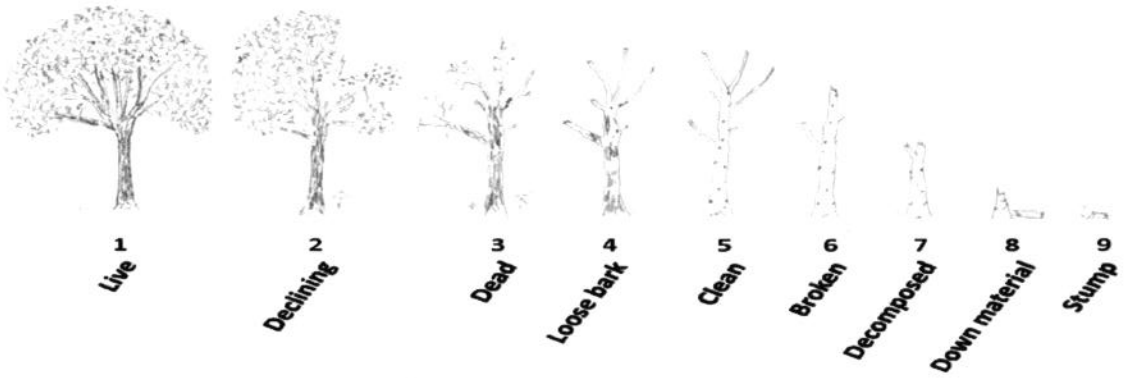
Height of roost area (if known) 12 **Dist. from capture site** 205 m

Roost position aspect (deg) unk

Exfoliating bark on bole (%) <10 **Describe: sloughing** ✓ **platy** __ **tight** __

Cavities present? unk **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 (%) 80

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

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

Pond Pine Woodland

Additional Comments M-YSE / Q / Band # NCWRC A0726 / Freq. 172.907(s)

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 12/18/2016 **Surveyor(s) Full Name:** Taylor Fagin, Matt Hinds
State: NC **County:** Bladen **Project Name:** 537 NCDOT Fall/Winter MYSE Survey
Site Name/#: _____ **Roost Name/#** _____ **Bat #:** _____
Lat/Long or UTM of Roost: N34.708830, W78.520330
Description of Roost/Habitat Feature Surveyed: Tree w/ dead branch
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): _____
Weather Conditions during Survey (temperature, precipitation, wind speed): 70°, no rain, no wind, impending storm
Survey Start Time: 1630 **Time of Sunset:** 1707 **Survey End Time:** 1745

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1730	1	Transmittered bat exited

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT 614

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	1	Single bat (172.907) emerged

* 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?

_____

_____

_____

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/F/172.907(5) Band # NCWRC A0726 Page 1 of 1

Roost Tree # 68 Project No./Project Name 537 / NCDOT Fall/Winter MYSE Date First Found 12/19/2016

Location Dirt road off of Susie Sandhill, 15 miles south of RT66

County Bladen State NC Quad

Lat-Long/UTM: (N)/E 34.70774 (W)/N 78.520940 Zone Datum: NAD-83 Observers: T. Fagin, M. Hinds

#	Tree Tag #	Species	DBH (cm)	Height (ft or m) Tree	Height (ft or m) Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1		Nyssa sp.	42.5	80	15	L	L	H	C	
2		Nyssa sp.	26.6	70		L	L	H	C	
3		Persea borbonia	32.8	80		L	L	H	C	
4		P. borbonia	26.2	70		L	L	H	C	
5		Acer rubrum	28.5	75		L-D	L	H	C	
6		Nyssa sp	37.9	80		L	L	H	C	
7		Persea borbonia	46.8	85		L	L	H	C	
8		Nyssa sp.	43.9	85		L	L	H	C	
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
80	0	80

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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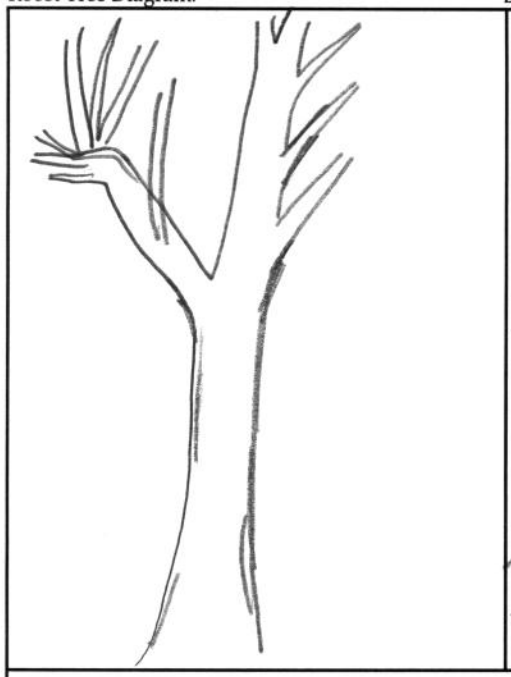
Roost Tree # 68

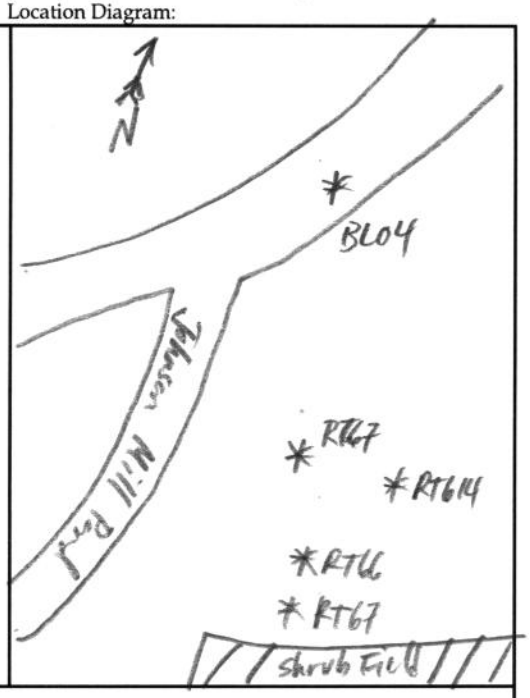
Bat Species/Sex/Frequency: MYSE/F/172.907(5)

Band # NCWRC A0726

Roost Tree Diagram:



Location Diagram:



Bat Days					
No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	12/19	.905	A0726	F	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	12/19		Mist to rain	0	1708	—	—	—	—	
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Taylor Fagin, Matt Hinds **Date:** 12/19/2016

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 34.70774 **LONG** -78.52094

Property Owner: State **Phone#** _____

State NC **County** Bladen **Site #** _____

Roost # 2 **Roost Name:** RT68

Roost Tree Data

Species: Nyssa sp. **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 42.5 **Total Height (ft or m)** 25

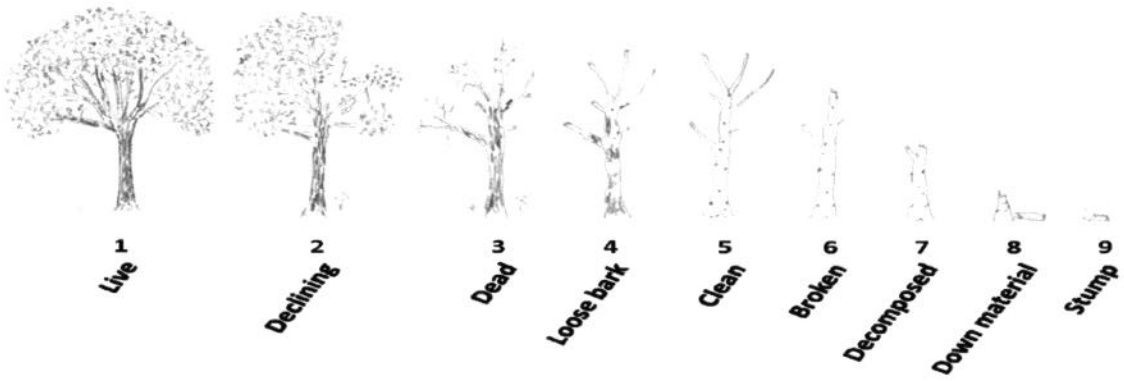
Height of roost area (if known) 15 **Dist. from capture site** 302 m

Roost position aspect (deg) unk

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy** __ **tight** ✓

Cavities present? unk **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 (%) 60

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

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

Pond Pine Woodland

Additional Comments MYSE/♀/Band #NCWRC A0726/Freq-172.907(5)

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 12/19/2016 **Surveyor(s) Full Name:** Taylor Fagin, Matt Hinds
State: NC **County:** Bladen **Project Name:** #537 NCDOT Fall/Winter MYSE Surveys
Site Name/#: _____ **Roost Name/#** PT68 **Bat #:** 172.905
Lat/Long or UTM of Roost: N34.70774, W78.520940 Band-NEWRC A0726

Description of Roost/Habitat Feature Surveyed:
Unknown. Many cavities in tree

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

Other Suspected Bat Species (explain): _____

Weather Conditions during Survey (temperature, precipitation, wind speed):
41 degrees, misty turned to light rain

Survey Start Time: 1630 **Time of Sunset:** 1708 **Survey End Time:** 1745

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
	0	

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT68

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	No bats emerged

* 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?

_____

_____

_____

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE / F / 172.907(S) Band # NCWRC A0726 Page 1 of 1

Roost Tree # 615 Project No./Project Name 537 / NCDOT Date First Found 12/20/2016

Location Dirt Rd off of Susie Sandhill Rd, between RT67 and RT614

County Bladen State NC Quad

Lat-Long/UTM: (N)/E 34.70886 (W)/N 78.520310 Zone Datum: Observers: T. Fagin, M. Hinds

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	615	Nyssa sp.	29.5	25	10	L	L	H	C	
2		Acer rubrum	15.1	20		L	L	H	SC	
3		Persea borbonia	34.5	23		L	L	H	C	
4		A. rubrum	29.7	22		L	L	H	C	
5		Nyssa sp.	41.8	25		L	L	H	C	
6		Nyssa sp.	36.5	22		L	L	H	C	
7		Nyssa sp.	20.8	21		L	L	H	SC	
8		P. borbonia	24.9	20		L	L	H	SC	
9		P. borbonia	49.4	25		L	L	H	C	
10		Nyssa sp.	33.4	21		L	L	H	C	
11		Nyssa sp.	45.2	24		L	L	H	C	
12	614	P. borbonia	28.9	23		L	L	H	SC	
13		Nyssa sp.	24.2	22		L	L	H	SC	
14		Magnolia virginiana	16.8	10		L	L	H	SC	
15		P. borbonia	39.5	25		L	L	H	C	
16		Nyssa sp.	16.2	8		L-D	L	H	U	
17		P. borbonia	36.5	25		L	L	H	C	
18		Nyssa sp.	33.4	23		L	L	H	C	
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
180	0	180

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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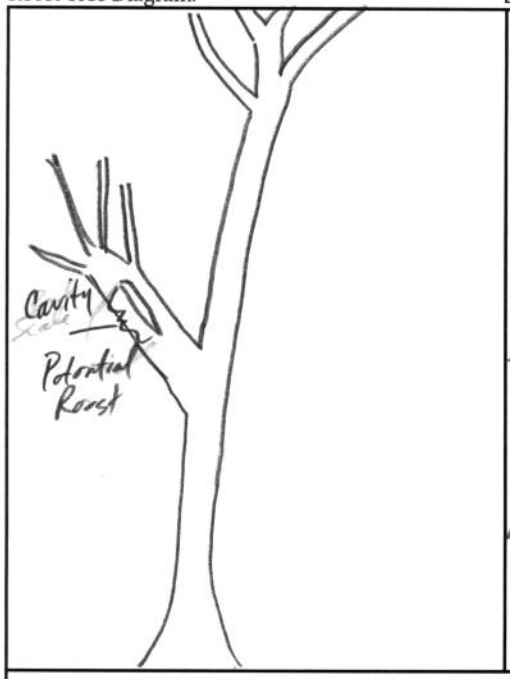
Roost Tree # 615

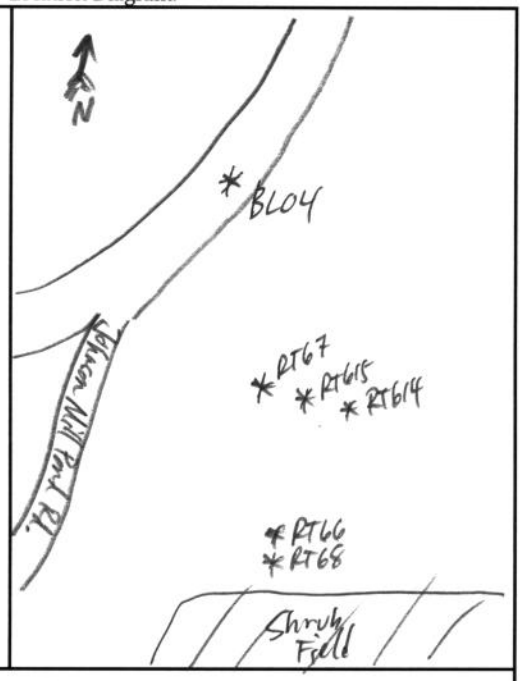
Bat Species/Sex/Frequency: MYSE/F/172.607(5)

Band # NCWRC A0726

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	12/20	.605	A0726	F	
2	12/21	.605	" "	F	
3	12/22	.605	" "	F	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	12/20	41	Overcast	0	1706	—	—	—	—	
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	Cavity		.25	.5	10	
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Taylor Fagin, Matt Hinds **Date:** 12/20/2016

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 34.70886 **LONG** -78.520310

Property Owner: State (Bladen Lakes SF) **Phone#** —

State NC **County** Bladen **Site #** _____

Roost # 5 **Roost Name:** RT615

Roost Tree Data

Species: Nyssa sp. **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 29.5 **Total Height (ft or m)** 25

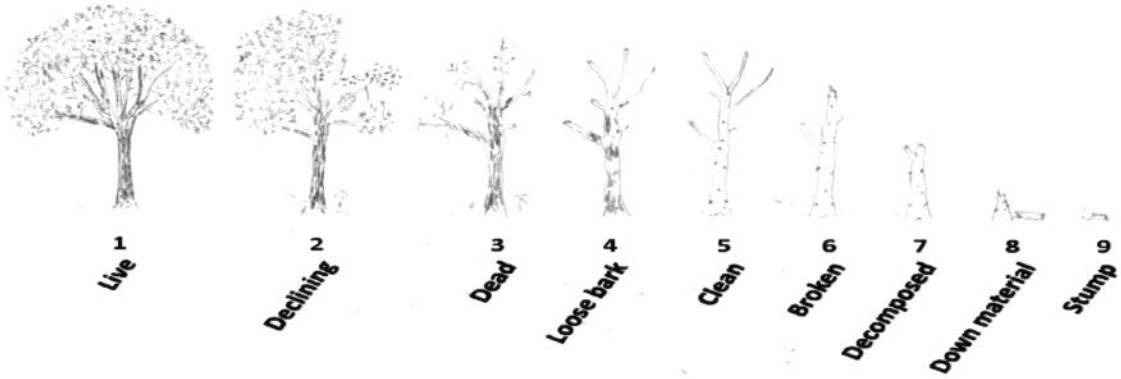
Height of roost area (if known) 10 m **Dist. from capture site** 205 m

Roost position aspect (deg) unk

Exfoliating bark on bole (%) <10% **Describe: sloughing** ✓ **platy** __ **tight** __

Cavities present? Yes **If so, describe:** Possible cavity in tree

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 (%) 80

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

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

Pond Pine Woodland

Additional Comments MYSE / ♀ / Band # NCWRC A0726 / Freq. 172-907(5)

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 12/20/2016 **Surveyor(s) Full Name:** Taylor Fagin, Matt Hinds
State: NC **County:** Blader **Project Name:** 537 NCDOT Fall/winter
Site Name/#: _____ **Roost Name/#** RT615 **Bat #:** 172.907
Lat/Long or UTM of Roost: N34.70886, W78.520310 Band # NCWRC A0726
Description of Roost/Habitat Feature Surveyed:
Small cavity in live Nyssa sp.
Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYSE
Other Suspected Bat Species (explain): _____
Weather Conditions during Survey (temperature, precipitation, wind speed):
_____
Survey Start Time: 1630 **Time of Sunset:** 1706 **Survey End Time:** 1747

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** 615

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	No bats emerged

* 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?

_____

_____

_____

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE / M / .423 Band # A0729 Page 1 of 1

Roost Tree # 616 Project No./Project Name 537 / Winter NLEB Monitoring NCDOT Date First Found 1-14-2017

Location Buckridge Coastal Reserve, North of Grapevine Landing

County Tyrrell State NC Quad Fairfield NE

Lat-Long/UTM: (N)/E 35.73590° (W)/N -76.07717 Zone — Datum: NAD83 Observers: H. Braunreiter, A. Dart-Padover

#	Tree Tag #	Species	DBH (cm)	Height ft or (m) Tree	Height ft or (m) Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	616	Magnolia virginiana	24.5	23	~18	L	0	100	C	**
2	—	Nyssa biflora	23.0	20	—	L	0	100	S	
3	—	Acer rubrum	35.8	25	—	L	0	100	C	
4	—	N. biflora	43.3	24	—	L	0	100	C	
5	—	N. biflora	16.3	22	—	L	0	100	S	
6	—	N. biflora	20.0	23	—	LD	2	98	S	
7	—	N. biflora	22.5	24	—	L	0	100	S	
8	—	Pinus taeda	64.4	26	—	L	0	100	C	
9	—	M. virginiana	19.0	10	—	LD	0	100	S	Large crevice
10	—	Taxodium distichum	43.2	9	—	S	80	40	NA*	Top Broken off
11	—	T. distichum	46.2	22	—	LD	0	100	S	top broken off
12	—	N. biflora	24.3	24	—	L	0	100	C	
13	—	N. biflora	24.8	24	—	L	0	100	C	
14	—	N. biflora	27.1	25	—	L	0	100	C	
15	—	M. virginiana	7.5	10	—	L	0	100	S	
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
140	10	150

Roost Location Unknown		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

** Leaf cluster, lichen covering limbs, small cavities
* would have been canopy

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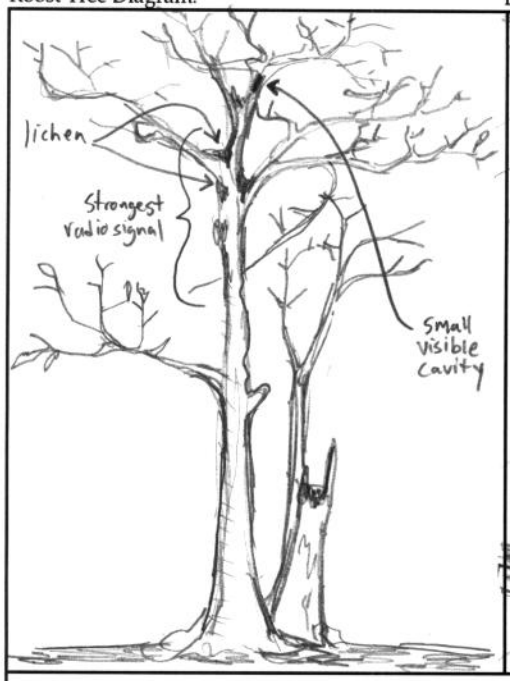
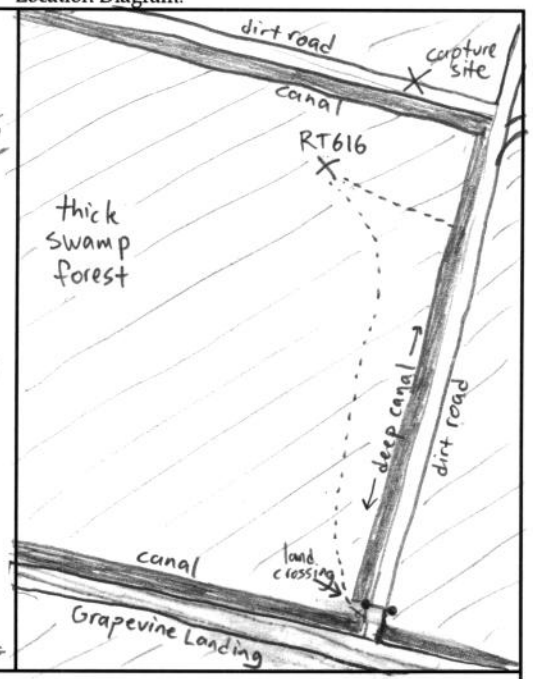
Roost Tree # 616 Bat Species/Sex/Frequency: MYSE/M/172.423 Band # A0729

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	1/14	172.423	A0729	M	
2	1/15				
3	1/16				
4	1/17				
5	1/18				
6	1/19	"	"		
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	1/14/17	47	overcast	0	1713	—	—	—	—	HMB/ADP
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:

Roost tree is near a very large Pinus taeda. Access is very difficult - flotation needed to cross roadside canal and chest waders are needed to walk in the forest

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Alexi Dart-Padover, Heidi Braunreiter **Date:** 1/14/17

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 35.73590° **LONG** -76.07717

Property Owner: Buckridge Coastal Reserve **Phone#** _____

State NC **County** Tyrrell **Site #** _____

Roost # 1 **Roost Name:** RT616

Roost Tree Data

Species: Magnolia virginiana **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 24.5 **Total Height (ft or m)** ~23m

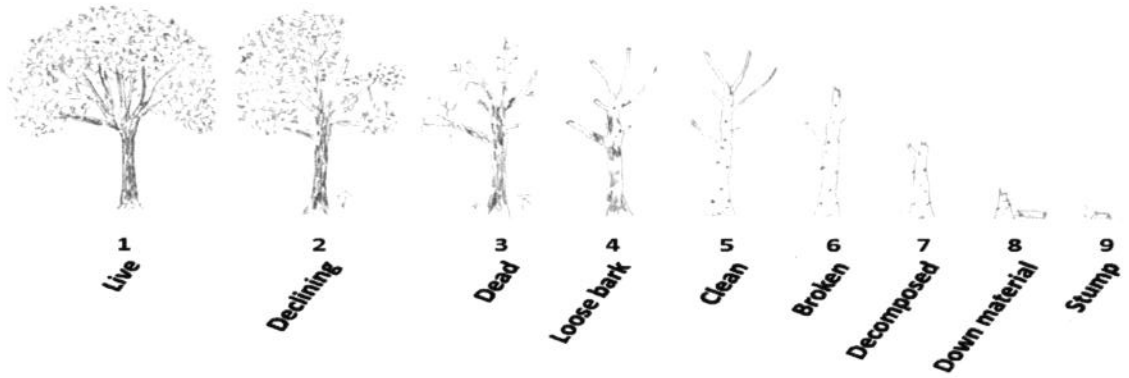
Height of roost area (if known) N/A **Dist. from capture site** 448 m

Roost position aspect (deg) N/A

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy** __ **tight** X

Cavities present? Yes **If so, describe:** At position of broken-off branch w/ 2" diameter, Also lichen covering branches & leaf clusters present. Root position unknown but probably about 18m 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 (%) 70

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

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

Nonriverine Swamp Forest

Additional Comments MYSE/♂/Band # NCWRC A0729/Freq. 172.423

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 1/14/2017 **Surveyor(s) Full Name:** Alexi Dart-Padover, Heidi Braunreiter

State: NC **County:** Tyrrell **Project Name:** NLEB winter Monitoring

Site Name/#: Buckridge **Roost Name/#** RT 616 **Bat #:** 423

Lat/Long or UTM of Roost: 35.73590°, -76.07717

Description of Roost/Habitat Feature Surveyed: Nonriverine swamp forest- mixed subtype. Tall Magnolia virginiana near very large Pinus taeda

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

Other Suspected Bat Species (explain): N/A

Weather Conditions during Survey (temperature, precipitation, wind speed): 47°, overcast, no wind

Survey Start Time: 1700 **Time of Sunset:** 1712 **Survey End Time:** 1800

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	0	Bat did not emerge

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: RT01 **Roost Name/#:** 616

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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?

Tagged bat did not emerge. Survey stopped when it became too dark to see, but the bat was still there the next day.

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/M/172.423 Band # A0729 Page 1 of 1

Roost Tree # 617 Project No./Project Name 537 / NCDOT Winter NLEB Monitoring Date First Found 1-20-2017

Location Buckridge Coastal Reserve, north of Grapevine Landing

County Tyrrell State NC Quad Fairfield NE

Lat-Long/UTM: N/E 35.73561 W/N -76.07739 Zone — Datum: NAD83 Observers: Alexi Dart-Padover, Heidi Braunreiter

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	617	Nyssa biflora	35.0	26	15	L	100	0	C	cavities, lichen
2	—	Magnolia virginiana	11.0	15	—	L	100	0	S	
3	—	Persea palustris	6.2	7	—	L	100	0	U	
4	—	N. biflora	13.3	15	—	LD	100	0	S	
5	—	Chamaecyparis thyoides	12.9	11	—	S	90	1	U	
6	—	Pinus taeda	14.9	9	—	S	60	1	U	lots of cavities
7	—	N. biflora	37.0	27	—	L	100	0	C	
8	—	Taxodium distichum	39.4	26	—	L	100	0	C	
9	—	N. biflora	28.1	25	—	L	100	0	C	
10	—	N. biflora	31.0	23	—	L	100	0	S	
11	—	T. distichum	34.6	25	—	L	100	0	C	
12	—	M. virginiana	14.5	20	—	L	100	0	S	
13	—	N. biflora	28.2	27	—	L	100	0	C	
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
110	20	130

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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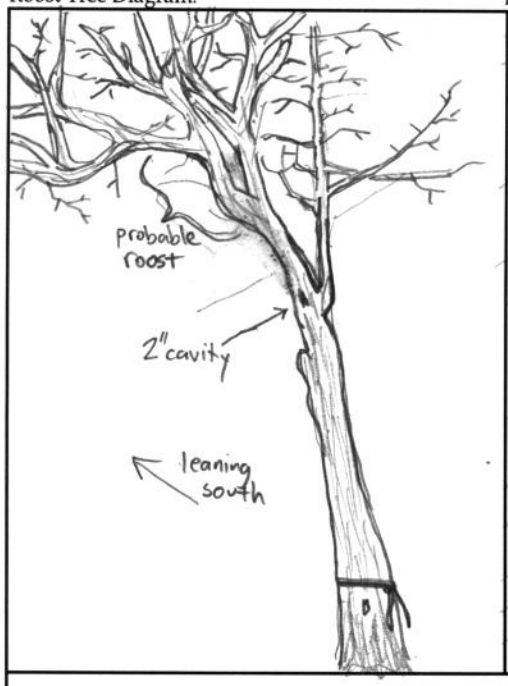
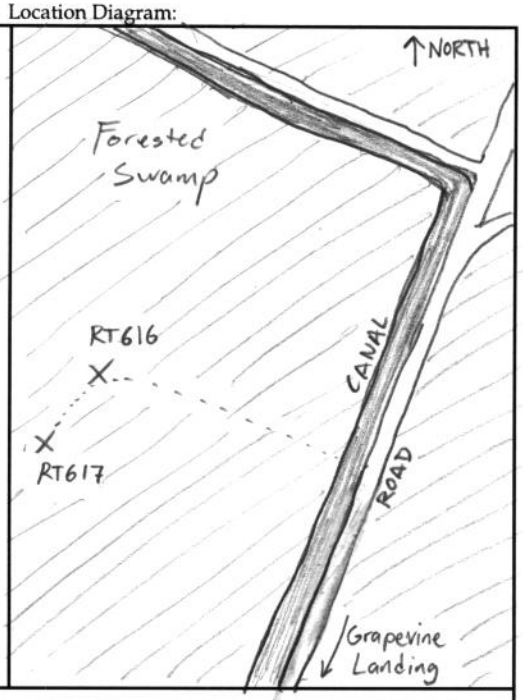
Roost Tree # 617 Bat Species/Sex/Frequency: MYSE / M / 172.423 Band # A0729

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	1/20	.423	A0729	M	Did not emerge
2	1/21	.423	A0729	M	
3	1/22	.423	A0729	M	
4	1/23	.423	A0729	M	Transmitter found on ground by RT617
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	1/20	Unkn	OVERCAST	0	1719	—	—	—	—	ADP+HMB
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	Broken Branch	30°	1.5"	2"		
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Alexi Dart-Padover, Heidi Braunreiter **Date:** 1-20-2017

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 35.73561 **LONG** -76.07739

Property Owner: Buckridge Coastal Reserve **Phone#** _____

State North Carolina **County** Tyrrell **Site #** 2

Roost # 2 **Roost Name:** RT 617

Roost Tree Data

Species: Nyssa biflora **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 35.0 cm **Total Height (ft or m)** 26 m

Height of roost area (if known) ~18 m **Dist. from capture site** 480 m

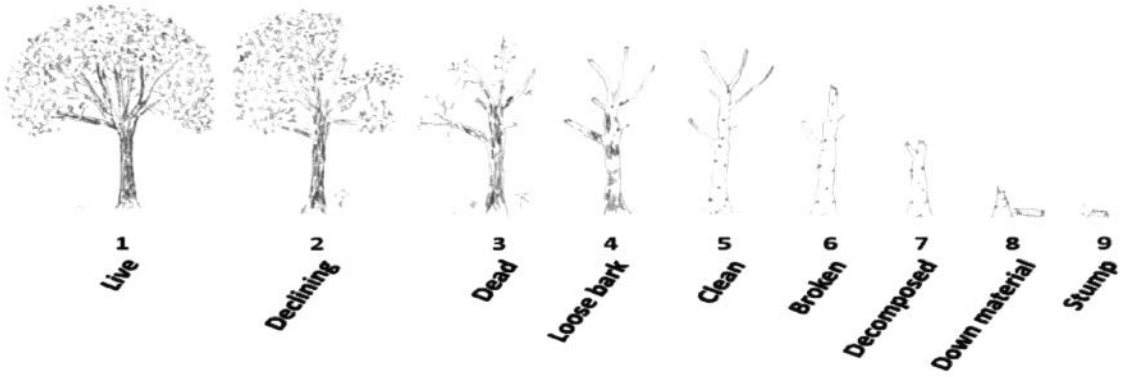
Roost position aspect (deg) ~300°

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy** __ **tight** X

Cavities present? Yes **If so, describe:** ~2" on average, several

---

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 (%) 70

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

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

Additional Comments MySE/♂/Band # NEWRC A0729/Freq. 172.423

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 1-20-2017 **Surveyor(s) Full Name:** Heidi Braunreiter, Alexi Dart-Padover
State: NC **County:** Tyrrell **Project Name:** NCDOT Winter NLEB Monitoring
Site Name/#: Buckridge **Roost Name/#** RT617 **Bat #:** 423
Lat/Long or UTM of Roost: 35.73561, -76.07739
Description of Roost/Habitat Feature Surveyed: Live Nyssa biflora with main branch leaning South in a forested swamp
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain):
Weather Conditions during Survey (temperature, precipitation, wind speed): Partly cloudy, no wind, Rained recently
Survey Start Time: 1644 **Time of Sunset:** 1719 **Survey End Time:** 1815

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	0	BAT DID NOT EMERGE

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Buckridge **Roost Name/#:** RT617

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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?

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE / M / 172.064 Band # NCWRC A0736 Page 1 of ____

Roost Tree # 31 Project No./Project Name 537 / NCDOT NLEB Winter Monitoring Date First Found 2/23/2017

Location SE of first water crossing on road, in flooded forest

County Bertie State NC Quad ____

Lat-Long/UTM: (N)/E 35.96819° (W)/N -77.13786 Zone — Datum: NAD 83 Observers: ZB, AD

#	Tree Tag #	Species	DBH (cm)	Height ft or (m) Tree	Height ft or (m) Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	31	Populus heterophylla	56.7	28m	19	L	0	100	C	cavity
2		P. heterophylla	40.0	26m		L	0	100	C	
3		Nyssa aquatica	70.6	27		L	0	100	C	cavity
4		N. aquatica	55.3	27		L	0	100	C	
5		N. aquatica	49.0	26		LD	0	90	S	
6		N. aquatica	31.7	24		L	0	100	S	
7		N. aquatica	63	28		L	0	100	C	
8		N. aquatica	45.4	28		L	0	100	C	
9		N. aquatica	60.1	28		L	0	100	C	
10		N. aquatica	74.0	28		L	0	100	C	
11		N. aquatica	33.8	25		L	0	100	S	
12		N. aquatica	51.1	28		L	0	100	C	
13		N. aquatica	23.1	23		L	0	100	S	
14		N. aquatica	20.2	15		L	0	100	S	
15		N. aquatica	52.8	27		L	0	100	C	
16		N. aquatica	42.6	27		LD	0	100	C	
17		N. aquatica	44.2	26		L	0	100	C	
18		N. aquatica	72.1	29		L	0	100	C	
19		Taxodium distichum	32.1	20		L	0	100	C	
20		P. heterophylla	38.3	25		L	0	100	C	
21		P. heterophylla	78.3	35		L	0	100	C	
22		N. aquatica	25.2	20		L	0	100	S	

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

Habitat		
(Interior)	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	(Closed)

Basal Area		
Live Trees	Snags	All Trees
220	0	220

Roost Location		
Bark	(Cavity)	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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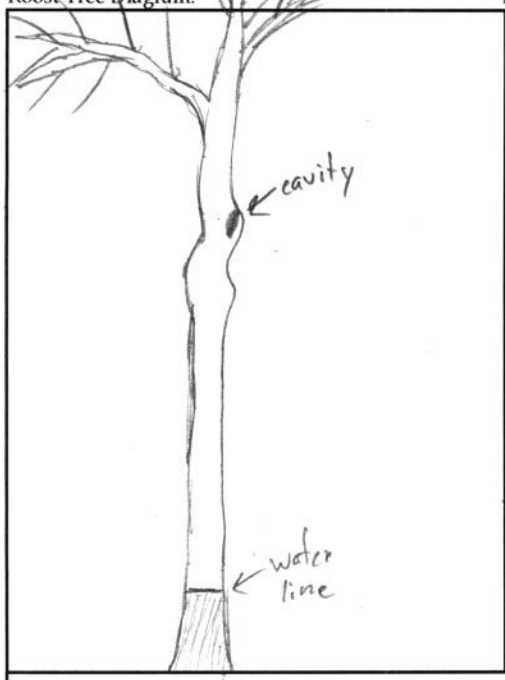
Roost Tree # 31

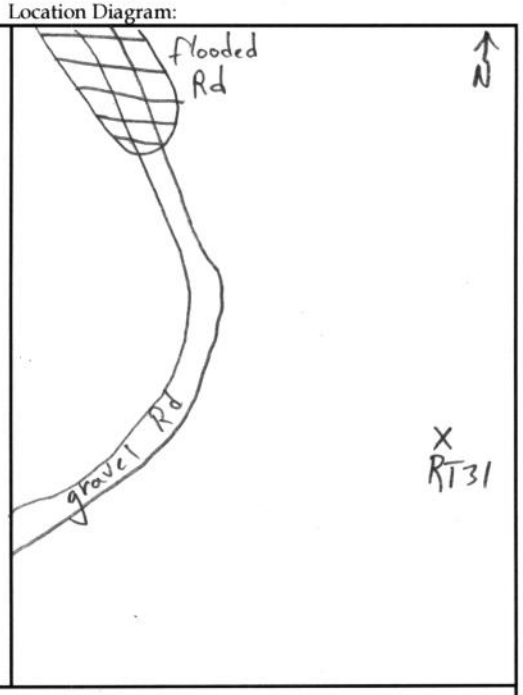
Bat Species/Sex/Frequency: MYSE / M / 172.064

Band # NCWRC A0736

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2/23	.064	A0736	M	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	2/23		partly cloudy	1	1758	1823	1823	1823	1	ZB
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	cavity	215°	5cm	25cm	19m	—
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Zach Baer **Date:** 2/23/2017

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

LAT 35.96819 **LONG** -77.13786

Property Owner: USFWS (Roanoke River NWR) **Phone#**_____

State NC **County** Bertie **Site #**_____

Roost # 1 **Roost Name:** RT31

Roost Tree Data

Species: Populus heterophylla **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 56.7 cm **Total Height (ft or m)** 28 m

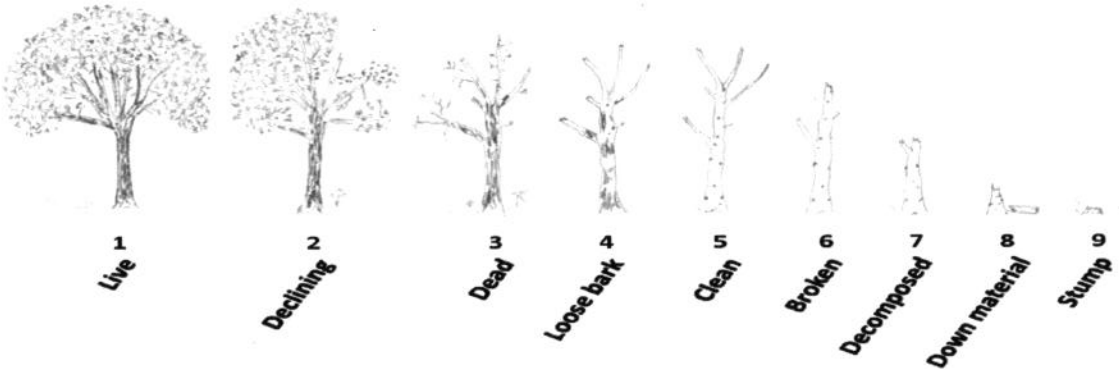
Height of roost area (if known) 19 m **Dist. from capture site** 314 m

Roost position aspect (deg) 215

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight** X

Cavities present? Y **If so, describe:** one cavity 0.25 m (H) x 0.05 m (W)

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)_____ **Distance to non-forest (ft or m)**_____

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Cypress - Gum Swamp (Brownwater Subtype)

Additional Comments MYSE / ♂ / Band # NCWRC A0736 / Freq. 172.064

RT 31

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 23 feb - 2017 **Surveyor(s) Full Name:** Zachary Baer
State: NC **County:** Bertie **Project Name:** NCDOT NLEB Winter Monitoring
Site Name/#: Roanoke River **Roost Name/#** RT 31 **Bat #:** 172.064
Lat/Long or UTM of Roost: 35.96819, -77.13786
Description of Roost/Habitat Feature Surveyed: Populus heterophylla in a flooded forest

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

Other Suspected Bat Species (explain): N/A

Weather Conditions during Survey (temperature, precipitation, wind speed):
No wind/precipitation, partly cloudy

Survey Start Time: 1750 **Time of Sunset:** 1758 **Survey End Time:** 1845

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1823	1	

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River NWR **Roost Name/#:** RT 31

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?

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE / M / 172.483 Band # NCWRC A0734 Page 1 of ____

Roost Tree # 30 Project No./Project Name 537. / NLEB Winter Monitoring Date First Found 23 Feb-17

Location On the right of road, just after first water crossing, Roanoke River NWR

County Bertie State NC Quad ____

Lat-Long/UTM: N/E 35.970193 W/N -77.141856 Zone — Datum: NAD 83 Observers: Z. Baer, A. Dart-Padover

#	Tree Tag #	Species	DBH (cm)	Height ft or m (circled) Tree	Height ft or m (circled) Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	30	Populus heterophylla	35.5	23	17	Live	0	100	C	Cavity
2		Nyssa aquatica	37.3	24	—	L-D	0	100	C	
3		Quercus nigra	47.0	25	—	L	0	100	C	
4		Carpinus caroliniana	21.0	12	—	L	0	100	U	
5		Acer rubrum	38.0	17	—	L-D	0	100	U	cavity
6		Ulmus americana	16.8	15	—	L	0	100	U	
7		Platanus occidentalis	23.1	21	—	L	0	100	SC	
8		Carpinus caroliniana	7.8	6	—	L	0	100	U	
9		Nyssa aquatica	77.8	26	—	L	0	100	C	
10		Acer rubrum	50.9	25	—	L	0	100	C	
11		Nyssa aquatica	12.3	16	—	L	0	100	U	
12		Nyssa aquatica	55.2	20	—	L	0	100	SC	
13		Quercus nigra	47.5	23	—	L	0	100	SC	
14		3 Nyssa aquatica	41.7	20	—	L	0	100	U	
15		4 Nyssa aquatica	71.8	27	—	L	0	100	C	
16		5 Nyssa aquatica	106.3	28	—	L	0	100	C	
17										
18										
19										
20										
21										
22										

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

Habitat		
(Interior)	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	(Closed)

Basal Area		
Live Trees	Snags	All Trees
160	0	160

Roost Location		
Bark	(Cavity)	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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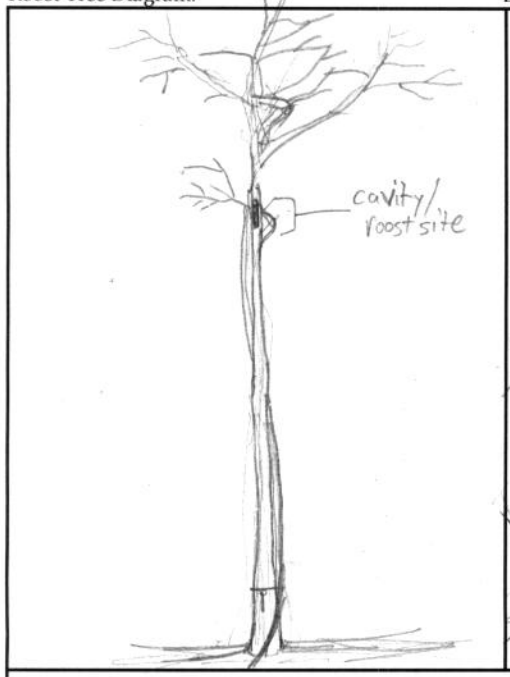
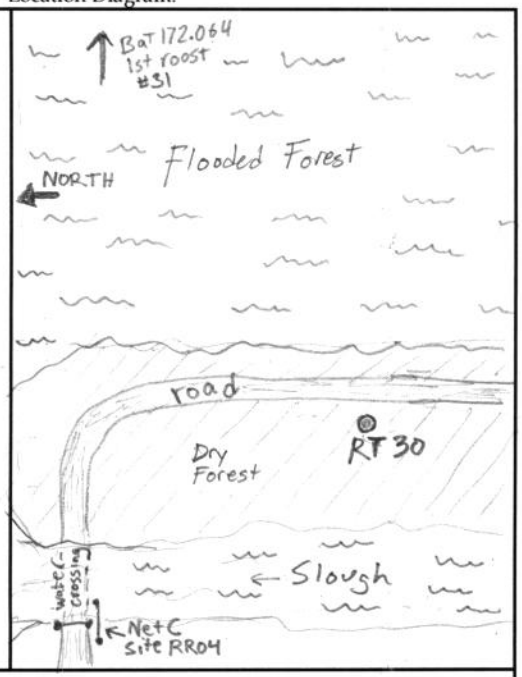
Roost Tree # RT 30 Bat Species/Sex/Frequency: MYSE/M/172.483 Band # NCWRC A0734

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2/23	.483	A0734	M	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	2/23		partly cloudy	1	1758	1820	1820	1820	1	AD
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	Cavity	57°	5cm	50cm	17m	—
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Zachary Baer, Alexi Padover **Date:** 2/23/2017

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 35.96844 **LONG** -77.14172

Property Owner: USFWS (Roanoke River NWR) **Phone#** _____

State NC **County** Bertie **Site #** _____

Roost # 1 **Roost Name:** 30

Roost Tree Data

Species: Populus heterophylla **Live** X **Snag** __ **Other** __

(if other, explain) cavity in live tree

DBH (in or cm) 35.5 **Total Height (ft or m)** 23

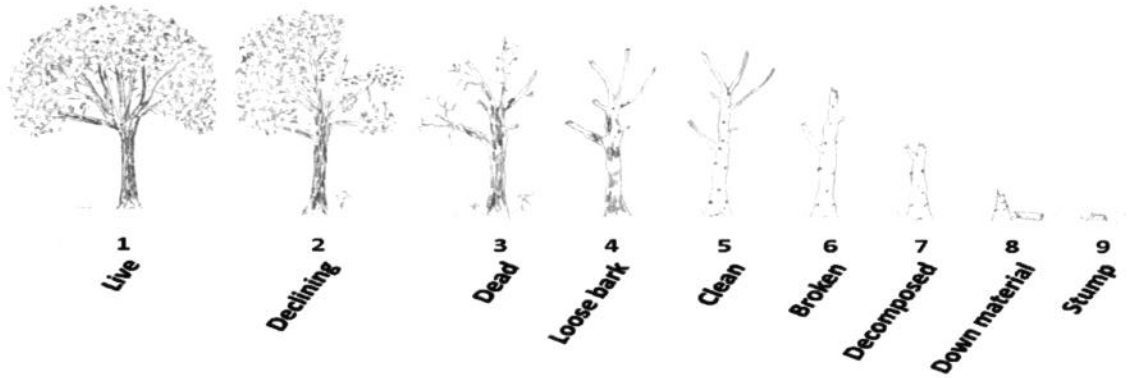
Height of roost area (if known) 17m **Dist. from capture site** 327m

Roost position aspect (deg) 57°

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy** __ **tight** X

Cavities present? yes **If so, describe:** one long cavity 0.5m tall 5cm wide

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 (%) 80

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

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

Cypress - Gum Swamp (Brownwater Type)

Additional Comments MYSE / ♂ / Band # NCWRC A0734 / Freq. 172.483

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

RT 30

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2/23/2017 **Surveyor(s) Full Name:** Alexi Dart-Padover
State: NC **County:** Bertie **Project Name:** 537 - NCDOT NEB Winter Monitoring
Site Name/#: Roanoke River **Roost Name/#** RT30 **Bat #:** 483
Lat/Long or UTM of Roost: 35.96844, -77.14172
Description of Roost/Habitat Feature Surveyed: Populus heterophylla on dry land just off road
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): —
Weather Conditions during Survey (temperature, precipitation, wind speed): No wind, few clouds, no precipitation
Survey Start Time: 17:45 **Time of Sunset:** 17:58 **Survey End Time:** 1846

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1812	0	Bats begin flying around the area
1814	0	Bat emerged from nearby N. aquatica ~15m away, foraged for several min.
1816	0	Bat emerged from nearby N. aquatica 5m away
1820	1	Transmitter bat emerged as another bat flew by the tree
1821		2 barred owls landed in a tree 20m away, calling

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River **Roost Name/#:** RT 30

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?

Tagged bat emerged at 1820 and promptly left the area.
Bats emerging from other trees loitered for a few minutes

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/Male/172.064 Band # NCWRC A0736 Page 1 of 1

Roost Tree # 28 Project No./Project Name 537 / NCDOT NLEB Winter Monitoring Date First Found 2/24/2017

Location SE of first water crossing on road, in flooded forest,

County Bertie State NC Quad

Lat-Long/UTM: N/E 35.96809 W/N -77.13805 Zone — Datum: NAD83 Observers: ZB, AD

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	28	Populus heterophylla	49.5	26		L	0	100	C	
2		Acer rubrum	20.0	13		L	0	100	U	
3		Acer rubrum	48.3	24		L	0	100	SC	
4		Populus heterophylla	78.9	30		L	0	100	C	
5		Nyssa aquatica	33.8	25		L	0	100	SC	
6		N. aquatica	33.0	14		L-D	0	100	SC	
7		P. heterophylla	29.7	25		L	0	100	SC	
8		P. heterophylla	39.6	25		L	0	100	C	
9	31	P. heterophylla	56.7	28	19	L	0	100	C	
10		Taxodium distichum	43.6	24		L	0	100	C	
11		P. heterophylla	37.3	24		L	0	100	C	
12		T. distichum	29.8	24		L	0	100	C	
13		P. heterophylla	54.8	26		L	0	100	C	
14		A. rubrum	39.4	24		L	0	100	C	
15		N. aquatica	53.7	24		L	0	100	C	
16		N. aquatica	27.4	20		L	0	100	SC	
17		A. rubrum	13.0	14		L	0	100	U	
18		N. aquatica	36.7	13		L	0	100	U	
19		N. aquatica	98.5	26		L	0	100	C	
20		A. rubrum	20.8	15		L	0	100	U	
21		P. heterophylla	49.7	27		L	0	100	C	
22		N. aquatica	69.0	26		L	0	100	C	

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

P. heterophylla	34.9	25	S	0	100	C	
P. heterophylla	36.1	25	L	0	100	C	
N. aquatica	21.6	16	L	0	100	S-C	
N. aquatica	85.2	26	L-D	0	100	C	cavities

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
250	10	260

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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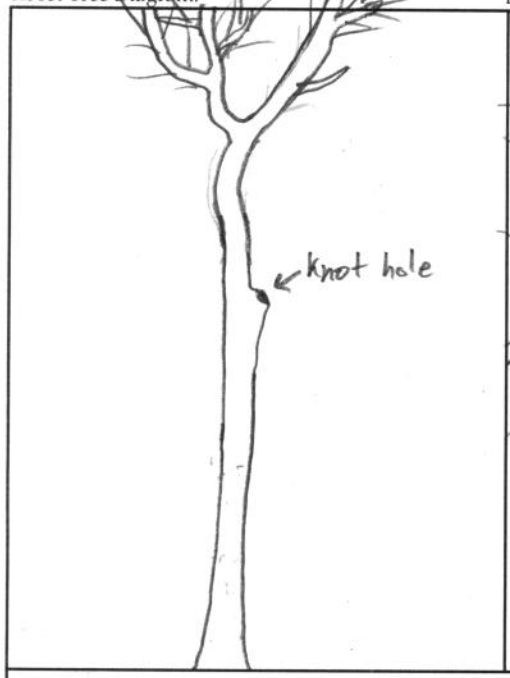
Roost Tree # 28

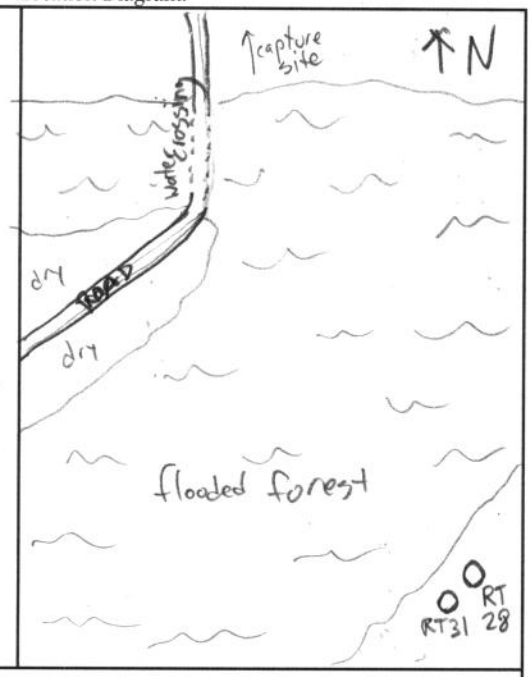
Bat Species/Sex/Frequency: MYSE/Male/172.064

Band # NCWRC A0736

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2-24	.064	A0736	M	
2	2-27	.064	A0736	M	
3	2-28	.064	A0736	M	
4	3-1	.064	A0736	M	
5	3-2	.064	A0736	M	Transmitter sounds weird
6	3-3	.064	A0736	M	Transmitter dieing **
7	3-4	.064	A0736	M	" "
8	3-5	.064	A0736	M	" "
9	3-6	.064	A0736	M	" "
10	3-7	.064	A0736	M	" "
11	3-8	.064	A0736	M	transmiter sounds ok again
12	3-9	.064	A0736	M	" " " "
13	3-10	.064	A0736	M	" "
14	3-11	.064	A0736	M	Transmitter sounds bad
15	3-12	0.64	A0736	M	" " lots of bark

Emergence Count

	No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
*	1	2-24	71.0	light wind clear	1	1759	1822	1822	1822	1	ZB
	2										
	3										
	4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	cavity	185	5cm	5cm	17m	—
2						
3						

Comments:

* Did not see bat emerge, could have been in a nearby tree

** = transmitter is bleeding through from 060 - 069 but cant get a good beep. Transmitter dieing

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Zachary Baer, Alexi Dart **Date:** 2/24/2017

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 35.96809 **LONG** -77.13805

Property Owner: USFWS (Roanoke River NWR) **Phone#** _____

State NC **County** Bertie **Site #** Roanoke River NWR

Roost # 2 **Roost Name:** RT28

Roost Tree Data

Species: Populus heterophylla **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 49.5 **Total Height (ft or m)** 26

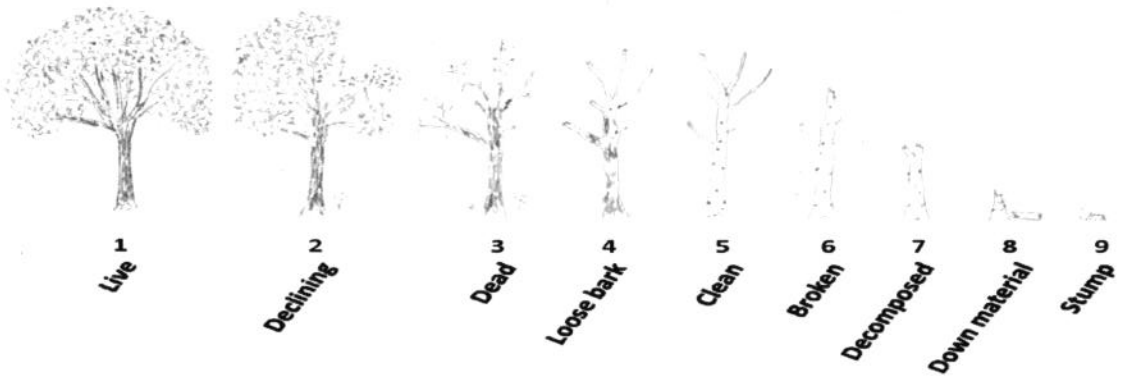
Height of roost area (if known) unk **Dist. from capture site** 317m

Roost position aspect (deg) unk

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy** __ **tight** __

Cavities present? Unk **If so, describe:** possible open heart hole @ aspect 185

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 (%) 100

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

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Cypress - Gum Swamp (Brownwater Subtype)

Additional Comments MYSE/♂/Band # NCWRC A0736/Freq. 172.064

RT
28

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 24-feb-17 **Surveyor(s) Full Name:** Zachary Baer
State: NC **County:** Bertie **Project Name:** NCDOT NLEB Winter Monitoring
Site Name/#: Roanoke River NWR **Roost Name/#** 28 **Bat #:** .064
Lat/Long or UTM of Roost: 35.96809 -77.13805
Description of Roost/Habitat Feature Surveyed: Populus heterophylla in flooded forrest

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYSE
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed):
light wind -clear, Temp 71.0°F
Survey Start Time: 1745 **Time of Sunset:** 1759 **Survey End Time:** 1845

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1822	1	Bat not seen exiting tree, could be in nearby tree

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River NWR **Roost Name/#:** RT28

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?

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE / M / 483

Band # NCWRC A0734

Roost Tree # RT49 Project No./Project Name 537 / NCDOT NLEB Winter Monitoring Date First Found 2/24/2017

Location NW of road after 1st water crossing, in inundated forest near massive cypress tree

County Bertie State NC Quad

Lat-Long/UTM: N/E 35.96820 W/N -77.14532 Zone — Datum: NAD 83 Observers: ZB, AD

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	49	Nyssa aquatica	97.5	26m	12	L-D	0	100	SC	cavity
2		Nyssa aquatica	20.9	20m	—	L	0	100	U	
3		Taxodium distichum	187.9	30m	—	L-D	2	100	SC	cavitys
4		Taxodium distichum	99.4	28m	—	L	0	100	C	
5		Nyssa aquattica	107.0	26m	—	L-D	0	100	C	cavity
6		N. aquattica	48.9	24m	—	L	0	100	SC	
7		N. aquattica	40.6	22m	—	L	0	100	U	
8		N. aquattica	43.3	24m	—	L	0	100	SC	
9		N. aquattica	38.3	24	—	L	0	100	SC	
10		N. aquattica	19.7	20	—	L	0	100	U	
11		N. aquattica	21.7	20	—	L	0	100	U	
12		N. aquattica	61.8	26	—	L-D	0	100	C	cavity
13		N. aquattica	57.7	28	—	L	0	100	C	
14		N. aquattica	24.5	18	—	L	0	100	U	
15		N. aquattica	54.0	28	—	L	0	100	C	
16		N. aquattica	70.1	28	—	L	0	100	C	
17		N. aquattica	61.9	28	—	L	0	100	C	
18		N. aquattica	48.3	24	—	L	0	100	SC	
19		N. aquattica	45.6	26	—	L	0	100	SC	
20		N. aquattica	75.0	26	—	L-D	0	100	SC	
21		N. aquattica	68.2	28	—	L	0	100	C	
22		N. aquattica	63.0	28	—	L	0	100	C	

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
320	0	320

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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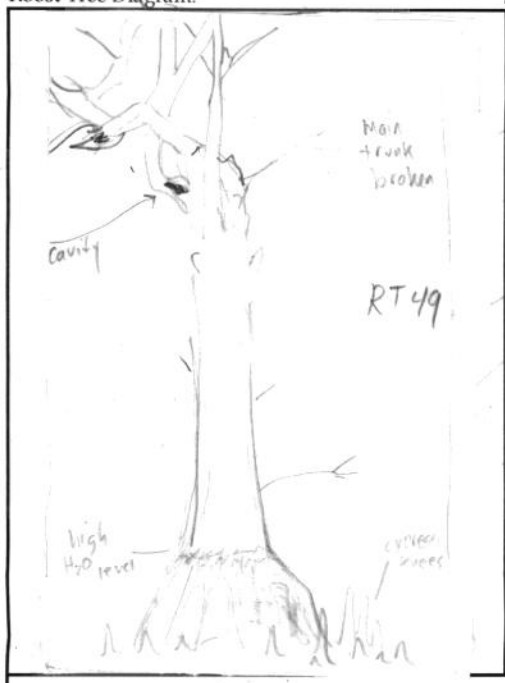
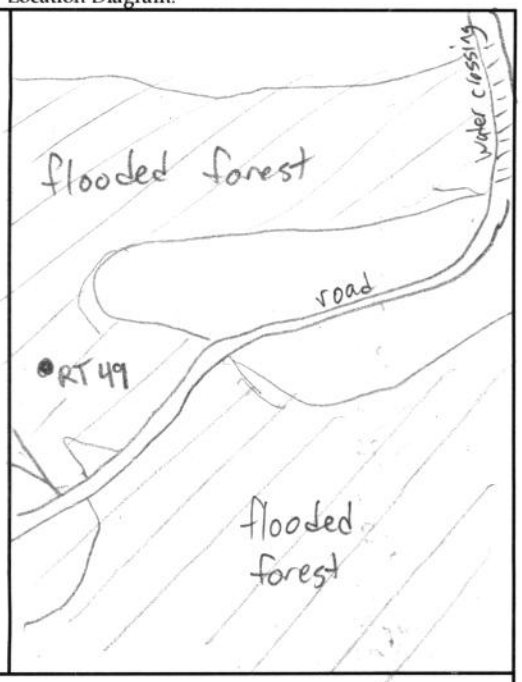
Roost Tree # RT49 Bat Species/Sex/Frequency: MYSE/M/ 172.483 Band # NCWRC A0734

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2/24	483	A0734	M	
2	2/25	483	A0734	M	
3	2/28	483	A0734	M	
4	3/1	483	A0734	M	
5	3/7	483	A0734	M	
6	3/8	483	A0734	M	
7	3/9	483	A0734	M	transmitter sound band *
8	3/10	483	A0734	M	" "
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	2/24	71.0	some wind no clouds	1	1759	1818	1818	1818	1	
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	cavity	82	3cm	8cm	12cm	—
2	cavity	215	5cm	5cm	15cm	
3	cavity	215	8cm			

Comments:
* transmitter sounds like a thud and can not be tuned to a good beep.

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Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE / M / 483 Band # NCWRC A0734 Page 1 of 2

Roost Tree # RT49 Project No./Project Name 537 / NCDOT NLEB Winter Monitoring Date First Found 2/24/2017

Location NW of road after 1st water crossing, in inundated forest near massive cypress tree

County Bertie State NC Quad

Lat-Long/UTM: N/E 35.96820 W/N -77.14532 Zone — Datum: NAD 83 Observers: ZB, AD

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	49	Nyssa aquatica	97.5	26m	12	L-D	0	100	SC	cavity
2		Nyssa aquatica	20.9	20m	—	L	0	100	U	
3		Taxodium distichum	187.9	30m	—	L-D	2	100	SC	cavitys
4		Taxodium distichum	99.4	28m	—	L	0	100	C	
5		Nyssa aquatica	107.0	26m	—	L-D	0	100	C	cavity
6		N. aquatica	48.9	24m	—	L	0	100	SC	
7		N. aquatica	40.6	22m	—	L	0	100	U	
8		N. aquatica	43.3	24m	—	L	0	100	SC	
9		N. aquatica	38.3	24	—	L	0	100	SC	
10		N. aquatica	19.7	20	—	L	0	100	U	
11		N. aquatica	21.7	20	—	L	0	100	U	
12		N. aquatica	61.8	26	—	L-D	0	100	C	cavity
13		N. aquatica	57.7	28	—	L	0	100	C	
14		N. aquatica	24.5	18	—	L	0	100	U	
15		N. aquatica	54.0	28	—	L	0	100	C	
16		N. aquatica	70.1	28	—	L	0	100	C	
17		N. aquatica	61.9	28	—	L	0	100	C	
18		N. aquatica	48.3	24	—	L	0	100	SC	
19		N. aquatica	45.6	26	—	L	0	100	SC	
20		N. aquatica	75.0	26	—	L-D	0	100	SC	
21		N. aquatica	68.2	28	—	L	0	100	C	
22		N. aquatica	63.0	28	—	L	0	100	C	

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
320	0	320

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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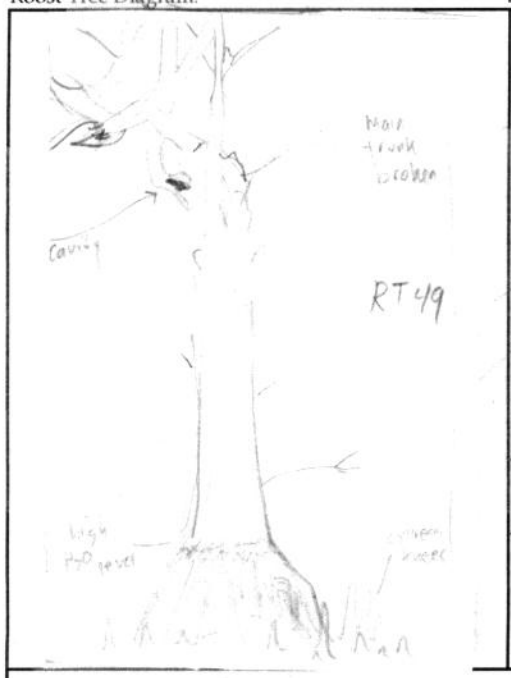
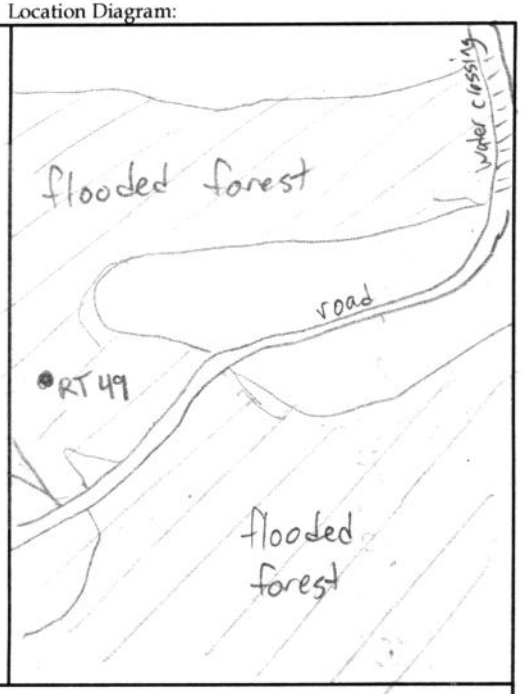
Roost Tree # RT49 Bat Species/Sex/Frequency: MYSE/M/ 172.483 Band #

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2/24	483		M	
2	2/25	483		M	
3	2/28	483		M	
4	3/1	483		M	
5	3/7	483		M	
6	3/8	483		M	
7	3/9	483		M	transmitter sound bad *
8	3/10	483		M	" "
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	2/24	71.0	some wind no clouds	1	1759	1818	1818	1818	1	
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	cavity	82	3cm	8cm	12cm	—
2	cavity	115	5cm	5cm	15cm	
3	cavity	115	4cm			

Comments:
* transmitter sounds like a thud and can not be tuned to a good beep.

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(Continued)

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/M/172.483 Band # Page 2 of 2

Roost Tree # RT49 Project No./Project Name 537 / NCDOT NLEB Winter Monitoring Date First Found 2-24-2017

Location NW of road after 1st water crossing, ininnudated forest near massive cypress tree

County Bertie State NC Quad –

Lat-Long/UTM: N/E 35.96820 W/N -77.14532 Zone – Datum: NAD83 Observers: ZB, AD

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1		Nyssa aquatica	45.1	26	–	L	0	100	SC	
2		N. aquatica	22.3	20	–	L	0	100	U	
3		N. aquatica	51.0	26	–	L	0	100	SC	
4		N. aquatica	18.9	22	–	L	0	100	U	
5		N. aquatica	19.0	22	–	L	0	100	U	
6		N. aquatica	56.5	28	–	L	0	100	C	
7		N. aquatica	65.3	28	–	L	0	100	C	
8		N. aquatica	64.0	28	–	L	0	100	C	
9		Taxodium distichum	98.7	30	–	L	0	100	C	
10		N. aquatica	34.0	26	–	L	0	100	SC	
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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Roost Tree #_____ Bat Species/Sex/Frequency: Band #

Roost Tree Diagram: Location Diagram:

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

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time				Focal Bat exit #	Personnel/ Comments
					Sunset	Bats Start	Bats End	Tagged Bat		
1										
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements			
			Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Zach Baer, Alexi Dart-Parker **Date:** 2/24/2017

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

LAT 35.96820 **LONG** -77.14532

Property Owner: USFWR (Roanoke River NWR) **Phone#**_____

State NC **County** Bertie **Site #**_____

Roost # 2 **Roost Name:** RT49

Roost Tree Data

Species: Nyssa aquatica **Live** X **Snag** __ **Other** __

(if other, explain) Main trunk broken off

DBH (in or cm) 97.5 **Total Height (ft or m)** 26

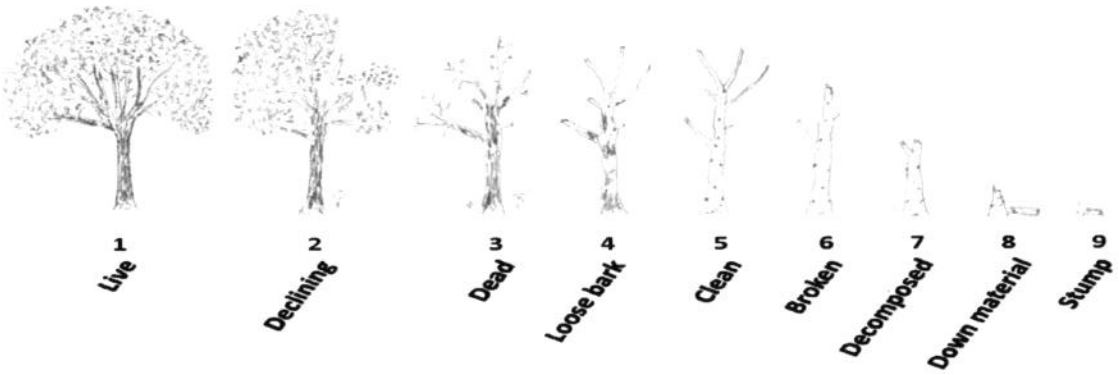
Height of roost area (if known) 12m **Dist. from capture site** 601 m

Roost position aspect (deg) 82

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight** X

Cavities present? Y **If so, describe:** Knot hole 3x8cm, probably more cavities on top of broken trunk

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)_____ **Distance to non-forest (ft or m)**_____

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Cypress-Gum Swamp (Brownwater Subtype)

Additional Comments MYSE/♂/Band # NCWRC A0734/Freq. 172.483

RT 49

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2/24/2017 **Surveyor(s) Full Name:** Alexi Dart-Padover
State: NC **County:** Bertie **Project Name:** 537 NCDOT NLEB Winter Monitoring
Site Name/#: Roanoke River NWR **Roost Name/#** RT49 **Bat #:** 483
Lat/Long or UTM of Roost: 35.96820 -77.14532
Description of Roost/Habitat Feature Surveyed: large Nyssa aquatica w/wide flared base & broken trunk in innundated forest
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): NA
Weather Conditions during Survey (temperature, precipitation, wind speed): some wind (1), no precipitation, no clouds 71.0°F
Survey Start Time: 1742 **Time of Sunset:** 1759 **Survey End Time:** 1845

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1818	1	Tagged bat

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** _____

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?

Did not loiter. No other bats seen

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/M/172.064

Band # NCWRC A0736

Roost Tree # 29 Project No./Project Name 537 / NCDOT NLEB Winter Date First Found 2/25/2017

Location SE of first water crossing on road, in flooded forest

County Bertie State NC Quad

Lat-Long/UTM: N/E 35.96805 W/N -77.13800 Zone — Datum: NAD 83 Observers: AD, CB

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	29	Nyssa aquatica	34.8	22	10	L	0	100	SC	
2		N. aquatica	33.7	14		L-D	0	100	SC	
3		N. aquatica	16.5	8		L	0	100	V	
4		Populus heterophylla	37.1	27		L	0	100	C	
5		Taxodium distichum	44.1	26		L	0	100	C	
6		P. heterophylla	29.9	25		L	0	100	C	
7		P. heterophylla	55.5	30		L	0	100	C	
8	28	P. aquatica	48.4	30		L	0	100	C	
9		N. aquatica	52.5	28		L	0	100	C	
10		N. aquatica	96.4	28		L	0	100	C	
11		P. heterophylla	36.0	26		L	0	100	C	
12		N. aquatica	21.7	16		L	0	100	SC	
13		N. aquatica	19.8	14		L	0	100	SC	
14		Acer rubrum	48.9	23		L	0	100	SC	
15		N. aquatica	74.4	30		L-D	0	100	C	cavities
16		P. heterophylla	80.3	30		L	0	100	C	
17		N. aquatica	34.8	28		L	0	100	C	
18		N. aquatica	56.3	28		L	0	100	C	
19		N. aquatica	26.7	20		L	0	100	SC	
20		P. heterophylla	39.5	24		L	0	100	C	
21		N. aquatica	72.4	28		L	0	100	C	
22	31	P. heterophylla	56.6	28		L	0	100	C	
		P. heterophylla	38.9	26		L	0	100	C	

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
230	0	230

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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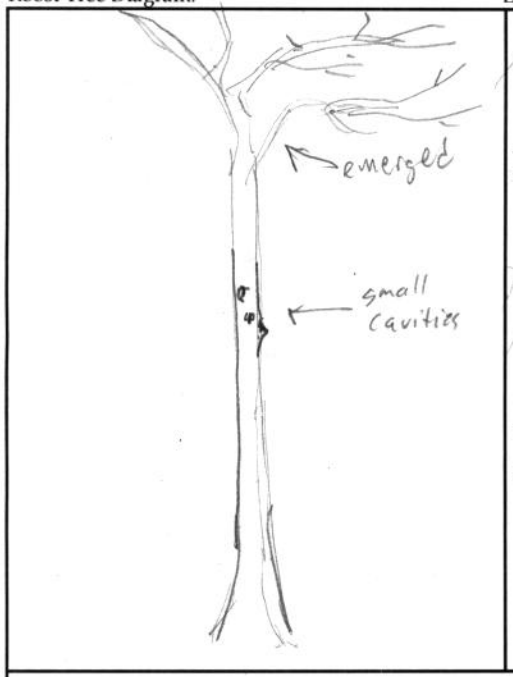
Roost Tree # 29

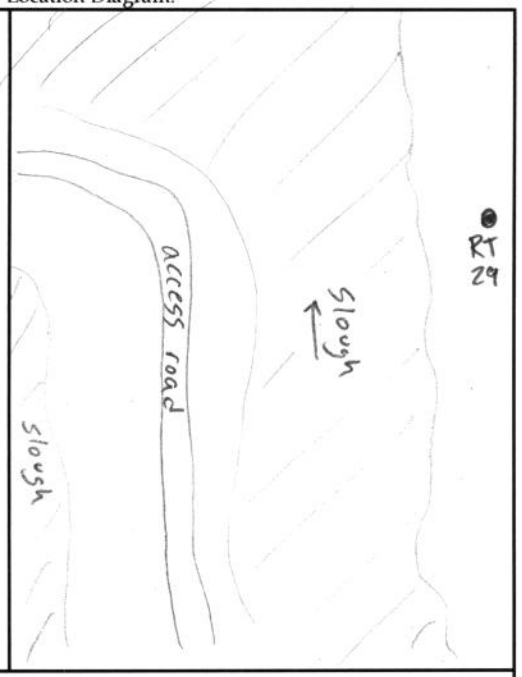
Bat Species/Sex/Frequency:

Band # NCWRC A0736

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2/25/17	064	A0736	M	
2	2/26	064	A0736	M	
3	3/13	064	A0736	M	lots of signal bounce Transmitter sounds bad
4	3/14	064	A0736	M	weak signal & not much tone
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	2/25	71.5	Some wind few clouds	1	1758	1824	1824	1824	1	
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	Cavity	198	4cm	4cm	12m	
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Alexi Dort-Pakover, Chris Butler **Date:** 2/25/2017

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 35.96805 **LONG** -77.13800

Property Owner: USFWS (Roanoke River NWR) **Phone#** _____

State NC **County** Bertie **Site #** _____

Roost # 3 **Roost Name:** RT 29

Roost Tree Data

Species: Nyssa aquatica **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 34.8 **Total Height (ft or m)** 22

Height of roost area (if known) 12m **Dist. from capture site** 322 m

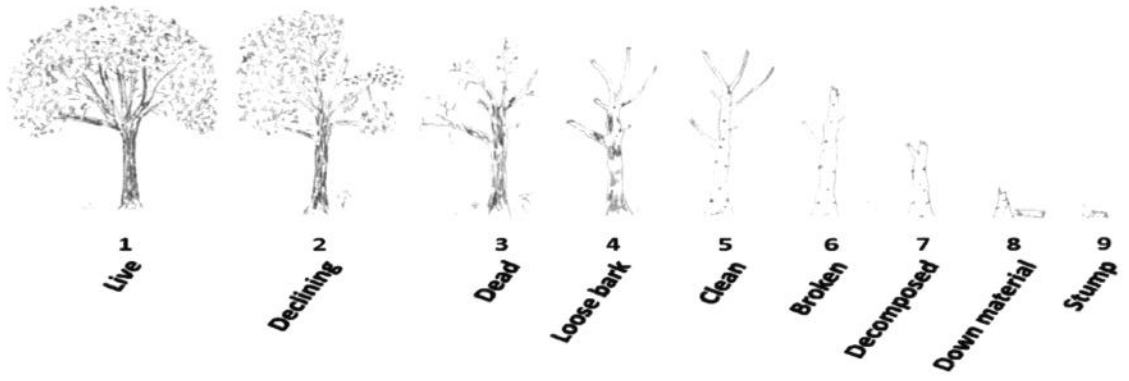
Roost position aspect (deg) 198°

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy** __ **tight** X

Cavities present? Y **If so, describe:** 3 small knot holes, ≈ 4cm diameter

---

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 (%) 100

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

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Cypress – Gum Swamp (Brownwater Subtype)

Additional Comments MYSE / ♂ / Band # NCWRC A0736 / Freq. 172.064

RT29

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2/25/2017 **Surveyor(s) Full Name:** Alexi Dart-Padover, Chris Bollock
State: NC **County:** Bertie **Project Name:** 537 NCDOT NLEB winter monitoring
Site Name/#: Roanoke River NWR **Roost Name/#** RT29 **Bat #:** 064
Lat/Long or UTM of Roost: 35.96805, -77.13800
Description of Roost/Habitat Feature Surveyed: Sub canopy Nyssa aquatica in seasonally flooded forest
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed): no precipitation, some wind (1-2), few clouds, temp 71.5°F
Survey Start Time: 1730 **Time of Sunset:** 1758 **Survey End Time:** 1842

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
18 17	0	Bat emerged from Acer rubrum 3m W of RT
18 19	0	bat flew low past RT, he.
18 22	0	bat emerged from tree 7m E of RT
18 24	1	Tagged bat left

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** _____

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?

All bats observed flew West immediately.
Did not loiter

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/Male/172.483 Band # NCWRC A0734

Roost Tree # 37 Project No./Project Name 537 / NCDOT NLEB Winter Monitoring Date First Found 26-FEB-2017

Location SW of first water crossing in flooded forest

County Bertie State NC Quad

Lat-Long/UTM: N/E 35.96937 W/N -77.14317 Zone — Datum: NAD 83 Observers: Z. Baer, M. Gooden

#	Tree Tag #	Species	DBH (cm)	Height ft or m: Tree	Height ft or m: Roost	Condition*	% Bark Cover**: Usable	% Bark Cover**: Total	Tree Ranking***	Available Roost/ Observation
1	37	Nyssa aquatica	95.5	26	?	L-D	0	100	C	broken trunk
2		Nyssa aquatica	23.5	22		L	0	100	SC	
3		Nyssa aquatica	48.1	25		L	0	100	C	
4		Nyssa aquatica	61.1	27		L	0	100	C	
5		Nyssa aquatica	56.2	25		L	0	100	C	
6		Nyssa aquatica	113.2	26		L-D	0	100	C	
7		Nyssa aquatica	58.7	27		L	0	100	C	
8		Nyssa aquatica	31.7	24		L	0	100	SC	
9		Nyssa aquatica	105.8	26		L	0	100	C	
10		Nyssa aquatica	132.9	24		L-D	0	100	C	
11		Taxodium Distichum	86.7	28		L	0	100	C	
12		Nyssa aquatica	90.7	24		L-D	0	100	SC	
13		Taxodium Distichum	69.2	26		L	0	100	C	
14		Nyssa aquatica	72.6	25		L	0	100	C	
15		Taxodium Distichum	58.4	25		L	0	100	C	
16		Nyssa aquatica	52.5	26		L-D	0	100	C	
17		Nyssa aquatica	33.7	22		L	0	100	SC	
18		Nyssa aquatica	46.6	25		L	0	100	C	
19		Nyssa aquatica	40.2	25		L	0	100	C	
20		Nyssa aquatica	55.6	26		L	0	100	C	
21		Nyssa aquatica	52.5	25		L	0	100	C	
22		Nyssa aquatica	65.4	25		L-D	0	100	C	

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
220	0	220

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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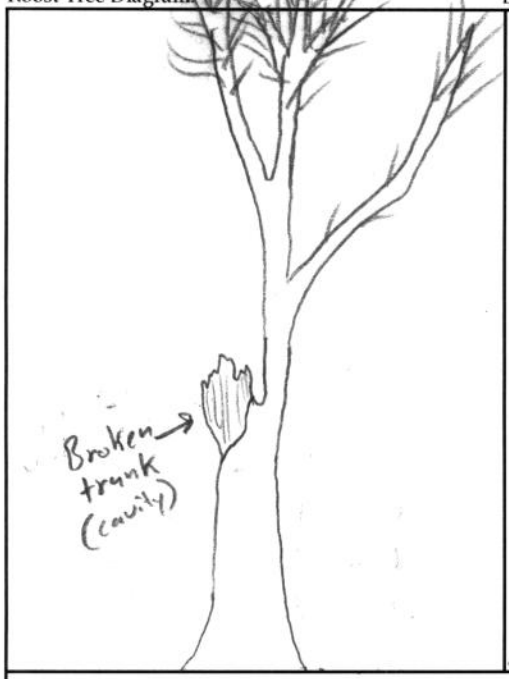
Roost Tree # 37

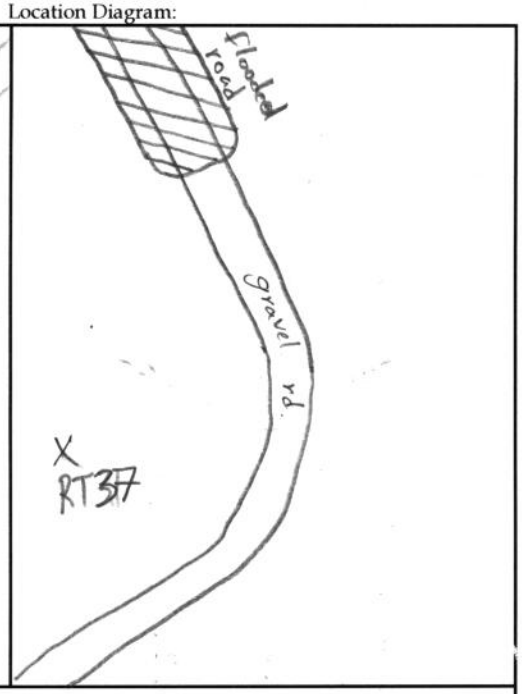
Bat Species/Sex/Frequency: MYSE/Male/172.483

Band # NCWRC A0734

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	26-FEB	483	A0734	male	
2	27-FEB	483	A0734	male	
3	2 Mar	483	A0734	male	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	26FEB	50.5	clear	0	1800	N/A	N/A	N/A	N/A	Z. Baer
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	cavity	272	N/A	N/A	8.5	—
2						
3						

Comments:

1	15°	4.3m	N
2	50°	1.2	Y
3	84°	1.2	Y
4	130°	6.8	N
5	179°	11.0	Y
6	223	10.8	Y
7	232	7.2	Y
8	235	1.9	Y
9	272	9.9	Y
10	278	6.9	Y

80%

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Zachary Baer, Molly Gooder **Date:** 2/26/2017

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

LAT 35.96937 **LONG** -77.14317

Property Owner: USFWS (Roanoke River NWR) **Phone#**_____

State NC **County** Bertie **Site #**_____

Roost # 3 **Roost Name:** RT37

Roost Tree Data

Species: Nyssa aquatica **Live** __ **Snag** __ **Other** X

(if other, explain) Live-damaged

DBH (in or cm) 95.5 **Total Height (ft or m)** 26

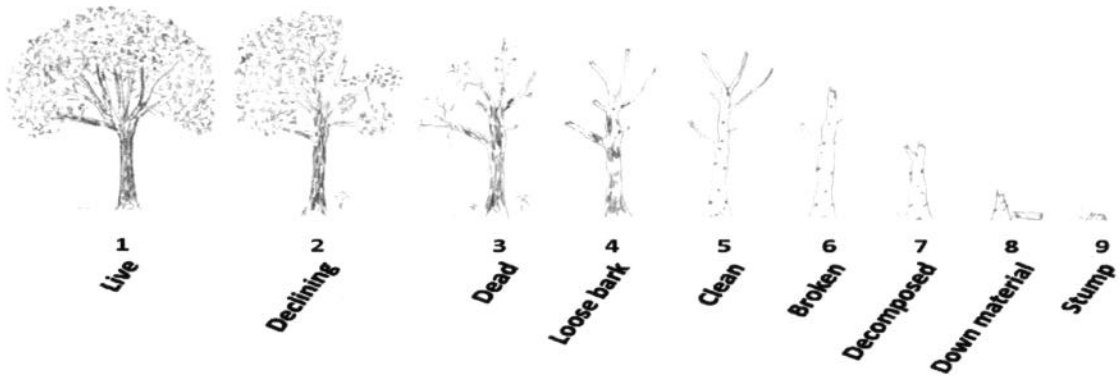
Height of roost area (if known) unk **Dist. from capture site** 370 m

Roost position aspect (deg) unk

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight**__

Cavities present? yes **If so, describe:** main trunk of tree is broken and decayed (aspect 272)

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 (%) 80

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

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

Cypress - Gum Swamp (Brownwater Subtype)

Additional Comments MYSE/8/Band NCWRC A0734/Freq. 172.483

RT 37

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 26-FEB-2017 **Surveyor(s) Full Name:** Zachary Baer
State: NC **County:** Bertie **Project Name:** NCDOT NLEB Winter Monitoring
Site Name/#: Roanoke River **Roost Name/#** 37 **Bat #:** 172.483
Lat/Long or UTM of Roost: 35.96937 -77.14317
Description of Roost/Habitat Feature Surveyed: Nyssa aquatica, in flooded forest

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

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed):
clear, calm, no percipitation 50.5 °F

Survey Start Time: 1740 **Time of Sunset:** 1800 **Survey End Time:** 1855

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	—	NO Bats Emerged

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River **Roost Name/#:** 31

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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?

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/F/172.542 Band # NCDOT 1628 Page 1 of 1

Roost Tree # 272 Project No./Project Name 537 / NCDOT Fall/Winter NLEB Date First Found 28-feb-17

Location Swamp off access road in Alligator River, near AZ05

County Tyrrell State N C Quad Columbia East

Lat-Long/UTM: (N)/E 35.[illegible]717 (W)/N 76.13281 Zone — Datum: NAD83 Observers: t culberson M Hinds

#	Tree Tag #	Species	DBH (cm)	Height ft or (m) Tree	Height ft or (m) Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	272	Nyssa biflora	10.9	12	1.5	L-D	Low	High	U	Cavity
2		N. biflora	23.4	16		L	L	H	C	
3		N. biflora	16.2	16		L	L	H	C	
4		Nyssa sylvatica	37.0	19		L	L	H	C	
5		Quercus nigra	17.7	15		L	L	H	C	
6		Acer rubrum	9.2	14		L	L	H	SC	
7		Nyssa sylvatica	31.5	19		L	L	H	C	
8		N. biflora	21.9	17		L	L	H	C	
9		Acer rubrum	12.1	14		L	L	H	SC	
10		Nyssa aquatica	24.1	16		L	L	H	C	
11		Pinus serotina	51.7	21		L	L	H	C	
12		Nyssa biflora	33.9	18		L	L	H	C	
13		Nyssa sylvatica	24.1	17		L	L	H	C	
14		Nyssa biflora	19.7	16		L	L	H	C	
15		Nyssa biflora	26.6	18		L	L	H	C	
16		Nyssa sylvatica	37.0	20		L	L	H	C	
17		Quercus nigra	36.6	20		L	L	H	C	
18										
19										
20										
21										
22										

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

Habitat		
(Interior)	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	(Closed)

Basal Area		
Live Trees	Snags	All Trees
170	0	170

Roost Location		
Bark	(Cavity)	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	(Live-Damaged)

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

***Tree Ranking		
Canopy	Sub-Canopy	(Understory)

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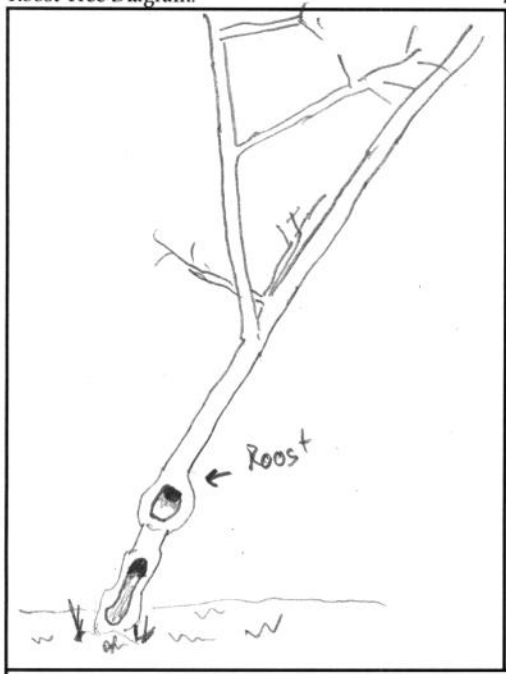
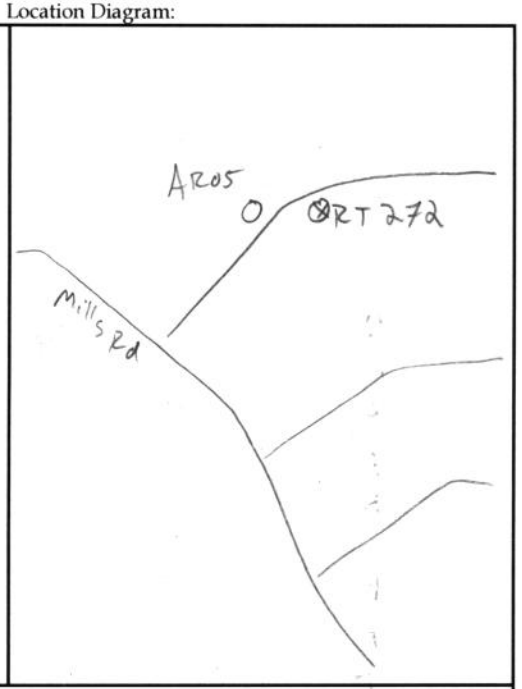
Roost Tree # 272 Bat Species/Sex/Frequency: MYSE/F/172.542 Band # NCDOT1628

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2-28	172.542	NCDOT1628	F	T Colburton, M. Hinds
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	2-28	67°	Clear	1	1759	1900	1900	1900	1	TW, HB
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Opening Measurements: Height	Opening Measurements: Ground	Opening Measurements: H_2O Level
1	Cavity		3 in.	9 in		Swamp
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Taylor Colbertson, Matt Hinds **Date:** 28 February 2017

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

LAT 35.88717 **LONG** -76.13281

Property Owner: Alligator River NCDOT **Phone#**_____

State NC **County** Tyrell **Site #** RT272

Roost # 272 **Roost Name:** RT 272

Roost Tree Data

Species: Nyssa biflora **Live** __ **Snag** __ **Other** ✓

(if other, explain) Live-damaged

DBH (in or cm) 10.9cm **Total Height (ft or m)** 12m

Height of roost area (if known) 1-5m **Dist. from capture site** 79m

Roost position aspect (deg)_____

Exfoliating bark on bole (%)_____ **Describe: sloughing** __ **platy**__ **tight**__

Cavities present? Yes **If so, describe:** decaying hole where bat is roosting

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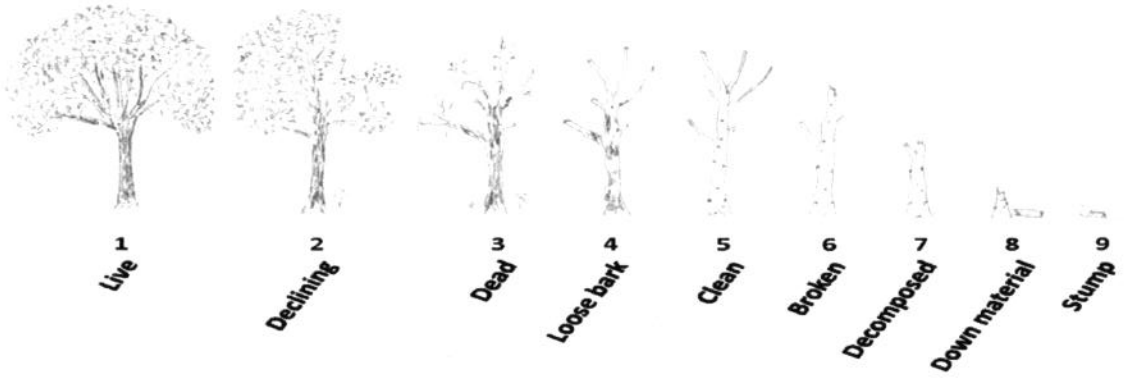
Roost Decay State: 1 (2) 3 4 5 6 7 8 9 Other



APPENDIX D
PHASE 4 RADIO-TRACKING

Roost tree or snag canopy position: Dominant ✓ Co-Dominant __ Suppressed __

Surrounding Habitat Condition

Canopy closure at roost (%) 70%

Approximate woodlot size (ac or ha) — **Distance to non-forest (ft or m)** 20+

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

Additional Comments MYSE ♀
Bat NCDOT 1628 (172.542)
Capture site AR05

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2/28/2017 **Surveyor(s) Full Name:** Theresa Wetzel, Heidi Braunreiter
State: NC **County:** Tyrrell **Project Name:** NCDOT MYSE Research
Site Name/#: RT 272 **Roost Name/#** RT 272 **Bat #:** 172.542
Lat/Long or UTM of Roost: 35.88717, -76.13281
Description of Roost/Habitat Feature Surveyed: Cavity ≈ 9in off ground

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYSE
Other Suspected Bat Species (explain):
Weather Conditions during Survey (temperature, precipitation, wind speed):
67°, clear
Survey Start Time: 1730 **Time of Sunset:** 1759 **Survey End Time:** 1830

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1900	1	

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: RT 272 **Roost Name/#:** RT 272

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?

Bat emerged from low cavity

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/M/172.183 Band # CC 1659 Page _____ of _____

Roost Tree # 271 Project No./Project Name 537 / NCDOT Fall/winter/NLEB Date First Found 28-FEB-17

Location Swamp in Alligator River Area, Close to AR06

County Tyrrell State NC Quad Fort Landing

Lat-Long/UTM: (N) E 35.88733 (W)/N -76.10821 Zone — Datum: NAD83 Observers: T. Cobertson, M. Hinds

#	Tree Tag #	Species	DBH (cm)	Height ft or (m) Tree	Height ft or (m) Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	271	Nyssa biflora	8.3	6	3	Snag	L 0	H 100	U	Cavity
2		Taxodium distichum	43.6	19		L	L	H	C	
3		Taxodium distichum	26.3	7		Snag	L	H	SC	
4		T. distichum	28.5	6		Snag	L	H	U	
5		Nyssa biflora	8.4	8		L	L	H	SC	
6		Liquidambar styraciflua	11.4	9		L	L	H	SC	
7		L. styraciflua	31.5	14		Snag	L	H	SC	
8		L. styraciflua	17.7	12		L	L	H	SC	
9		T. distichum	33.3	8		Snag	L	H	SC	
10		L. styraciflua	13.6	14		L	L	H	SC	
11		L. styraciflua	13.0	14		L	L	H	SC	
12		L. styraciflua	9.8	12		L	L	H	SC	
13		L. styraciflua	15.4	14		L	L	H	SC	
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
(Interior)	Edge	Open

Canopy Cover at Roost		
Open	(Intermediate)	Closed

Basal Area		
Live Trees	Snags	All Trees
80	50	130

Roost Location		
Bark	(Cavity)	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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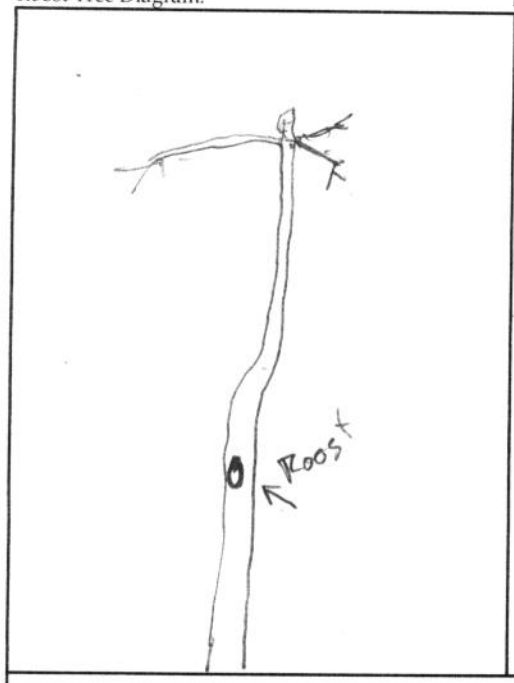
Roost Tree # 271

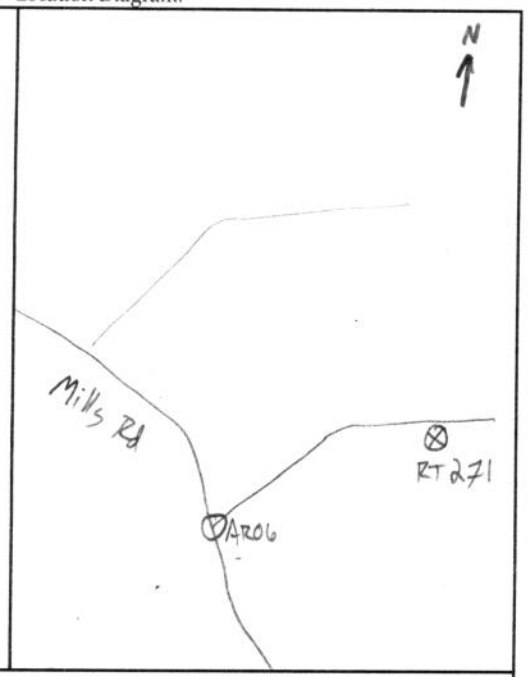
Bat Species/Sex/Frequency: MYSE / M / 172.183

Band # CC1659

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2-28	172.183	CC1659	M	TC, MH
2	3-10	172.183	CC1659	M	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	2-26	67	Clear	1	1759	1827	1827	1827	1	TC, MH
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Opening Measurements: Height	Opening Measurements: Ground	Opening Measurements: H_2O Level
1	Crevice	120°	2.5 in	5 in		Swamp
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): T. Colbertson, Matt Hinds **Date:** 28-Feb-17

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

LAT 35.88233 **LONG** -76.10821

Property Owner: Alligator River Game Land **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 271 (Bat. 183) **Roost Name:** 271

Roost Tree Data

Species: Nyssa biflora **Live** __ **Snag** ✓ **Other** __

(if other, explain) _____

DBH (in or cm) 8.3 **Total Height (ft or m)** 6

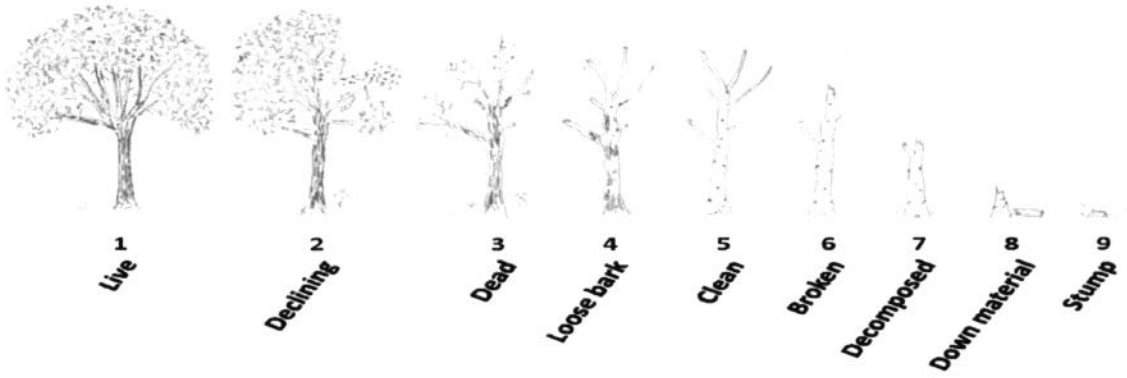
Height of roost area (if known) 3m **Dist. from capture site** 2,248m

Roost position aspect (deg) 120°

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight**__

Cavities present? yes **If so, describe:** knot hole

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)_____ **Distance to non-forest (ft or m)**_____

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature tidal swamp on Alligator River Game Lands

Additional Comments

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 28FEB17 **Surveyor(s) Full Name:** Taylor Culbertson

State: NC **County:** Tyrrell **Project Name:** NCDOT

Site Name/#: RT271 **Roost Name/#** RT271 **Bat #:** 172, 183

Lat/Long or UTM of Roost: 35.88233, -76.10821

Description of Roost/Habitat Feature Surveyed: Knot hole in tree snag / Swampy forested habitat.

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

Other Suspected Bat Species (explain): X

Weather Conditions during Survey (temperature, precipitation, wind speed): 67°F, Clear skies, no wind.

Survey Start Time: 1730 **Time of Sunset:** 1759 **Survey End Time:** 1842

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1827	1	only 1 MYSE tagged bat emerged

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** _____

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

* 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?

_____

_____

_____

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/Female/172.364 Band # CC 1674

Page 1 of 1

Roost Tree # 36 Project No./Project Name 537 / NCDOT NLEB Winter Monitoring Date First Found 26-FEB-2017

Location East of road directly after 3rd water crossing in flooded forest

County Bertie State NC Quad

Lat-Long/UTM: N/E 35.95603 W/N -77.14779 Zone — Datum: NAD 83 Observers: Zack Baer, Molly Gooden

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	36	Nyssa aquatica	62.7	25	9?	L-D	0	100	C	crevice
2		Nyssa aquatica	73.2	25		L	0	100	C	
3		Nyssa aquatica	63	25		L	0	100	C	
4		Nyssa aquatica	58	22		L-D	0	100	C	
5		Nyssa aquatica	52.3	23		L	0	100	C	
6		Nyssa aquatica	69	25		L	0	100	C	
7		Nyssa aquatica	87.4	23		L	0	100	C	
8		Taxodium Distichum	37.4	19		L	0	100	SC	
9		Taxodium Distichum	66.3	26		L	0	100	C	
10		Taxodium Distichum	25.4	15		L	0	100	V	
11		Nyssa aquatica	46.5	22		L	0	100	SC	
12		Nyssa aquatica	82.2	25		L	0	100	C	
13		Nyssa aquatica	67.2	25		L-D	0	100	C	
14		Nyssa aquatica	54.8	23		L	0	100	C	
15		Nyssa aquatica	77.4	25		L	0	100	C	
16		Nyssa aquatica	71.3	25		L	0	100	C	
17		Taxodium Distichum	26.8	14		L	0	100	V	
18		Nyssa aquatica	72.9	23		L	0	100	C	
19		Nyssa aquatica	54.2	22		L	0	100	SC	
20		Nyssa aquatica	62.5	23		L	0	100	SC	
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
200	0	200

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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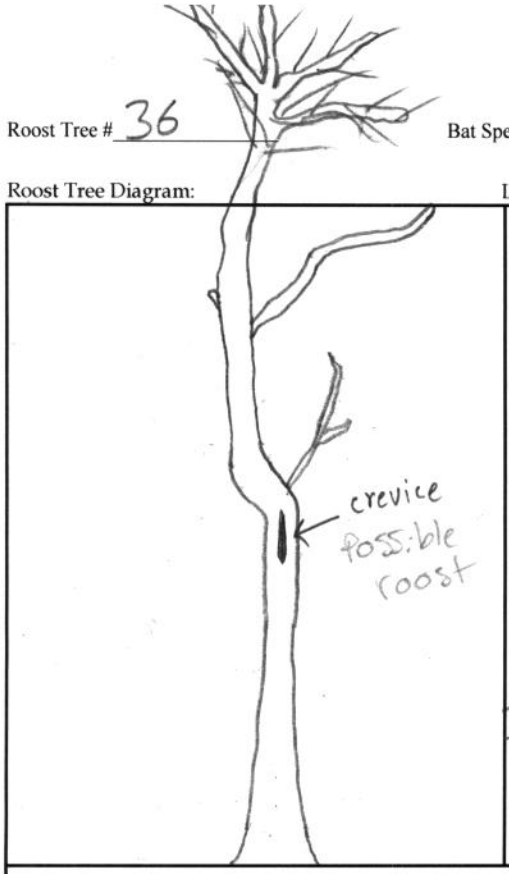
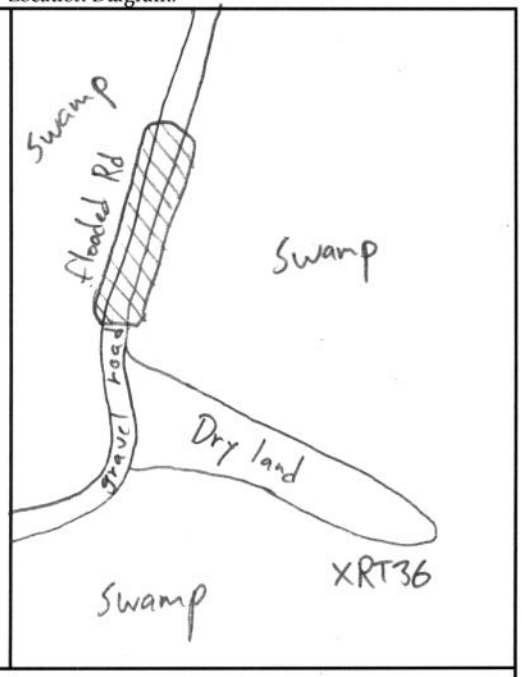
Roost Tree # 36 Bat Species/Sex/Frequency: MYSE/Female/172.364 Band # CC1674

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	26-FEB	.364	CC1674	Female	
2	27-FEB	.364	CC1674	Female	
3	16-MAR	.364	CC1674	Female	
4	17-MAR	.364	CC1674	Female	
5	14 Mar	364	CC1674	Female	
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	26FEB	50.5	clear	0	1800	N/A	N/A	N/A	N/A	Molly Goodn
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	crevice	171°	3cm	.5m	9m	—
2						
3						

Comments:

1	15'	4.3	Y	6	223°	10.8	Y
2	50	1.2	Y	7	232°	7.2	Y
3	84	1.2	Y	8	235°	1.9	Y
4	130	6.8	Y	9	272°	9.9	N
5	108	11.6	Y	10	278°	6.4	Y

90'

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Zachary Beer, Molly Gessler **Date:** 2/26/2017

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 35.95603 **LONG** -77.14779

Property Owner: USFWS (Roanoke River NWR) **Phone#** _____

State NC **County** Bertie **Site #** _____

Roost # 1 **Roost Name:** RT36

Roost Tree Data

Species: Nyssa aquatica **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 62.7 **Total Height (ft or m)** 25

Height of roost area (if known) unk **Dist. from capture site** 457m

Roost position aspect (deg) unk

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy** __ **tight** __

Cavities present? yes **If so, describe:** crevice in tree ≈ 9m up .5m × 3cm

---

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)_____ **Distance to non-forest (ft or m)**_____

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

Cypress – Gum Swamp (Brownwater Subtype)

Additional Comments MYSE/♀/Band # CC 1674/Freq. 172.364

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

RT 36

Bat 364

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2-26-2017 **Surveyor(s) Full Name:** Molly Gooden
State: NC **County:** Bertie **Project Name:** NCDOT NLEB Winter Monitoring
Site Name/#: RT36 **Roost Name/#** #36 **Bat #:** Fg 364
Lat/Long or UTM of Roost: 35.95603 -77.14779
Description of Roost/Habitat Feature Surveyed: Nyssa aquatica habitat is coastal swamp

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYSE
Other Suspected Bat Species (explain):
Weather Conditions during Survey (temperature, precipitation, wind speed):
clear, calm, no percipitation 50.5°F
Survey Start Time: 17:30 **Time of Sunset:** 18:00 **Survey End Time:** 1850

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	0	Bat did not emerge from roost

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River **Roost Name/#:** 36

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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?

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/F/364 Band # CC 1674 Page 1 of 1

Roost Tree # 34 Project No./Project Name 537 / NCDOT NLEB. Winter Monitoring Date First Found 2-28-2017

Location SE of 3rd water crossing in road, NW of RT36

County Bertie State NC Quad

Lat-Long/UTM: N/E 35.95680 W/N -77.14837 Zone — Datum: NAD 83 Observers: ZB, MG

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	34	Nyssa Aquatica	54.7	25	16	L	0	100	C	Knothole
2		Nyssa Aquatica	38.9	23		L	0	100	C	
3		Nyssa Aquatica	77.1	25		L	0	100	C	
4		Nyssa Aquatica	26.2	15		L	0	100	U	
5		Nyssa Aquatica	71.1	25		L	0	100	C	
6		Acer rubrum heterophylla	41.5	26		L	0	100	C	
7		Nyssa Aquatica	71.2	26		L	0	100	C	
8		Nyssa Aquatica	41.4	22		L	0	100	SC	
9		Quercus lyrata	87.8	26		L	0	100	C	
10		Nyssa Aquatica	16.4	13		L	0	100	U	
11		Nyssa Aquatica	53.5	23		L	0	100	SC	
12		Nyssa Aquatica	61.0	26		L	0	100	C	
13		Nyssa Aquatica	64.9	25		L	0	100	C	
14		Nyssa Aquatica	66.7	26		L	0	100	C	
15		Nyssa Aquatica	54.0	25		L	0	100	C	
16		Nyssa Aquatica	53.8	26		L	0	100	C	
17		Nyssa Aquatica	44.0	24		L	0	100	C	
18		Nyssa Aquatica	73.0	26		L	0	100	C	
19		Nyssa Aquatica	64.0	25		L	0	100	C	
20		Nyssa Aquatica	73.9	26		L-D	0	100	C	
21		Nyssa Aquatica	79.6	26		L	0	100	C	
22		Nyssa Aquatica	80.5	26		L	0	100	C	

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
220	0	220

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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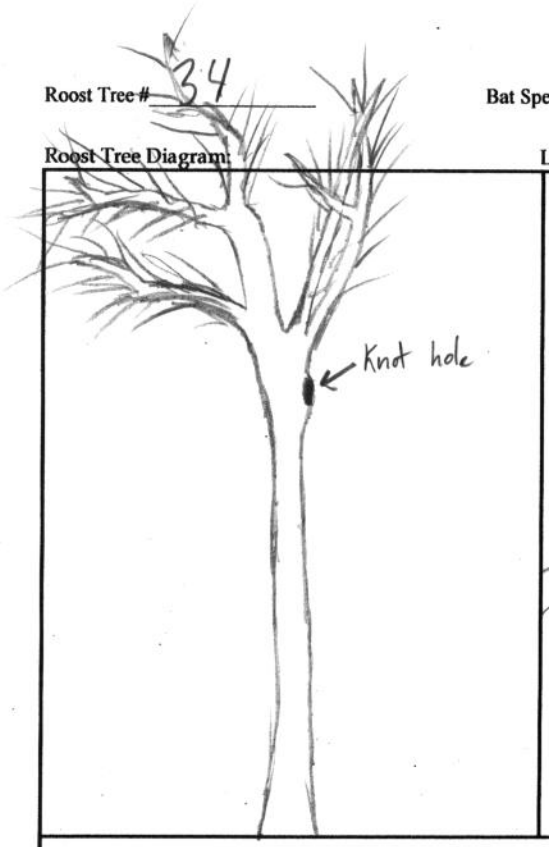
Roost Tree # 34

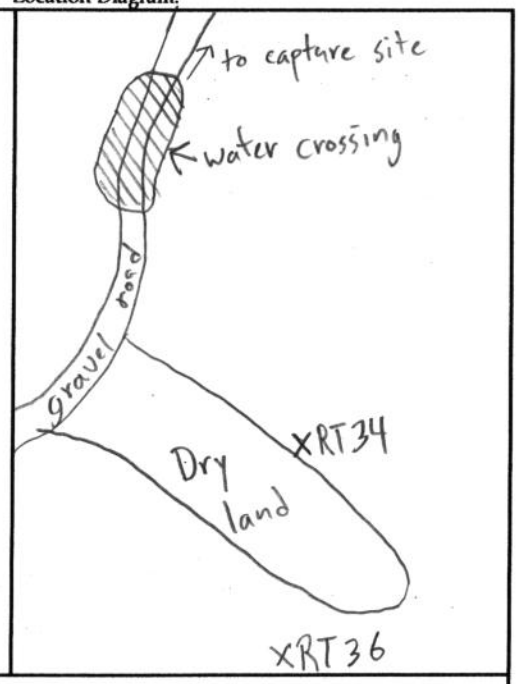
Bat Species/Sex/Frequency: MYSE/F/172.364

Band # CC 1674

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	28 FEB	364	CC1674	F	
2	4 Mar	364	CC1674	F	
3	5 Mar	364	CC1674	F	
4	6 Mar	364	CC1674	F	
5	7 Mar	364	CC1674	F	
6	8 Mar	364	CC1674	F	
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
* 1	2-28	70.5	overcast	6	1801	1816	1816	N/A	N/A	M. Gooden
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	cavity	89°	5cm	5cm	16	—
2						
3						

Comments:
*= tagged bat did not emerge but was heard moving around

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Zach Baer, Molly Cooker **Date:** 2/28/2017

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

LAT 35.95680 **LONG** -77.14837

Property Owner: USFWS (Roanoke River NWS) **Phone#**_____

State NC **County** Bertie **Site #**_____

Roost # 2 **Roost Name:** RT34

Roost Tree Data

Species: Nyssa aquatica **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 54.7 **Total Height (ft or m)** 25

Height of roost area (if known) 16 **Dist. from capture site** 367m

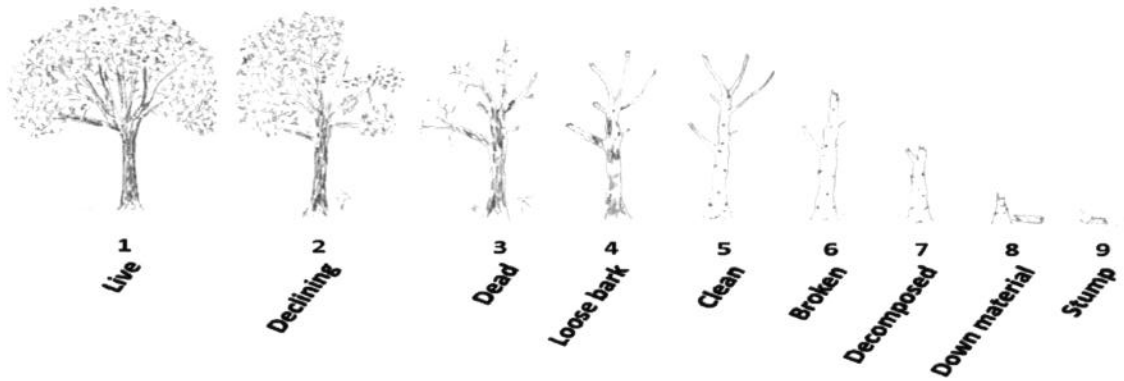
Roost position aspect (deg) 89

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight**__

Cavities present? Y **If so, describe:** knot hole ≈ 5cm x 5cm

---

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)_____ **Distance to non-forest (ft or m)**_____

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

Gum - Cypress Swamp (Brownwater Subtype)

Additional Comments MYSE/♀/Band # CC 1674/Freq. 172.364

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

RT 34
Bat 4
364

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2-28-2017 **Surveyor(s) Full Name:** Molly Gooden
State: NC **County:** Bertie **Project Name:** NCDOT NLEB Winter Monitoring
Site Name/#: Roanoke River **Roost Name/#** RT34 **Bat #:** 364
Lat/Long or UTM of Roost: 35.95680 -77.14837
Description of Roost/Habitat Feature Surveyed: Nyssa aquatica in flooded forest

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

Other Suspected Bat Species (explain): N/A

Weather Conditions during Survey (temperature, precipitation, wind speed):
no precipitation, overcast, temp 70.5°F, slight wind

Survey Start Time: 1730 **Time of Sunset:** 1800 **Survey End Time:** 1900

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1813	0	bat flew right over my head
1815	0	2 bats emerged from tree west of RT
1816	6	all from RT (364 did not emerge)
1819	0	bat flew past RT and circled several times

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River **Roost Name/#:** RT34

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	6	the tagged but did not emerge

* 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?

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/M/172.125 Band # NCDOT 1629 Page 1 of ____

Roost Tree # 66(B) Project No./Project Name 537 / NCDOT NLEB monitoring Date First Found 2/26/2017

Location 0.25 miles to the left of road after 3rd water crossing, in pretty deep swamp

County Bertie State NC Quad

Lat-Long/UTM: N/E 36.95377, -77.15121 W/N -77.15121 Zone — Datum: NAD 83 Observers: AD, CB

#	Tree Tag #	Species	DBH (cm)	Height ft or m: Tree	Height ft or m: Roost	Condition*	% Bark Cover**: Usable	% Bark Cover**: Total	Tree Ranking***	Available Roost/ Observation
1	66	Nyssa aquatica	86.9	26	21	L	0	100	C	
2		Nyssa aquatica	54.8	27		L	0	100	C	
3		Nyssa aquatica	29.1	23		L	0	100	SC	
4		Nyssa aquatica	60.9	25		L	0	100	C	
5		Nyssa aquatica	71.1	26		L	0	100	C	
6		Nyssa aquatica	69.3	25		L	0	100	C	
7		Nyssa aquatica	48.0	24		L	0	100	C	
8		Nyssa aquatica	39.3	24		L	0	100	C	
9		Nyssa aquatica	75.2	30		L	0	100	C	
10		Nyssa aquatica	43.4	26		L	0	100	C	
11		Nyssa aquatica	46.0	26		L	0	100	C	
12		Nyssa aquatica	41.5	25		L	0	100	C	
13		Nyssa aquatica	33.2	22		L	0	100	SC	
14		Nyssa aquatica	63.1	27		L	0	100	C	
15		Nyssa aquatica	65.0	28		L	0	100	C	
16		Nyssa aquatica	57.7	25		L	0	100	SC	
17		Nyssa aquatica	76.0	28		L	0	100	C	
18		Nyssa aquatica	32.1	19		L	0	100	SC	
19		Nyssa aquatica	48.2	27		L	0	100	C	
20		Nyssa aquatica	72.9	32		L	0	100	C	
21		Nyssa aquatica	48.3	25		L	0	100	C	
22		Nyssa aquatica	72.6	29		L	0	100	C	

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

Trees are N. aquatica, live

#	Height	Ranking
1		
2	29	C
3	28	C
4	28	C
5	30	C
6	26	SC
7	28	C
8	32	C
9	21	SC

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
300	0	300

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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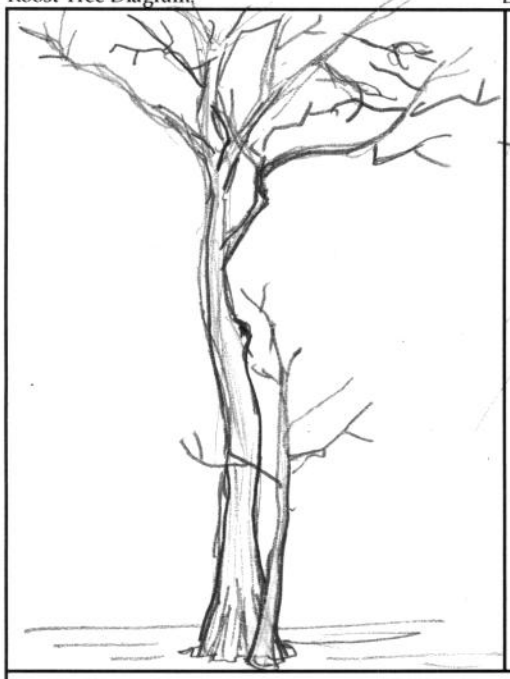
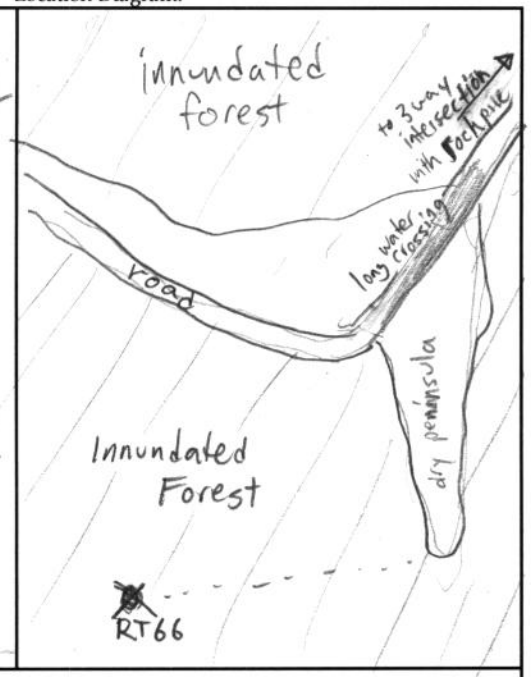
Roost Tree # 66(B) Bat Species/Sex/Frequency: MYSE/M/.125 Band # NCDOT 1629

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2-26	125	NCDOT1629	male	
2	3-1	125	NCDOT1629	male	
3	3-2	125	NCDOT1629	male	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	2/26	50.5	clear	1	1800	1843	1843	1	1	A.Dart
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Alexi Dart-Padover, Chris Bullock **Date:** 2/26/2017

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

LAT 35.95377 **LONG** -77.15121

Property Owner: USFWR (Roanoke River NWR) **Phone#**_____

State NC **County** Bertie **Site #**_____

Roost # 1 **Roost Name:** RT66(8)

Roost Tree Data

Species: Nyssa aquatica **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 86.9 **Total Height (ft or m)** 26

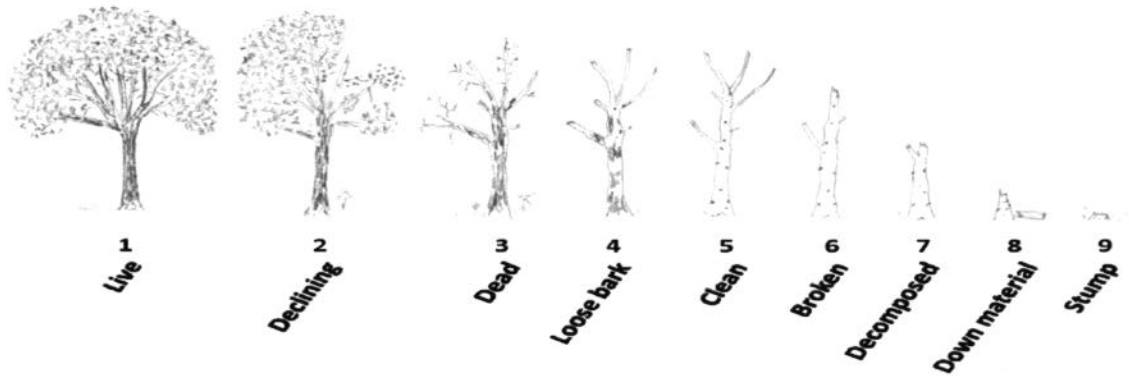
Height of roost area (if known) 21m **Dist. from capture site** 126 m

Roost position aspect (deg)_____

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight** X

Cavities present? N **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 (%) 90

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

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

Cypress-Gum Swamp (Blackwater Subtype)

Additional Comments MYSE / ♂ / Band #NCDOT 1629 / Freq. 172.125

Rt 66
Bat 12

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2/26/2017 **Surveyor(s) Full Name:** Alexi Dat-Padover, Chris Bullock
State: NC **County:** Bertie **Project Name:** NCDOT NLEB winter Monitoring
Site Name/#: Roanoke River NWR **Roost Name/#** RT 66(B) **Bat #:** 172.125
Lat/Long or UTM of Roost: 35.95377, -77.15121
Description of Roost/Habitat Feature Surveyed: Nyssa aquatica in innundated (2 ft deep) forest
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed): No clouds, no wind, no precipitation 50.5 °F
Survey Start Time: 1750 **Time of Sunset:** 1800 **Survey End Time:** 1845

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1835	0	Bat emerged from tree 15m away, flying Northpast RT
1843	1	Tagged bat left but was not visible

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River **Roost Name/#:** 66

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?

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/M/172.125 Band # NCDOT 1629 Page 1 of 1

Roost Tree # RT98 Project No./Project Name 537 / NCDOT NLEB Winter Monitoring Date First Found 2/27/2017

Location South of road, after long water crossing, on edge of swamp

County Bertie State NC Quad

Lat-Long/UTM: N/E 35.95511 W/N -77.15029 Zone – Datum: NAD83 Observers: ADP, CB

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	98	Nyssa aquatica	62.8	25	20	L	0	100	C	
2		N. aquatica	25.9	12		L	0	100	SC	
3		N. aquatica	30.1	15		L	0	100	SC	
4		N. aquatica	64.5	26		L	0	100	C	
5		N. aquatica	37.0	24		L	0	100	C	
6		N. aquatica	54.3	26.		L	0	100	C	
7		N. aquatica	48.7	25		L	0	100	C	
8		N. aquatica	20.5	15		L	0	100	SC	
9		N. aquatica	31.0	20		L	0	100	SC	
10		N. aquatica	49.9	26		L	0	100	C	
11		N. aquatica	63.8	26		L	0	100	C	
12		N. aquatica	66.6	26		L-D	0	100	C	has huge hollow buttress
13		N. aquatica	48.3	26		L	0	100	C	
14		Taxodium distichum	48.8	21		L	0	100	SC	
15		T. distichum	61.7	28		L	0	100	C	
16		T. distichum	71.8	28		L	0	100	C	
17		Populus heterophylla	44.1	27		L	0	100	C	
18		N. aquatica	52.6	25		L	0	100	C	
19		N. aquatica	59.7	25		L	0	100	C	
20		N. aquatica	62.2	25		L-D	0	100	C	
21		N. aquatica	51.9	26		L	0	100	C	
22		T. distichum	7.5	4		S	10	40	U	

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
210	10	220

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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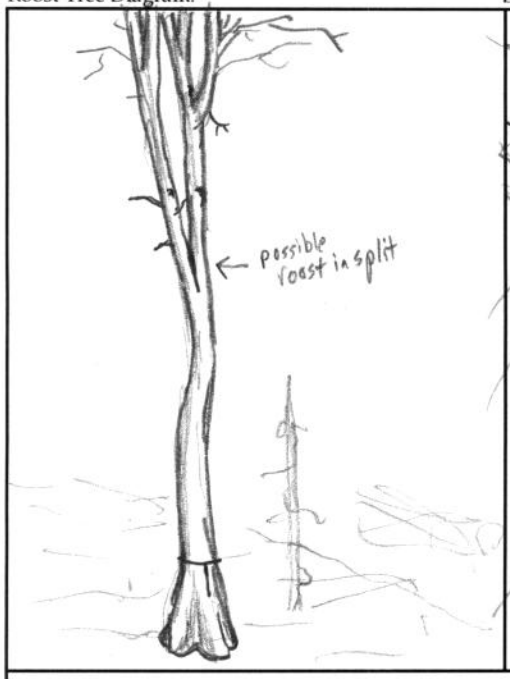
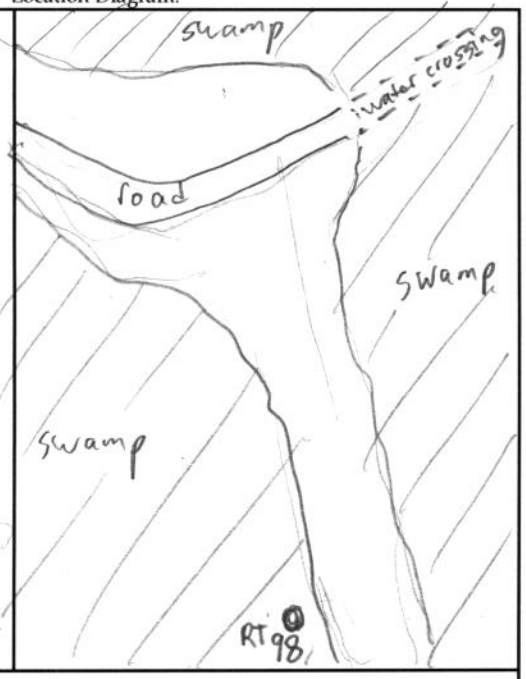
Roost Tree # RT98 Bat Species/Sex/Frequency: MYSE/M/172.125 Band # NCDOT 1629

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2/27	.125	NCDOT1629	M	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	2/27	61.5	partly cloudy	2	1801	1820	1824	1824	2	ADP, CB
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Opening Measurements: Height	Opening Measurements: Ground	Opening Measurements: H_2O Level
1						
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Alexi Dart Padovar, Chris Bullock **Date:** 2/27/2017

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

LAT 35.95511 **LONG** -77.15029

Property Owner: USFWS (Roanoke River NWR) **Phone#**_____

State NC **County** Bertie **Site #**_____

Roost # 2 **Roost Name:** RT 98

Roost Tree Data

Species: Nyssa aquatica **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 62.8 **Total Height (ft or m)** 25

Height of roost area (if known) 20 **Dist. from capture site** 1,106m

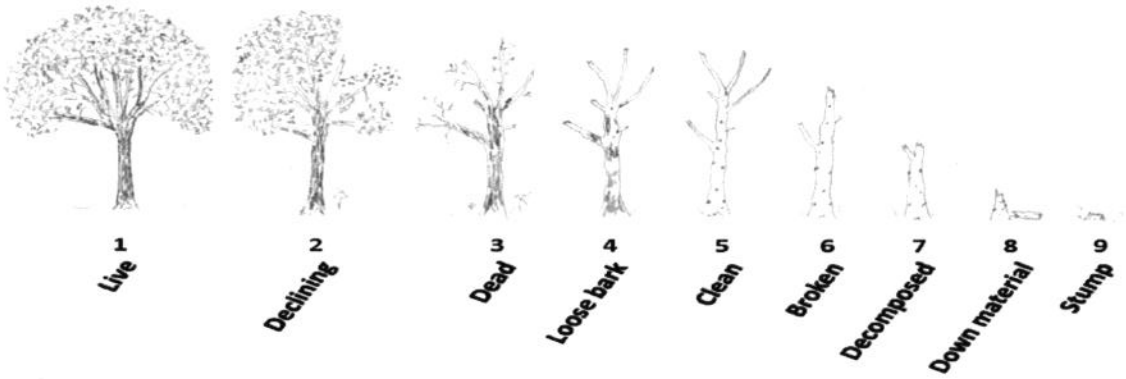
Roost position aspect (deg) N/A

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight** X

Cavities present? Yes **If so, describe:**_____

Possible cavity in trunk split

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 (%) 80

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

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

Cypress - Gum Swamp (Brownwater Subtype)

Additional Comments MYSE / ♂ / Band # NCDOT 1629 / Freq. 172.125

RT 98
Bat 125

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2/27/2017 **Surveyor(s) Full Name:** Alexi Dart-Pabover, Chris Bullock
State: NC **County:** Bertie **Project Name:** NCDOT NLEB Winter Monitoring
Site Name/#: Roanoke River NWR **Roost Name/#** RT 98 **Bat #:** 125
Lat/Long or UTM of Roost: 35.95511, -77.15029
Description of Roost/Habitat Feature Surveyed: Inundated Nyssa aquatica on edge of swamp.

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

Other Suspected Bat Species (explain): N/A

Weather Conditions during Survey (temperature, precipitation, wind speed):
Partly cloudy, light breeze, no precipitation 61.5 °F

Survey Start Time: 1745 **Time of Sunset:** 1759 **Survey End Time:** 1845

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1820	1	One bat emerged
1822	0	Several bats circled above the canopy for next 5 min
1824	1	tagged bat left
1825	0	A bat emerged from nearby (5m) tree

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River NWR **Roost Name/#:** R98

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	2	

* 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?

Flew in N/E direction. Did not loiter but several other bats did over the treetops intermittently

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE / M / 172.125 Band # NCDOT 1629 Page 1 of 1

Roost Tree # 303 Project No./Project Name 537 / NCDOT NLEB Winter Monitoring Date First Found 2/28/2017

Location In narrow swamp surrounded by logged strips, E of road

County Bertie State NC Quad

Lat-Long/UTM: N/E 35.98059 W/N -77.14668 Zone — Datum: NAD83 Observers: AD, CB

#	Tree Tag #	Species	DBH (cm)	Height ft or m: Tree	Height ft or m: Roost	Condition*	% Bark Cover**: Usable	% Bark Cover**: Total	Tree Ranking***	Available Roost/ Observation
1	303	Nyssa biflora	31.6	20	15	L-D	0	100	C	Cavity
2		N. biflora	30.3	19		L		100	C	
3		N. biflora	33.1	21		L		100	C	
4		Taxodium distichum	41.8	25		L		100	C	
5		Nyssa biflora	32.0	18		L		100	C	
6		N. biflora	37.2	23		L		100	C	
7		Taxodium distichum	54.3	26		L		100	C	
8		Nyssa biflora	9.1	13		L		100	SC	
9		N. biflora	26.7	18		L		100	C	
10		N. biflora	39.1	20		L		100	C	
11		Taxodium distichum	46.3	23		L		100	C	
12		N. biflora	60.5	29		L		100	C	
13		Nyssa biflora	36.0	26		L		100	C	
14		Populus heterophylla	46.4	27		L		100	C	
15		Nyssa biflora	35.3	18		L		100	C	
16		N. biflora	48.9	32		L		100	C	
17		N. biflora	22.8	18		L		100	SC	
18		N. biflora	41.5	22		L		100	C	
19		N. biflora	31.7	20		L		100	C	
20		N. biflora	34.5	21		L		100	C	
21		N. biflora	24.4	16		L		100	SC	
22		N. biflora	37.7	22		L		100	C	

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

N. biflora	42.6	26	L	C	
N. biflora	27.9	19	L	SC	
Taxodium distichum	52.1	33	L	C	
Nyssa biflora	41.4	27	L	C	
Taxodium distichum	31.0	20	L	C	

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
280	0	280

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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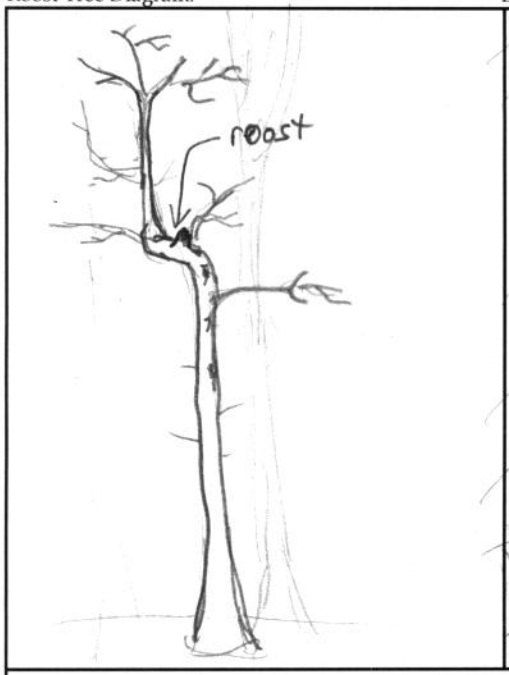
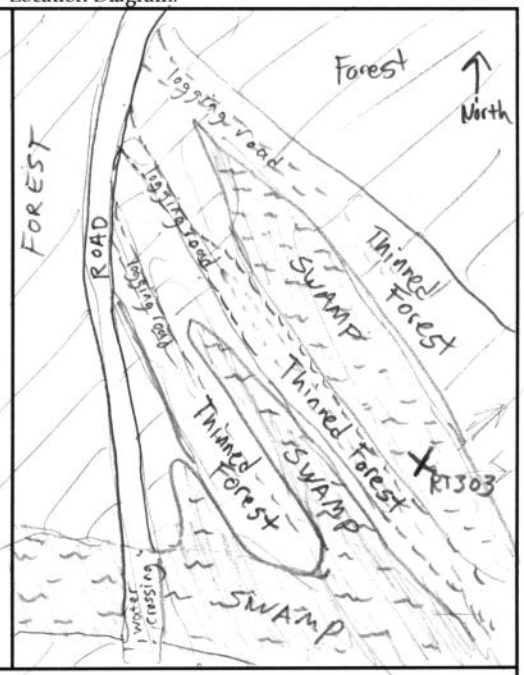
Roost Tree # 303 Bat Species/Sex/Frequency: MYSE / M / 172.125 Band # NCDOT 1629

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2/28	.125	NCDOT 1629	M	
2	3 Mar	.125	NCDOT 1629	M	
3	4 Mar	.125	NCDOT 1629	M	
4	5 Mar	.125	NCDOT 1629	M	
5	6 Mar	.125	NCDOT 1629	M	
6	7 Mar	.125	NCDOT 1629	M	
7	8 Mar	.125	NCDOT 1629	M	
8	9 Mar	.125	NCDOT 1629	M	
9	10 Mar	.125	NCDOT 1629	M	
10	11 Mar	.125	NCDOT 1629	M	
11	12 Mar	.125	NCDOT 1629	M	
12	13 Mar	.125	NCDOT 1629	M	Transmitter sounds loud & near
13	14 Mar	.125	NCDOT 1629	M	" "
14	15 Mar	.125	NCDOT 1629	M	" "
15	16 Mar	.125	NCDOT 1629	M	" "
16	17 Mar	.125	NCDOT 1629	M	" "
17	18 Mar	.125	NCDOT 1629	M	" "

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	2/28	70.5	clear	1	18:02	1816	1816	1816	1	AD
2	3/9		clear/wind	2	18:11	1831	1831	1831	2	ZB/KB
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	cavity	0°	4	5	15 m	
2						
3						

Comments: 3/3 - Transmitter better heard at .126

1	15°	4.3	Y	6	223°	10.8	Y
2	50°	1.2	Y	7	232°	7.2	Y
3	84°	1.2	Y	8	235°	1.9	Y
4	130°	6.8	Y	9	272°	9.9	Y
5	178°	11.9	Y	10	278	1.4	Y

100%

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Alexi Dont-Pulover, Chris Bullock **Date:** 2/28/2017

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

LAT 35.98059 **LONG** -77.14668

Property Owner: USFWS (Roanoke River NWR) **Phone#**_____

State NC **County** Bertie **Site #**_____

Roost # 3 **Roost Name:** RT 303

Roost Tree Data

Species: Nyssa biflora **Live** X **Snag** __ **Other** __

(if other, explain) —

DBH (in or cm) 31.6 **Total Height (ft or m)** 20

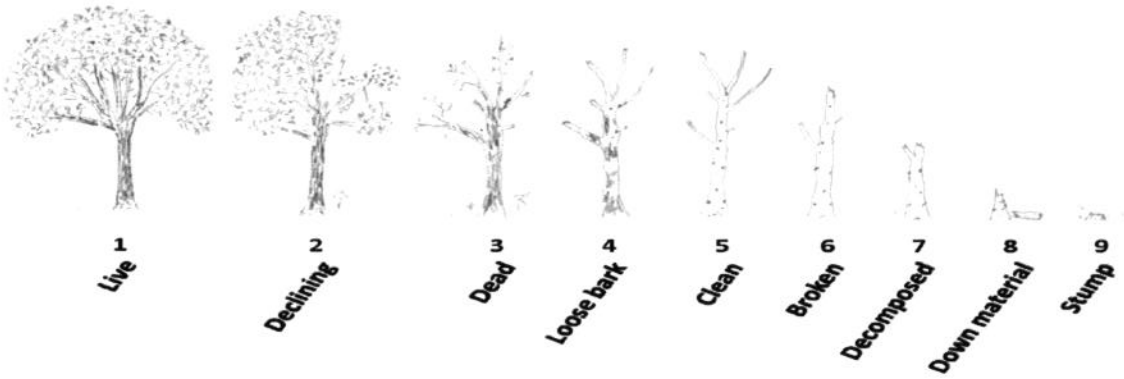
Height of roost area (if known) 15 **Dist. from capture site** 1743m

Roost position aspect (deg) 0

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight** X

Cavities present? Y **If so, describe:** Small cavities near top where trunk broke

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 (%) 100

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

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

Cypress - Gum Swamp (Brownwater Subtype)

Additional Comments MYSE/♂/Band # NCDOT 1629/Freq. 172.125

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2/28/2017 **Surveyor(s) Full Name:** Alexi Dart-Padover
State: NC **County:** Bertie **Project Name:** NCDOT NLEB
Site Name/#: Roanoke River NWR **Roost Name/#** RT 303 **Bat #:** .125
Lat/Long or UTM of Roost: 35.98059, -77.14668
Description of Roost/Habitat Feature Surveyed: In middle of ~~narrow~~ tupelo/cypress swamp, in Nyssa biflora
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): —
Weather Conditions during Survey (temperature, precipitation, wind speed): No clouds, light breeze, 70.5 °F
Survey Start Time: 1745 **Time of Sunset:** 1802 **Survey End Time:** 1840

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1816	1	rugged bat emerged

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River NWR **Roost Name/#:** RT 303

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?

Bat did not loiter, flew immediately North-west

No other bats observed in the area

RT 303
Bat 125

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 9-March-2017 **Surveyor(s) Full Name:** Zack Baer, Kate Baer
State: NC **County:** Bertie **Project Name:** NCDOT NLEB Winter Monitoring
Site Name/#: Roanoke River NWR **Roost Name/#** RT 303 **Bat #:** 125
Lat/Long or UTM of Roost: 35.98059 -77.14668
Description of Roost/Habitat Feature Surveyed: In middle of narrow tupelo/cypress swamp, in Nyssa biflora
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): —
Weather Conditions during Survey (temperature, precipitation, wind speed): clear, light wind ~1, temp 62.0°F
Survey Start Time: 1740 **Time of Sunset:** 1811 **Survey End Time:** 1850

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1831	1	non-tagged bat exited
1831	1	tagged bat exited

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River NWR **Roost Name/#:** RT 303

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	2	both bats left at almost the same time.

* 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?

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/M 172.604/S Band # CC 1963

Page _____ of _____

Roost Tree # 25 Project No./Project Name 537 / NCDOT Date First Found 28 FEB 2017

Location middle of Alligator River GL, South of HWY 64

County Tyrrell State NC Quad Fort Landing

Lat-Long/UTM: N/E 35.89714 W/N -76.11332 Zone — Datum: NAD83 Observers: R. Stinson I. Burns

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	25	Nyssa. sp	19.3	11	9	L-D	15	75	C	Crack at top
2		Nyssa. spp	25	10.5		L-D	10	100	SC	Peeling Bark
3		Nyssa. spp	20.3	10		L-D	0	100	C	N/A
4		T. distichum	16.6	8.0		L	0	100	SC	N/A
5		Nyssa. spp	31.8	7.5		L	0	100	SC	N/A
6		L. Styraciflua	15.3	7.5		L	15	90	SC	Peeling Bark
7		Nyssa spp.	23	8.5		L	0	100	C	N/A
8		Nyssa. spp.	21.3	9.5		L	0	100	C	N/A
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
80	0	80

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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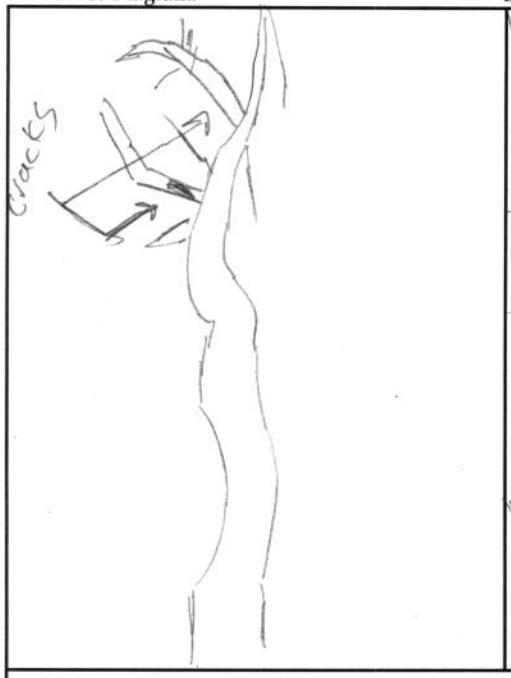
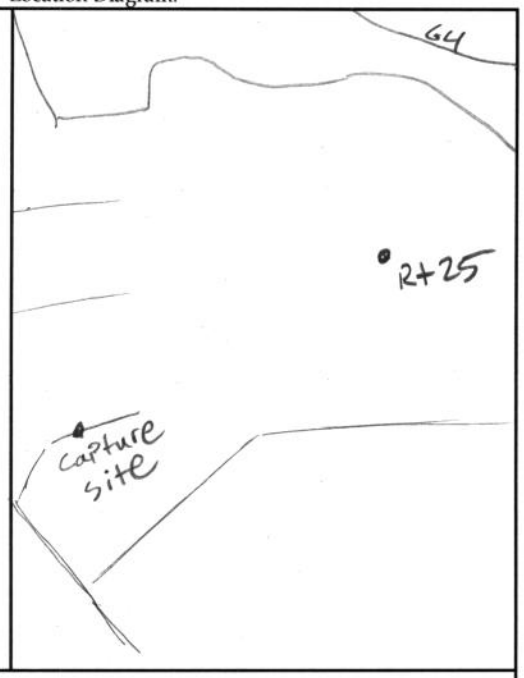
Roost Tree # RT 25 Bat Species/Sex/Frequency: MYSE/M/172.605 Band # CC1963

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	2/28	605		M	
2	3/1	605		M	Presence in RT25 not confirmed
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	2/28	75	Cloudy	1	1801	1837	1837	1837	1	Done via Antenna *
2	3/~~0~~	52	clear	0	1806	—	—	—	0	
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	Crack	90				
2						
3						

Comments:
* Done from truck

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Robert Stinson, Ian Burnes **Date:** 28 Feb. 2017

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

LAT 35.89714 **LONG** -76.11332

Property Owner: (State) Alligator River Game Lands **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 1 **Roost Name:** RT25

Roost Tree Data

Species: Nyssa spp. **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 19.3 **Total Height (ft or m)** 11 m

Height of roost area (if known) 9 m **Dist. from capture site** 2,155 m

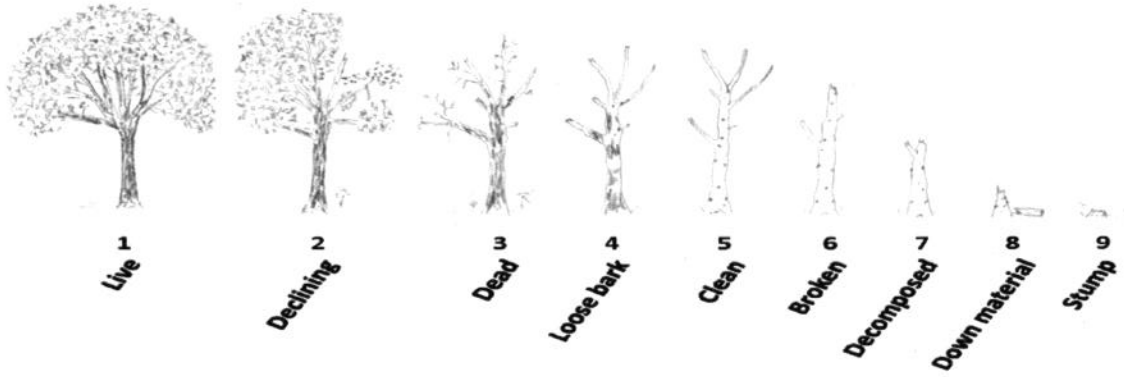
Roost position aspect (deg) N/A

Exfoliating bark on bole (%) 15 **Describe: sloughing** ✓ **platy**__ **tight**__

Cavities present? yes **If so, describe:** few small cavities on upper branches

---

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 (%) 70%

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

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

Additional Comments MYSE/♂/Band #CC1963/Frq. 172.605

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/6/2017 **Surveyor(s) Full Name:** JEFF HAWKINS
State: NC **County:** Tyrell **Project Name:** #537 NCDOT FALL/WINTER MYSE
Site Name/#: Alligator River **Roost Name/#** 25 **Bat #:** CC1963(172.605)
Lat/Long or UTM of Roost: N35.89714 W76.11332
Description of Roost/Habitat Feature Surveyed: Live/Damaged Nyssa biflora located in Tidal Swamp Forest ≈ 4,000 ft southing US64 in Alligator River Game Lands
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed): ≈ 60F, clear, wind speed < 5
Survey Start Time: 1800 **Time of Sunset:** 1807 **Survey End Time:** 1840

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1807	0	No bats observed to exit. This roost was originally located on 28 Feb.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT25

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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 not observed to exit

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/F/.542

Band # NCDOT 1628

Page 1 of 1

Roost Tree # 273 Project No./Project Name 537 / NCDOT Fall/Winter NLEB Date First Found 1 March 2017

Location NE of capture site AR05

County Tyrrell State NC Quad

Lat-Long/UTM: N/E 35.89044 W/N 76.13017 Zone — Datum: NAD83 Observers: T. Wetzel, M. Hinds

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	273	Myrica cerifera	12.8	8	4	LD	L	H	SC	Cavity
2		Nyssa biflora	16.8	15		L	L	H	C	
3		Pinus taeda	50	4		S	L	H	U	
4		N. biflora	21.5	18		L	L	H	C	
5		N. biflora	14.8	15		L	L	H	C	
6		N. biflora	17.3	18		L	L	H	C	
7		N. biflora	19.2	17		L	L	H	C	
8		Acer rubrum	37.2	18		L	L	H	C	
9		Pinus sp.	32.5	8		S	L	L	U	
10		Liriodendron tulipifera	23.2	16		L	L	H	C	
11		N. biflora	26.2	16		L	L	H	C	
12		L. styraciflua	35.7	19		L	L	H	C	
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
100	20	120

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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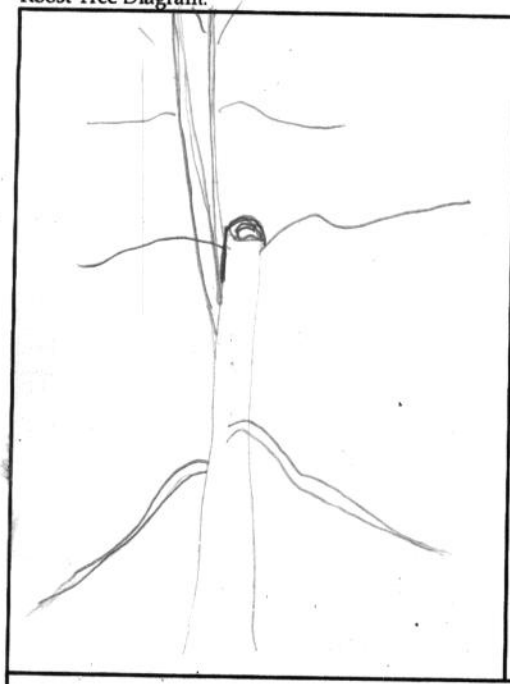
Roost Tree # 273

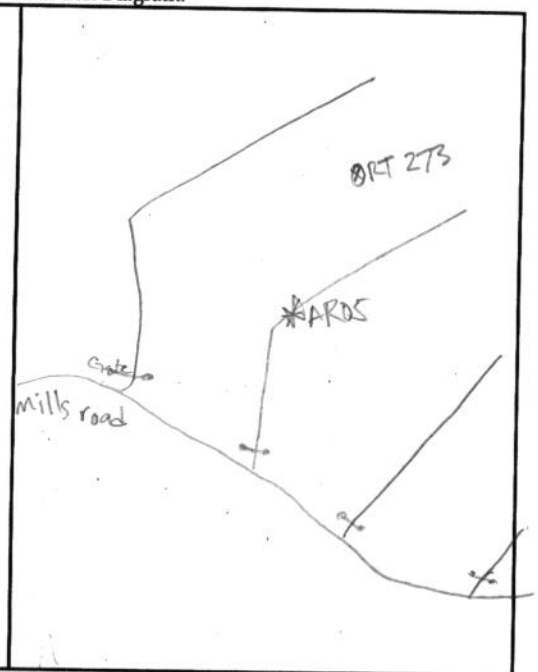
Bat Species/Sex/Frequency: MYSE/F/542

Band # NCDOT 1628

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/1	542	NCDOT 1628	F	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/1	70	windy	1	1801	1847	1847	1	1	T. Wethel M. Hinds
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	natural	UP	3	2	3m	swamp
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Theresa Ueted, Matt Hinds **Date:** 1 March 2017

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

LAT 35.89044 **LONG** -76.13017

Property Owner: State (Alligator River Game Lands) **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 2 **Roost Name:** RT273

Roost Tree Data

Species: Myrica cerifera **Live** __ **Snag** __ **Other** ✓ Live-damaged

(if other, explain) _____

DBH (in or cm) 12.8 **Total Height (ft or m)** 8

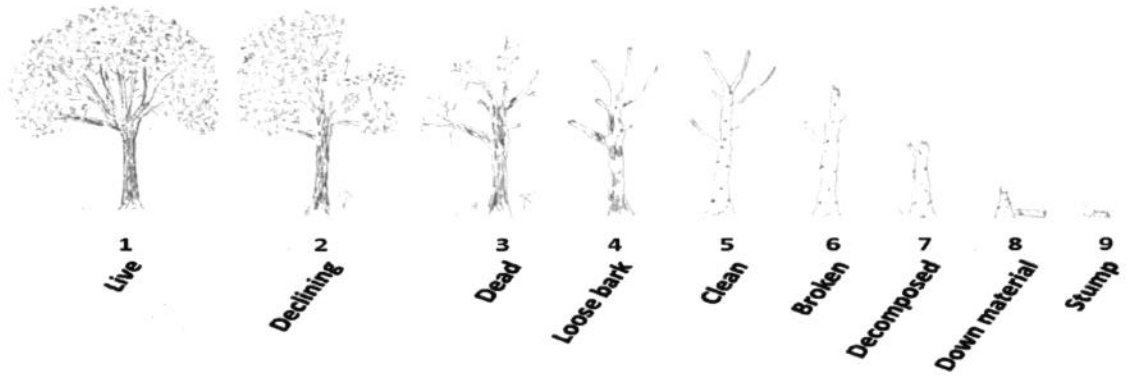
Height of roost area (if known) 4m **Dist. from capture site** 498m

Roost position aspect (deg)_____

Exfoliating bark on bole (%) <10 **Describe: sloughing** __ **platy**__ **tight**__

Cavities present? Y **If so, describe:** Possible cavity present from broken limb

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)_____ **Distance to non-forest (ft or m)**_____

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

Additional Comments MYSE/♀/Band # NEDOT 1628/Freq. 172.542

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 1 March 2017 **Surveyor(s) Full Name:** Theresa Wetel, Matt. Hinds
State: NC **County:** Tyrrell **Project Name:** NCDOT Fall/Winter NLEB
Site Name/#: RT 273 **Roost Name/#** RT 273 **Bat #:** 542
Lat/Long or UTM of Roost: 35.89044 / -76.13017
Description of Roost/Habitat Feature Surveyed: cavity roost

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Myotis septentrionalis
Other Suspected Bat Species (explain): NA
Weather Conditions during Survey (temperature, precipitation, wind speed):
70, cloudy, light wind
Survey Start Time: 1730 **Time of Sunset:** 1801 **Survey End Time:** 1850

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1847	1	radio-tagged bat 172.542

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** _____

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

* 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?

Bat emerged after it was too dark to see, confirmed bat emergence time with 3-element antenna at the site.

Roost Tree Data Form (2014) | Bat Species/Sex/Frequency: MYSE/F/364 | Band # CC 1674 | Page ____ of ____

Roost Tree # 38 | Project No./Project Name 537 / NC DOT NLEB Winter Monitoring | Date First Found 3/1/2017

Location East of Road directly after third Water crossing in flooded forest

County Bertie | State NC | Quad

Lat-Long/UTM: N/E 35.95623 | W/N -77.14799 | Zone ____ | Datum: NAD83 | Observers: CB, MG, ZB

#	Tree Tag #	Species	DBH (cm)	Height ft or m (circled) Tree	Height ft or m (circled) Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	38	Populus heterophylla	38.0	24	?	L-D	0	100	C	
2		taxodium discichum	19.0	15		L	0	100	U	
3		taxodium discichum	51.8	26		L	0	100	C	
4		Nyssa aquatica	63.2	25		L-D	0	100	C	
5		taxodium discichum	46.3	25		L	0	100	C	
6		taxodium discichum	9.9	9		L	0	100	U	
7		Populus heterophylla	20.1	3		S	0	50	U	
8		taxodium discichum	21.1	15		L	0	100	U	
9		Nyssa aquatica	60.9	25		L	0	100	C	
10		Nyssa aquatica	71.7	26		L	0	100	C	
11		Nyssa aquatica	48.6	25		L	0	100	C	
12		Nyssa aquatica	56.1	26		L	0	100	C	
13		Nyssa aquatica	67.1	26		L	0	100	C	
14		Acer rubrum	51.5	22		L-D	0	100	SC	
15		Nyssa aquatica	57.3	25		L	0	100	C	
16		Nyssa aquatica	55.9	24		L	0	100	C	
17		Populus heterophylla	23.8	20		L-D	0	100	SC	
18		Nyssa aquatica	69.6	26		L	0	100	C	
19		Populus heterophylla	31.5	21		L-D	0	100	SC	
20		Populus heterophylla	41.2	25		L	0	100	C	
21		Nyssa aquatica	60.0	25		L	0	100	C	
22		Nyssa aquatica	65.3	26		L	0	100	C	
		Nyssa aquatica	44.2	24		L	0	100	C	

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

Habitat		
Interior (circled)	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed (circled)

Basal Area		
Live Trees	Snags	All Trees
220	10	230

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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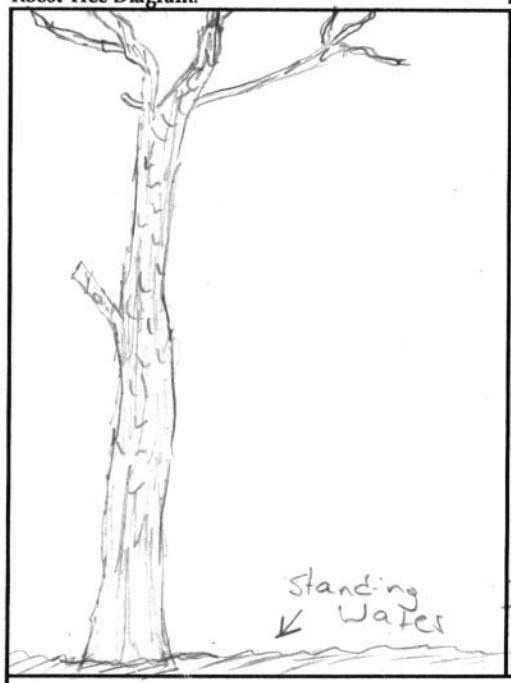
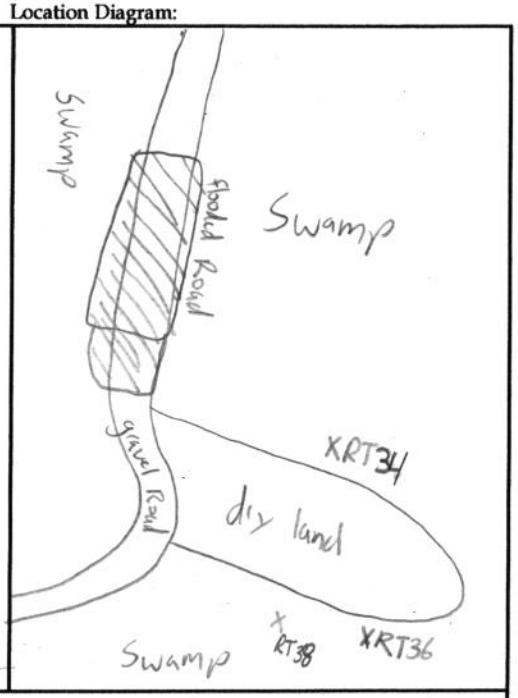
Roost Tree # 38 Bat Species/Sex/Frequency: MYSE/F/364 Band # CC 1674

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3-1-17	364	CC1674	F	
2	3-2-17	364	CC1674	F	
3	3-9-17	364	CC1674	F	
4	3-10-17	364	CC1674	F	
5	3-11-17	364	CC1674	F	
6	3-12-17	364	CC1674	F	
7	3-13-17	364	CC1674	F	
8	3-14-17	364	CC1674	F	
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
* 1	3/1	74.5	cloudy	1	1803	1847	1847	1847	1	K. Baer E. Baer
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:
* Too dark to see bat emerge but heard with receiver

1	15°	4.3	Y
2	50°	1.2	Y
3	84°	1.2	Y
4	130°	6.8	Y
5	178°	11.0	Y
6	223°	10.8	N
7	232°	7.2	Y
8	235°	1.9	Y
9	272°	9.9	Y
10	278°	6.4	Y

= 90%

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Chris Bullock, Jack Baer, Molly Gooder **Date:** 3/1/2017

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 35.95623 **LONG** -77.14799

Property Owner: USFWS (Roanoke River NWR) **Phone#**

State NC **County** Bertie **Site #**

Roost # 3 **Roost Name:** RT38

Roost Tree Data

Species: Populus heterophylla **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 38.0 **Total Height (ft or m)** 24

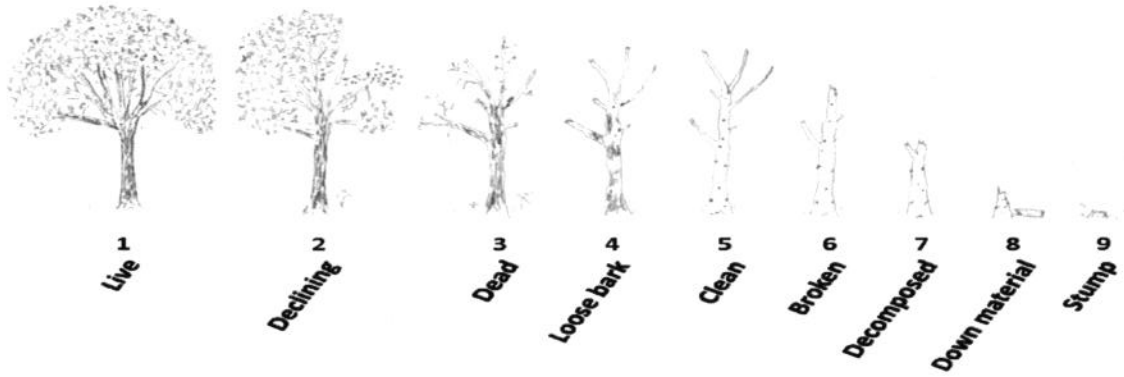
Height of roost area (if known) unk **Dist. from capture site** 433 m

Roost position aspect (deg) unk

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy** __ **tight** X

Cavities present? unk **If so, describe:** could be cavities towards the top of the tree

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)_____ **Distance to non-forest (ft or m)**_____

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

Cypress-Gum Swamp (Brownwater Subtype)

Additional Comments MYSE/♀/Band #CC 1674/Freq. 172.364

RT 38
Bat 364

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 1 March 2017 **Surveyor(s) Full Name:** Zack Baer, Kate Baer
State: NC **County:** Bertie **Project Name:** 537 NCDOT NLEB Winter Monitoring
Site Name/#: Roanoke River NWR **Roost Name/#** RT 38 **Bat #:** 364
Lat/Long or UTM of Roost: 35.95623 -77.14799
Description of Roost/Habitat Feature Surveyed: Populus heterophylla in seasonally flooded forest
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed): Cloudy, 74.5°F, Calm wind
Survey Start Time: 1745 **Time of Sunset:** 1803 **Survey End Time:** 1850

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1847	1	Too dark to see bat emerge, heard with receiver

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke Rive NWR **Roost Name/#:** RT38

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?

Radio tagged bat 364 emerged at 1847 but it was too dark to see where it emerged from on the tree.

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/M/.183 Band # CC1659 Page 1 of 1

Roost Tree # 270 Project No./Project Name 537 / NC DOT MYSE Date First Found 3-1-17

Location Alligator River Gamelands

County Tyrrell State North Carolina Quad

Lat-Long/UTM: N/E 35.88234 W/N -76.10987 Zone Datum: NAD83 Observers: T. Wetzel

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	270	M. cerifera	6.1	5	3.5	L-D	Low	High	S-C	Cavity
2		M. cerifera	7.2	2.5		Snag	Low	High	S-C	Cavity
3		M cerifera	8.0	5.5		L-D	Low	High	S-C	Cavity
4		A. rubrum	18.3	12		Live	Low	High	S-C	Cavity
5		T. distichum	44.9	16.5		Live	Low	High	Canopy	N/A
6		P. Taeda	19.1	10		Snag	Low	Low	S-C	Cavity
7		N. biflora	8.6	5.5		L-D	Low	High	S-C	Cavity
8		N. biflora	9.2	5		L-D	Low	High	S-C	Cavity
9		P. Taeda	32.7	16		Live	Low	High	Canopy	N/A
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
70	20	90

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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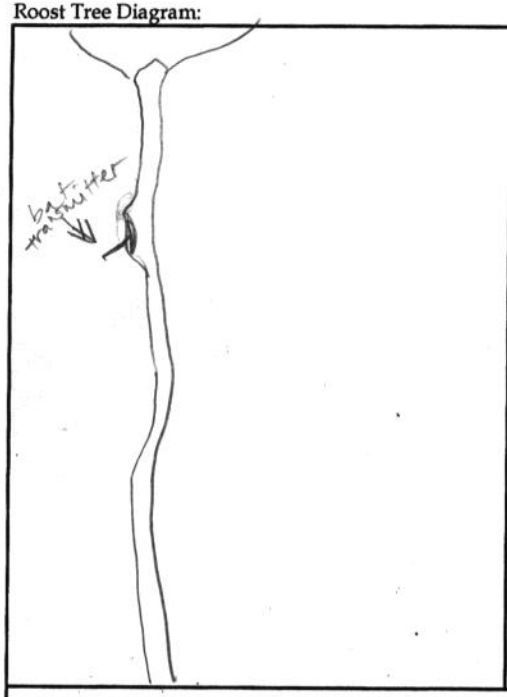
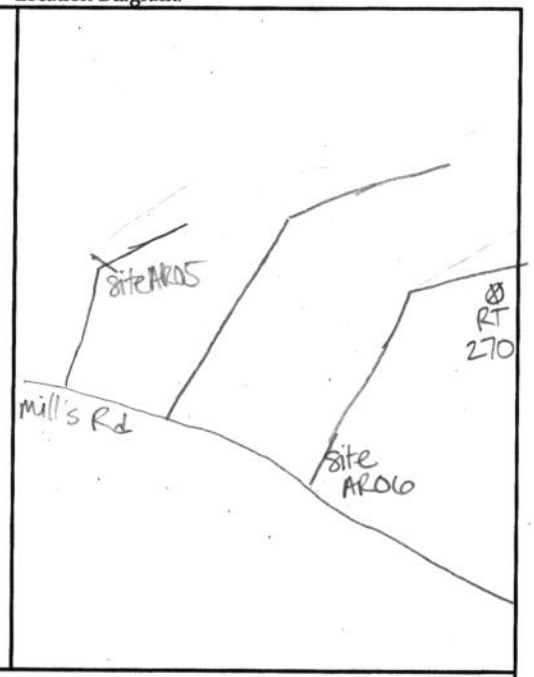
Roost Tree # 270 Bat Species/Sex/Frequency: MYSE/M/.183 Band # CC1659

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3-1	183	CC1659	M	transmitter visible
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/1	70	cloudy/ windy	1	1801	1815	1825	1	1	1. Burns
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	natural	NW	2	2	3.5	Swamp
2						
3						

Comments:
Need kayak to access

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Theresa Uetzel, Ian Burns **Date:** 1 March 2017

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

LAT 35.88234 **LONG** -76.10987

Property Owner: State (Alligator River Game Lands) **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 2 **Roost Name:** RT 270

Roost Tree Data

Species: Morella cerifera **Live** __ **Snag** __ **Other** X

(if other, explain) live - damaged

DBH (in or cm) 6.1 **Total Height (ft or m)** 5

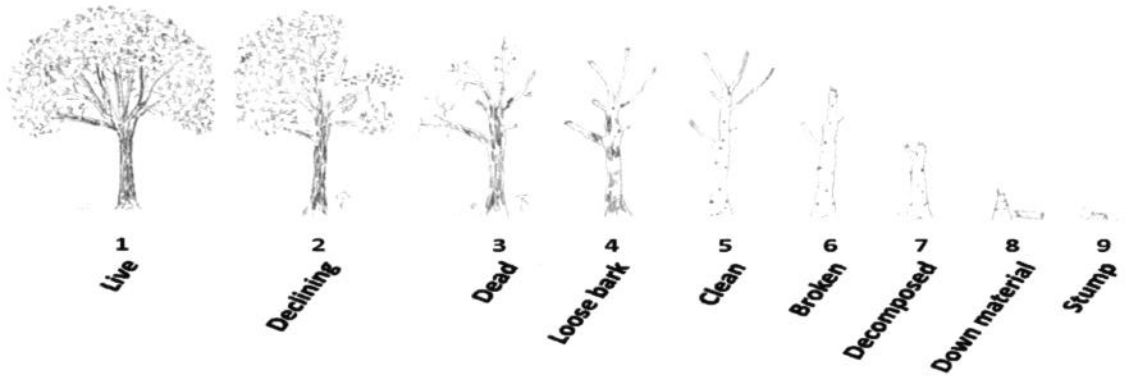
Height of roost area (if known) 3.5m **Dist. from capture site** 2,079m

Roost position aspect (deg) 280

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight** X

Cavities present? yes **If so, describe:** shallow cavity on side of tree transmitter antenna was hanging out & visible

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 (%) 70

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

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mixed mature non-riverine swamp forest (Schafale & Weakley 1990)

Additional Comments MYSE, ♂, Band CC1659, Freq. 172.183

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 1March2017 **Surveyor(s) Full Name:** Ian Burns
State: NC **County:** Tyrrell **Project Name:** NCDOT Fall/Winter NLEB
Site Name/#: ?? **Roost Name/#** RT270 **Bat #:** 183
Lat/Long or UTM of Roost: 35.88234 -76.10987
Description of Roost/Habitat Feature Surveyed: cavity

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):
70, cloudy, windy
Survey Start Time: 1730 **Time of Sunset:** 1801 **Survey End Time:** 1840

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1825	1	transmittered bat emerged alone

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** _____

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

* 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?

Radio-tagged bat 172.183 emerged alone at 1825

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/F/542 Band # NCDOT 11028 Page 1 of 1

Roost Tree # 274 Project No./Project Name 537 / NC DOT Fall/Winter NLEB Date First Found 2 Mar 2017

Location NE of Capture Site AR05

County Tyrrell State North Carolina Quad Columbia East

Lat-Long/UTM: N/E 35.89043 W/N -76.13034 Zone ___ Datum: NAD83 Observers: T. Wetzel I. Burns

#	Tree Tag #	Species	DBH (cm)	Height ft or m: Tree	Height ft or m: Roost	Condition*	% Bark Cover**: Usable	% Bark Cover**: Total	Tree Ranking***	Available Roost/ Observation
1	274	Pinus spp	51.4	4.0	4	Snag	L	H	S-C	Top busted off
2		N. biflora	19.3	11.5		Live	L	H	C	N/A
3		N. biflora	18.9	11.5		Live	L	H	C	N/A
4		L. Styraciflua	43.6	13.0		L-D	L	H	C	N/A
5		P. Palustris	12.2	7.0		Live	L	H	S-C	N/A
6		N. biflora	30.0	12.5		Live	L	H	S-C	N/A
7		N. biflora	26.1	9.5		Live	L	H	S-C	N/A
8		I. opaca	20.5	9.5		Live	L	H	S-C	N/A
9		N. biflora	31.3	14.0		Live	L	H	C	N/A
10		L. Styraciflua	29.4	14.6		Live	L	H	C	Cavity
11		N. biflora	21.6	13.5		L-D	L	H	C	Cavity
12		A. rubrum	18.2	11.5		Live	L	H	C	N/A
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
90	30	120

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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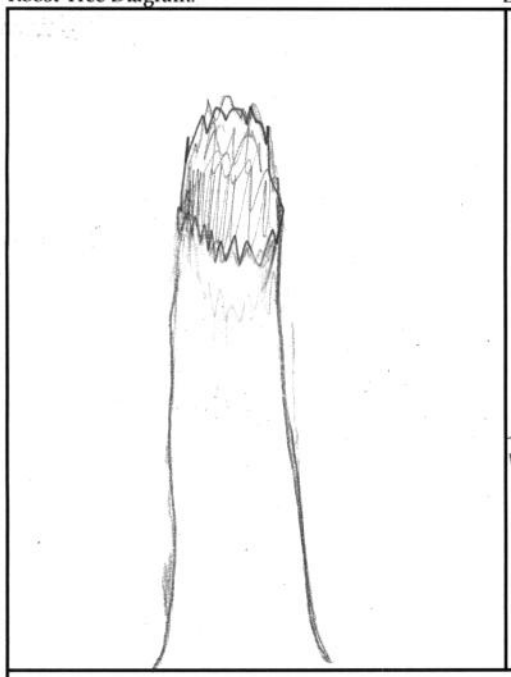
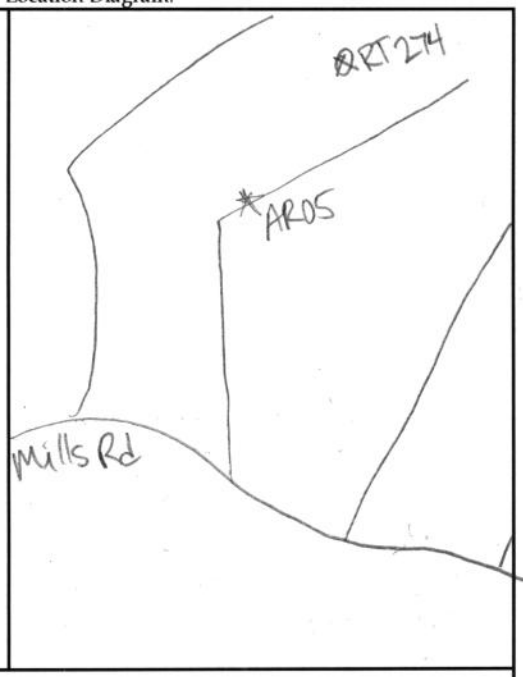
Roost Tree # 274 Bat Species/Sex/Frequency: MNSE/F/542 Band # NCDOT 1628

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/2	542	NCDOT 1628	F	
2	3/3	542	NCDOT 1628	F	
3	3/4	542	NCDOT 1628	F	
4	3/8	542	NCDOT 1628	F	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/6	51°	partly cloudy	0	1803	—	—	—	—	I. Burns
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Opening Measurements: Height	Opening Measurements: Ground	Opening Measurements: H_2O Level
1						
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Theresa Wetzel, Ian Burns **Date:** 2 March 2017

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

LAT 35.89043 **LONG** -76.13034

Property Owner: State (Alligator River Game Lands) **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 374 **Roost Name:** RT274

Roost Tree Data

Species: Pinus sp. **Live** __ **Snag** X **Other** __

(if other, explain) _____

DBH (in or cm) 51.4 **Total Height (ft or m)** 4

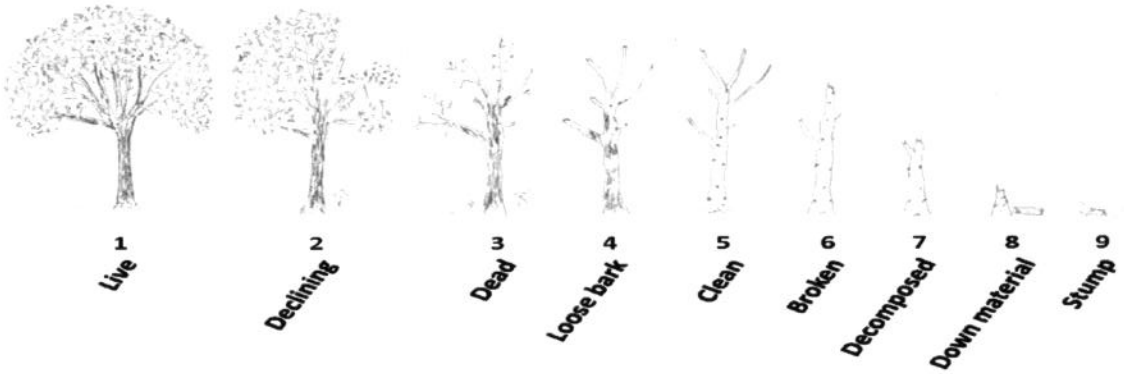
Height of roost area (if known) 4m **Dist. from capture site** 487m

Roost position aspect (deg) Unk

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy** X **tight**__

Cavities present? ____ **If so, describe:** pine snapped fully, there may be cavities at 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 (%) 90

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

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

Additional Comments MYSE, ♀, Band # NCDOT 1628, Freq. 172.542

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/6/2017 **Surveyor(s) Full Name:** Ian Burns
State: NC **County:** Tyrrell **Project Name:** NCDOT NLEB Winter Monitoring
Site Name/#: Alligator River **Roost Name/#** 274 **Bat #:** .542
Lat/Long or UTM of Roost: 35.89043, -76.13034
Description of Roost/Habitat Feature Surveyed: Large Pinus taeda snag 6m tall in inundated forest
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed): Partly cloudy, no wind or precipitation, 51°F
Survey Start Time: 1743 **Time of Sunset:** 1803 **Survey End Time:** 1845

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
	0	

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT 274

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	No Bats emerged

* 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?

Tagged bat was known to be in different roost tree (RT 877) at time of emergence count

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE / M / 183

Band # CC1659

Page 1 of 1

Roost Tree # 269 Project No./Project Name 537 / NCDOT Fall/Winter MYSE Date First Found 2 Mar 2017

Location Alligator River GL, East of RT270 on other side of road

County Tyrrell State NC Quad Fort Landing

Lat-Long/UTM: N/E 35.88284 W/N -76.10772 Zone — Datum: NAD83 Observers: T. Wetzel, T. Burns

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	269	N. biflora	10	9.5	4.5	Live	Low	High	Canopy	Cavity
2		I. decidua	5.6	5.0		Live	Low	High	S-C	N/A
3		T. ascendens	10.7	8.0		Live	Low	High	S-C	N/A
4		N. biflora	13.8	9.0		Live	Low	High	Canopy	N/A
5		T. ascendens	8.3	4.5		Live	Low	High	S-C	N/A
6		A. rubrum	15.5	10.0		Live	Low	High	Canopy	N/A
7		N. biflora	12.7	4.5		Live	Low	High	Canopy	Cavity
8		N. biflora	8.4	9.0		Live	Low	High	S-C	N/A
9		N. biflora	14.5	11.0		Live	Low	High	Canopy	Cavity
10		"	10.5	10.0		Live	Low	High	Canopy	Cavity
11		"	17.1	13.0		Live	Low	High	Canopy	Cavity
12		"	11.9	7.5		L-D	Low	High	S-C	N/A
13		"	11.4	6.0		Live	Low	High	S-C	Cavity
14		"	8.2	8.0		Live	Low	High	S-C	Cavity
15		"	13.4	8.0		Live	Low	High	S-C	N/A
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
100	0	100

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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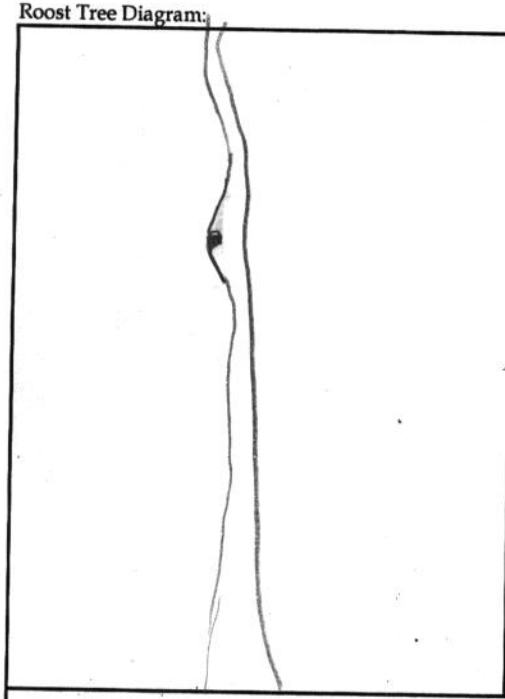
Roost Tree # 269

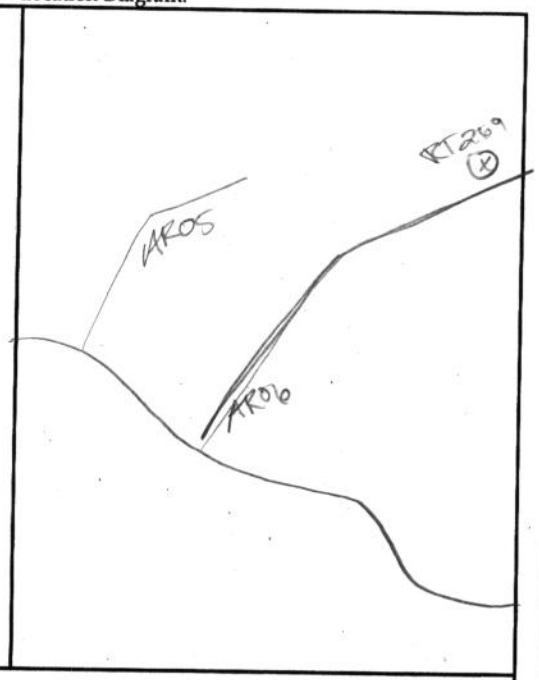
Bat Species/Sex/Frequency: MYSE/M/183

Band # CC1659

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/2	183	CC1659	M	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/2	51.5	Partly Cloudy	1		1853	1853	1	1	T. Wetzel
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	cavity		2	1	4.5	
2						
3						

Comments:

3/2 - Bat emerged after too dark to see, confirmed w/antenna

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Theresa Wobel, Ian Burns **Date:** 2 March 2017

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

LAT 35.88284 **LONG** -76.10772

Property Owner: State (Alligator River Game Land) **Phone#**_____

State NC **County** Tyrell **Site #**_____

Roost # 3 **Roost Name:** RT269

Roost Tree Data

Species: Nyssa biflora **Live** __ **Snag** __ **Other** X

(if other, explain) Live - damaged

DBH (in or cm) 60 **Total Height (ft or m)** 9.5

Height of roost area (if known) 4.5m **Dist. from capture site** 2,200m

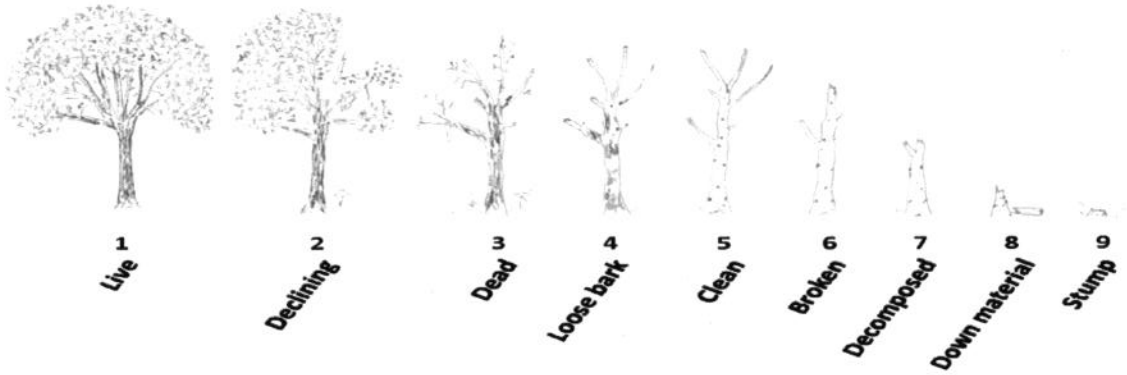
Roost position aspect (deg)_____

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight** X

Cavities present? Yes **If so, describe:** 2x1 inches, 4.5m above ground

---

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 (%) 80

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

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

Additional Comments MYSE/♂, Band # CC1659, Freq. 172.183
Mix

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2Mar2017 **Surveyor(s) Full Name:** Theresa Wetzel, Ian Burns
State: NC **County:** Tyrrell **Project Name:** NCDOT Fall/Winter NLEB
Site Name/#: RT269 **Roost Name/#** RT269 **Bat #:** 183
Lat/Long or UTM of Roost: 35.88284 -76.10772
Description of Roost/Habitat Feature Surveyed: cavity

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Myotis septentrionalis
Other Suspected Bat Species (explain): NA
Weather Conditions during Survey (temperature, precipitation, wind speed):
partly cloudy, 51.5, light wind
Survey Start Time: 1730 **Time of Sunset:** 1801 **Survey End Time:** 1900

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1853	1	tagged bat left alone
		too dark to see, confirmed
		with antenna

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT269

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?

radio-tagged bat emerged alone at 1853, too dark to see, confirmed w/antenna

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/M/183

Band # CC1659

Page 1 of 1

Roost Tree # 268 Project No./Project Name 537 / NC DOT Fall/Winter NLEB Date First Found 3 Mar 2017

Location Alligator River GL

County Tyrrell State NC Quad Fort Landing

Lat-Long/UTM: (N)/E 35.88410 (W)/N -76.11764 Zone — Datum: NAD83 Observers: T. Wetzel I. Burns

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	268	A. rubrum	9.2	5.0	2.5	Live	Low	High	S-C	Cavity
2		A. rubrum	3.5	3.0		Live	Low	High	S-C	Part of roost tree
3		A. rubrum	3.4	3.00		Live	Low	High	S-C	Part of roost tree
4		N. biflora	23.2	2.0		Snag	Low	Mod	S-C	Crevice
5		N biflora	23.3	8.5		Live	Low	High	Canopy	N/A
6		N. biflora	12.0	5.5		Live	Low	High	S-C	Cavity
7		A. rubrum	25.3	10.5		Live	Low	High	Canopy	N/A
8		N. biflora	22.7	10.0		Live	Low	High	Canopy	N/A
9		P. Taedae	31.7	12.0		Live	Low	High	Canopy	N/A
10		N. biflora	27.5	11.5		Live	Low	High	Canopy	N/A
11		N biflora	11.9	9.5		Live	Low	High	Canopy	N/A
12		N. biflora	21.1	9.0		Live	Low	High	Canopy	N/A
13		N. biflora	12.5	9.0		Live	Low	High	Canopy	N/A
14		P. Taedae	37.5	10.0		Live	Low	High	Canopy	N/A
15		P. Taeda	35.5	10.5		Live	Low	High	Canopy	N/A
16		A. rubrum	29.3	9.5		Live	Low	High	Canopy	N/A
17		A. rubrum	30.7	10.0		Live	Low	High	Canopy	N/A
18										
19										
20										
21										
22										

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

Habitat		
(Interior)	Edge	Open

Canopy Cover at Roost		
Open	(Intermediate)	Closed

Basal Area		
Live Trees	Snags	All Trees
160	10	170

Roost Location		
Bark	(Cavity)	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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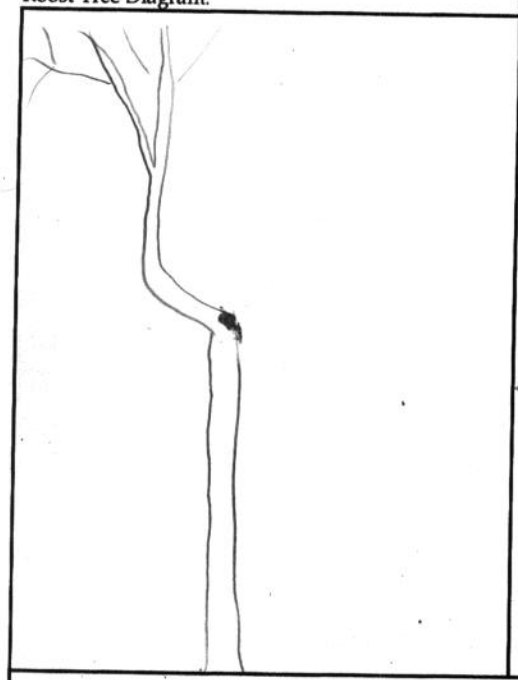
Roost Tree # 268

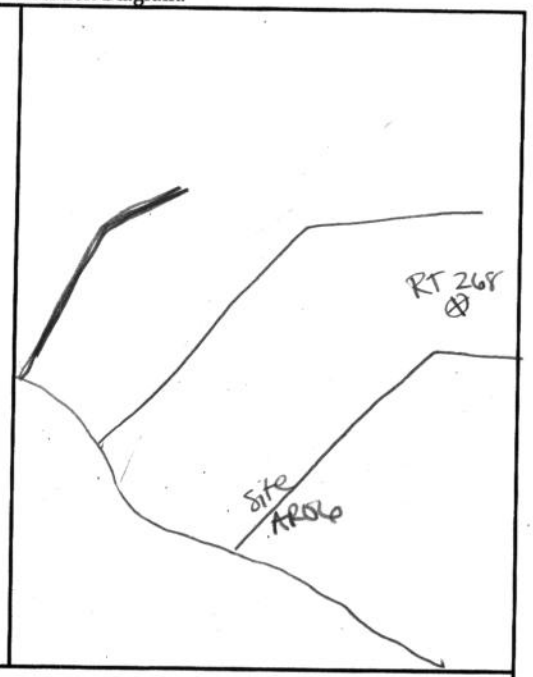
Bat Species/Sex/Frequency: MYSE/M/183

Band # CC1659

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/3	183	CC1659	M	
2	3/4	183	CC1659	M	
3	3/5	183	CC1659	M	
4	3/6	183	CC1659	M	
5	3/11	183	CC1659	M	
6	3/12	183	CC1659	M	
7	3/13	183	CC1659	M	
8	3/14	183	CC1659	M	
9	3/15	183	CC1659	M	
10	3/16	183	CC1659	M	
11	3/17	183	CC1659	M	
12	3/18	183	CC1659	M	
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/3	48	Partly Cloudy	0	1801	—	—	—	—	No bats emerged
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	Cavity	48°	2	2	2.5	low
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Theresa Wood, Ian Burns **Date:** 3 March 2017

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

LAT 35.88410 **LONG** -76.11764

Property Owner: State (Alligator River Game Lands) **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 4 **Roost Name:** RT 268

Roost Tree Data

Species: Acer rubrum **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 9.2 **Total Height (ft or m)** 5.0

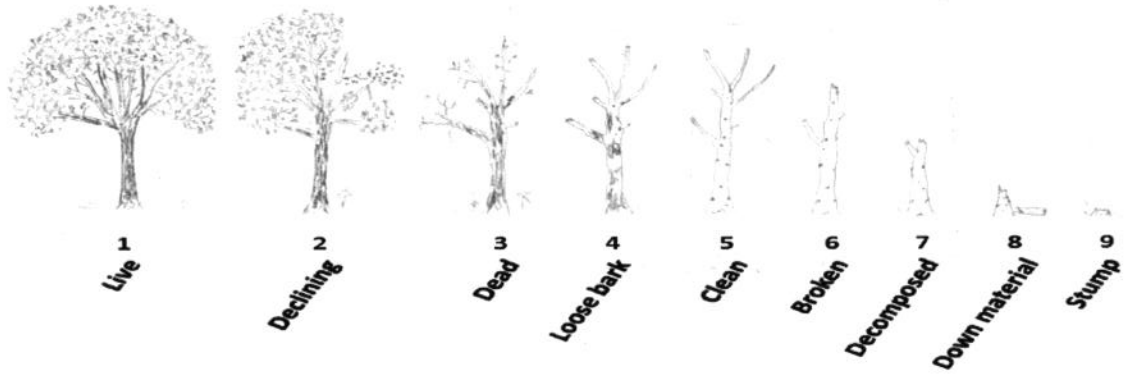
Height of roost area (if known) 2.5m **Dist. from capture site** 1,574m

Roost position aspect (deg) 48°

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight** ✓

Cavities present? Yes **If so, describe:** 2x2 in cavity @ crook of tree

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 (%) 100

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

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

Additional Comments MYSE, ♂, Band #CC1659, Freq. 172.183

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3 Mar 2017 **Surveyor(s) Full Name:** T. Wetzel, I. Burns
State: NC **County:** Tyyrell **Project Name:** NCDOT Fall/winter NLEB
Site Name/#: RT. 268 **Roost Name/#** R.T. 268 **Bat #:** 183
Lat/Long or UTM of Roost: 35.88410 - 76.11764
Description of Roost/Habitat Feature Surveyed: Cavity

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Myotis septentrionalis
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed):
Partly cloudy, light wind, 48
Survey Start Time: 1730 **Time of Sunset:** 1801 **Survey End Time:** 1831

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1831	0	Tagged bat never left roost

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: RT 268 **Roost Name/#:** RT 268

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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?

Tagged bat never left the roost.

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/M/483

Band # NCWRC A0734

Page 1 of 1

Roost Tree # 39 Project No./Project Name 537 /NCDOT NLEB winter monitoring Date First Found 3-3-2017

Location SW of first water crossing in flooded forest

County Bertie State NC Quad

Lat-Long/UTM: N/E 35.96921 W/N -77.14311 Zone / Datum: NAD83 Observers: K. Baer, M. Gooden

#	Tree Tag #	Species	DBH (cm)	Height ft or m: Tree	Height ft or m: Roost	Condition*	% Bark Cover**: Usable	% Bark Cover**: Total	Tree Ranking***	Available Roost/ Observation
1	39	Nyssa aquatica	47.3	25	?	L-D	0	100	C	
2		Nyssa aquatica	56.6	25		L	0	100	C	
3		taxodium distichum	60.0	24		L	0	95	C	
4		Nyssa aquatica	20.0	17		L	0	100	U	
5		Nyssa aquatica	34.0	20		L	0	100	SC	
6		Nyssa aquatica	26.2	22		L	0	100	C	
7		taxodium distichum	35.7	25		L	0	95	C	
8		Nyssa aquatica	14.3	9		L	0	100	U	
9		Nyssa aquatica	31.0	19		L	0	100	SC	
10		Nyssa aquatica	43.9	26		L	0	100	C	
11		Nyssa aquatica	29.0	18		L	0	100	SC	
12		Nyssa aquatica	36.3	19		L	0	100	SC	
13		Nyssa aquatica	29.4	17		L	0	100	SC	
14		taxodium distichum	27.9	19		L-D	0	98	SC	
15		Nyssa aquatica	40.7	21		L	0	100	SC	
16		Nyssa aquatica	65.0	21		L-D	0	100	SC	
17		Nyssa aquatica	58.9	21		L	0	100	SC	
18		Nyssa aquatica	53.9	22		L	0	100	C	
19		Nyssa aquatica	64.0	22		L-D	0	98	C	
20	37	Nyssa aquatica	100.5	25		L-D	0	95	C	
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
200	0	200

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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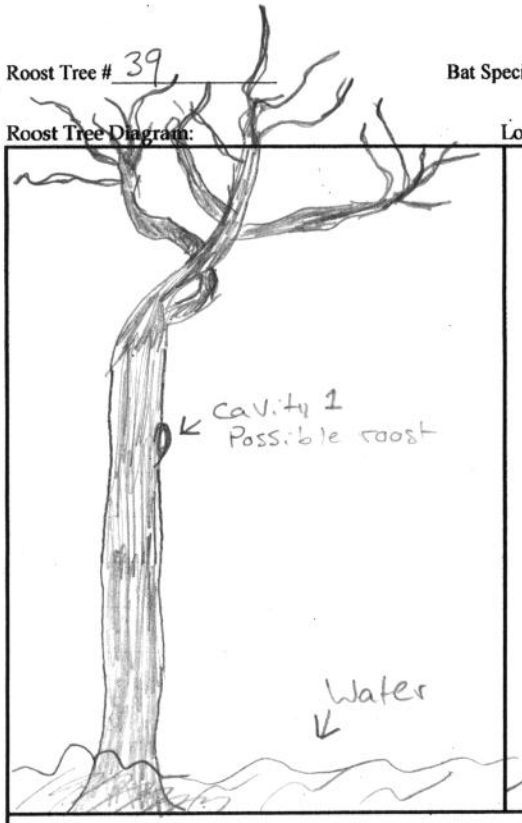
Roost Tree # 39

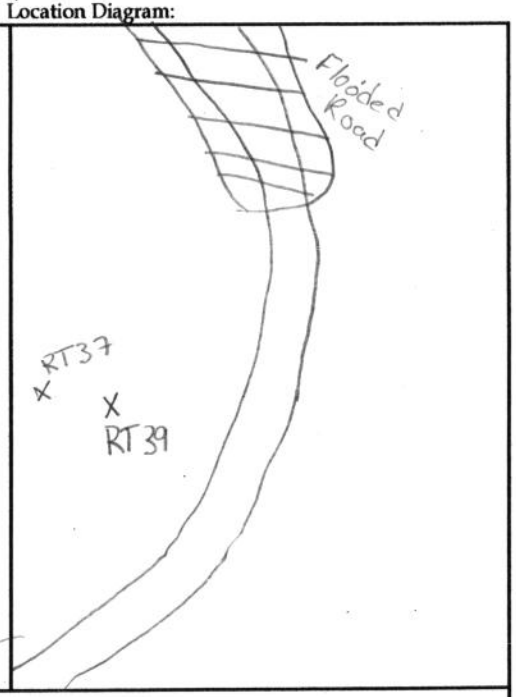
Bat Species/Sex/Frequency: MYSE/M/483

Band # NCWRC A0734

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3 MAR	483	A0734	Male	
2	4 MAR	483	A0734	Male	
3	5 MAR	483	A0734	Male	
4	6 MAR	483	A0734	Male	
5	11 MAR	483	A0734	Male	Transmitter sounds normal again
6	12 MAR	483	A0734	Male	" "
7	13 Mar	483	A0734	Male	
8	14-Mar	483	A0734	Male	Transmitter sounds bad
9	15-Mar	483	A0734	Male	"
10	16-Mar	483	A0734	Male	" lots of signal variation close to the tree
11	17-Mar	483	A0734	Male	"
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3-3	48.0	windy 2-3	0	1805	N/A	N/A	N/A	N/A	C. Bollbeck
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	Cavity		10 cm	10 cm	15 m	—
2						
3						

Comments:

1	15	4.3	N	6	223	10.8	Y
2	50	1.2	Y	7	232	7.2	Y
3	84	1.2	Y	8	235	1.9	Y
4	130	6.8	N	9	272	9.9	Y
5	178	11.0	Y	10	[illegible]	[illegible]	Y

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Kate Baer, Molly Gooder **Date:** 3/3/2017

UTM: Zone — **Easting** — **Northing** — ***OR***

LAT 35.96921 **LONG** -77.14311

Property Owner: USFWS (Roanoke River NWR) **Phone#** _____

State NC **County** Bertie **Site #** _____

Roost # 4 **Roost Name:** RT39

Roost Tree Data

Species: Nyssa aquatica **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 47.3 **Total Height (ft or m)** 25

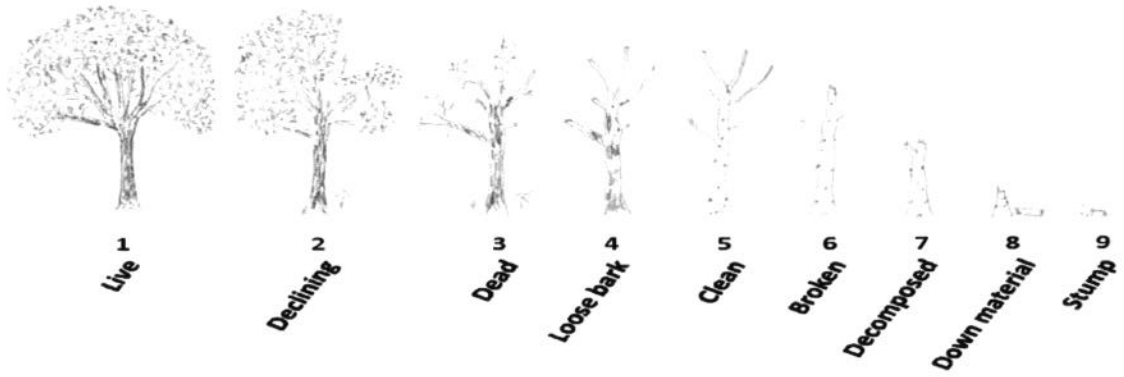
Height of roost area (if known) unk **Dist. from capture site** 372m

Roost position aspect (deg) unk

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy** __ **tight** ✓

Cavities present? ? **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 (%) _____

Approximate woodlot size (ac or ha)_____ Distance to non-forest (ft or m)_____

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

Cypress - Gum Swamp (Brownwater Subtype)

Additional Comments MYSE / ♂ / Band NCWRC A0734 / Frq. 172.483

RT39

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3-Mar-2017 **Surveyor(s) Full Name:** Chris B
State: NC **County:** Bertie **Project Name:** NCDOT NLEB Winter Monitoring
Site Name/#: Roanoke River NWR **Roost Name/#** RT39 **Bat #:** 483
Lat/Long or UTM of Roost: 35.96921 -77.14311
Description of Roost/Habitat Feature Surveyed: Nyssa aquatica in flooded forest

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

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed):
no precipitation, windy (2-3), temp 48.0°F

Survey Start Time: 1730 **Time of Sunset:** 1805 **Survey End Time:** 1845

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	0	—

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River NWR **Roost Name/#:** RT 39

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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?

No bats seen and transmitter stayed in roost

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/F/364 Band # CC 1674 Page _____ of _____

Roost Tree # 40 Project No./Project Name 537 / NCDOT NLEB Winter Monitoring Date First Found 3-3-2017

Location East of road directly after 3rd stream crossing in flooded forest

County Bertie State NC Quad —

Lat-Long/UTM: N/E 35.95615 W/N -77.14771 Zone — Datum: NAD83 Observers: KB, MC

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	40	Nyssa aquatica	68.0	20	13	L-D	0	95	C	
2	36	Nyssa aquatica	62.7	20		L	0	100	C	
3		taxodium distichum	27.9	16		S	0	100	SC	
4		Nyssa aquatica	73.8	20		L	0	100	C	
5		Nyssa aquatica	73.5	19		L	0	100	C	
6		Aronius heterophylla	33.6	18		L-D	0	98	SC	
7		Nyssa aquatica	77.6	21		L	0	100	C	
8		Nyssa aquatica	55.0	18		L-D	0	98	SC	
9		Nyssa aquatica	84.2	19		L	0	100	SC	
10		Nyssa aquatica	43.6	18		L	0	100	SC	
11		Nyssa aquatica	40.2	19		L	0	100	SC	
12		Nyssa aquatica	51.8	18		L	0	100	SC	
13		taxodium distichum	19.8	10		L	0	85	V	
14		taxodium distichum	19.8	12		L	0	100	V	
15		taxodium distichum	68.5	18		L-D	0	100	SC	
16		Nyssa aquatica	69.0	20		L	0	100	C	
17		Nyssa aquatica	72.7	20		L-D	0	100	C	
18		taxodium distichum	27.8	1.5		S	0	90	V	
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
160	20	180

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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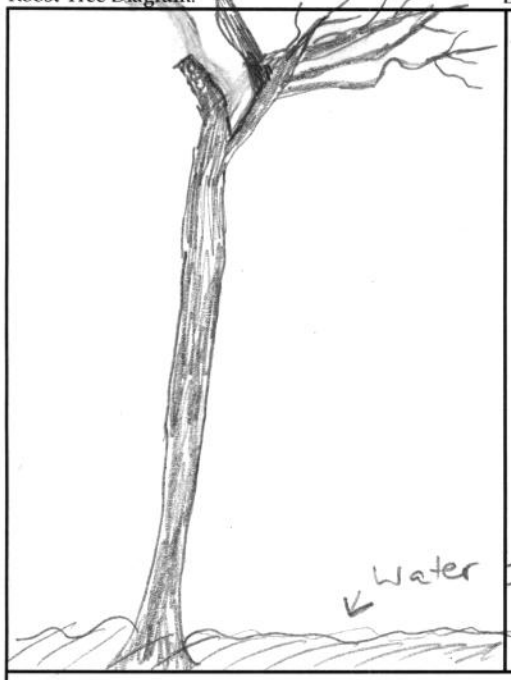
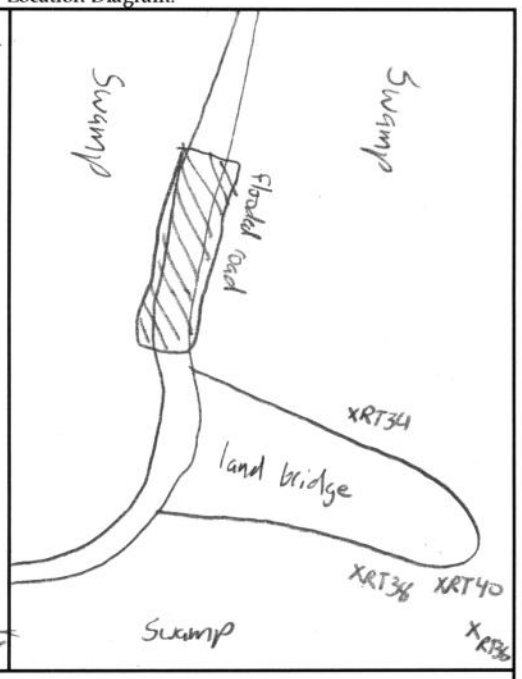
Roost Tree # 40 Bat Species/Sex/Frequency: MYSE/F/364 Band # CC 1674

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3-3-17	364	CC1674	F	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3-3	48.0	windy 2-3	10	1805	N/A	N/A	N/A	N/A	C.B.
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Opening Measurements: Height	Opening Measurements: Ground	Opening Measurements: H_2O Level
1						
2						
3						

Comments:

1	15°	4.3m	Y	7	232°	7.2	Y
2	50°	1.2m	Y	8	235°	1.9	Y
3	84°	1.2m	Y	9	272°	9.9	Y
4	130°	6.8m	Y	10	278°	6.4	N
5	178°	11.0m	Y				
6	223°	10.8m	Y				

= 90%

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Kate Baer, Molly Gooden **Date:** 3/3/2017

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

LAT 35.95615 **LONG** -77.14771

Property Owner: USFWS (Roanoke River NWR) **Phone#**_____

State NC **County** Bertie **Site #**_____

Roost # 4 **Roost Name:** RT40

Roost Tree Data

Species: Nyssa aquatica **Live** __ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 68 **Total Height (ft or m)** 20

Height of roost area (if known) 13 **Dist. from capture site** 445 m

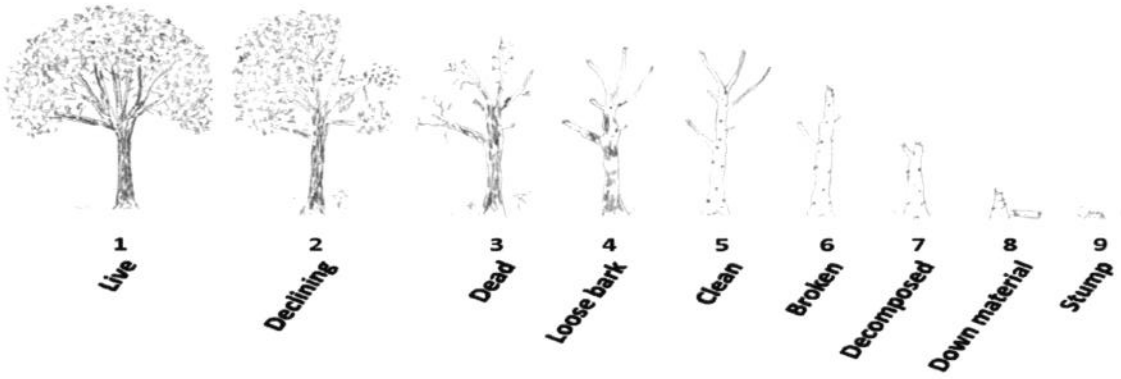
Roost position aspect (deg) 50°

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight** ✓

Cavities present? ____ **If so, describe:** broken branch w/ multiple hole

---

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)_____ **Distance to non-forest (ft or m)**_____

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

Cypress - Gum Swamp (Brownwater Type)

Additional Comments MYSE/♀/Band # CC 1674/Freq. 172.364

RT 40

Bat 364

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3-3-2017 **Surveyor(s) Full Name:** Molly Gooden
State: NC **County:** Bertie **Project Name:** NCDOT NCEB Winter Monitoring
Site Name/#: Roanoke River NWR **Roost Name/#** RT40 **Bat #:** 364
Lat/Long or UTM of Roost: 35.95615 -77.14771
Description of Roost/Habitat Feature Surveyed: Nyssa aquatica in flooded forest

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

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed):
no precipitation, windy (2-3), temp 48.0 °F

Survey Start Time: 1730 **Time of Sunset:** 1605 **Survey End Time:** 1845

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	0	—

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Roanoke River NWR **Roost Name/#:** RT40

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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?

No bats seen and transmitter stayed in roost

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE / M / .605(4) Band # CC1963 Page 1 of ____

Roost Tree # RT 304 Project No./Project Name 537 / NCDOT NLEB Winter Monitoring Date First Found 3/3/2017

Location Deep into swamp - best access from 3rd access road → North 2/3 mile

County Tyrrell State NC Quad ____

Lat-Long/UTM: N/E 35.89728 W/N -76.11325 Zone — Datum: NAD 83 Observers: AD, MH

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	304	Nyssa biflora	22.4	16	12	L	0	100	C	cavity
2	*	Nyssa biflora	29.5	18		L	0	100	C	
3		Nyssa biflora	8.5	10		L	0	100	S	
4		Acer rubrum	24.5	20		L	0	100	C	
5		Populus heterophylla	31.5	22		L	0	100	C	
6		N. biflora	18.0	18		L	0	100	C	
7		Chamaecyparis thyoides	16.4	12		L	0	100	SC	
8		N. biflora	30.5	20		L	0	100	C	
9		N. biflora	22.0	18		L	0	100	C	
10		A. rubrum	15.6	15		L	0	100	S	
11		P. heterophylla	25.0	19		L	0	100	C	
12		P. heterophylla	25.2	20		L-D	0	80	C	
13		P. heterophylla	16.9	17		L	0	100	SC	
14		N. biflora	20.3	15		L	0	100	SC	
15		Liquidambar styraciflua	30.6	22		L	0	100	C	
16		N. biflora	31.3	18		L	0	100	C	
17		N. biflora	34.5	20		L	0	100	C	
18		C. thyoides	26.7	15		L	0	100	SC	
19		Persea palustris	14.0	12		L	0	100	U	
20		Persea palustris	9.0	8		L	0	100	U	
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
200	0	200

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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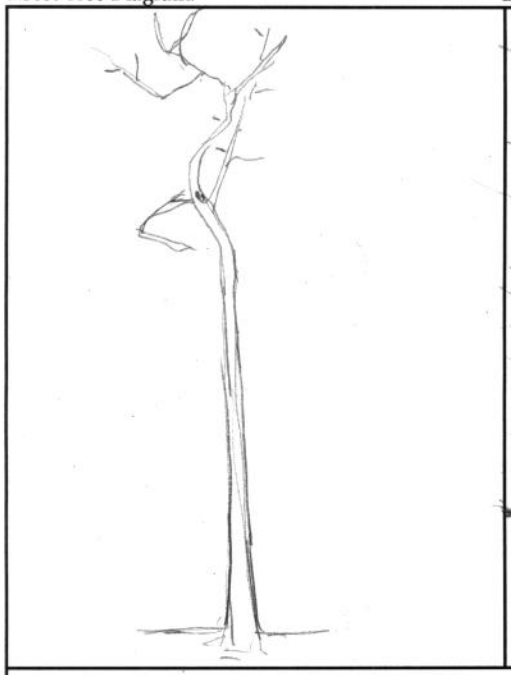
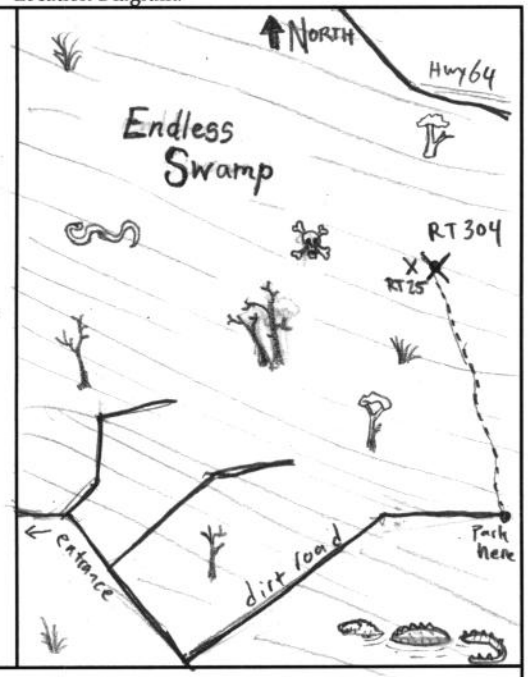
Roost Tree # 304 Bat Species/Sex/Frequency: MYSE/M/172.605 Band # CC1963

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3-3	605	CC1963	M	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/6	60°	Clear	0	1807	—	—	—	—	No bats were observed to exit
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	Unknown					
2						
3						

Comments:
Attempted to reach tree on 3/2 but did not succeed. Bat may have been in RT 25 or RT 304 that day
No bats were observed to exit during emergence count conducted on 3/6

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Alexi Dort-Palomo, Matt Hinds **Date:** 3/3/2017

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

LAT 35.89728 **LONG** -76.11325

Property Owner: State (Alligator River Game Lands) **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 2 **Roost Name:** RT 304

Roost Tree Data

Species: Nyssa biflora **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 22.4 **Total Height (ft or m)** 16

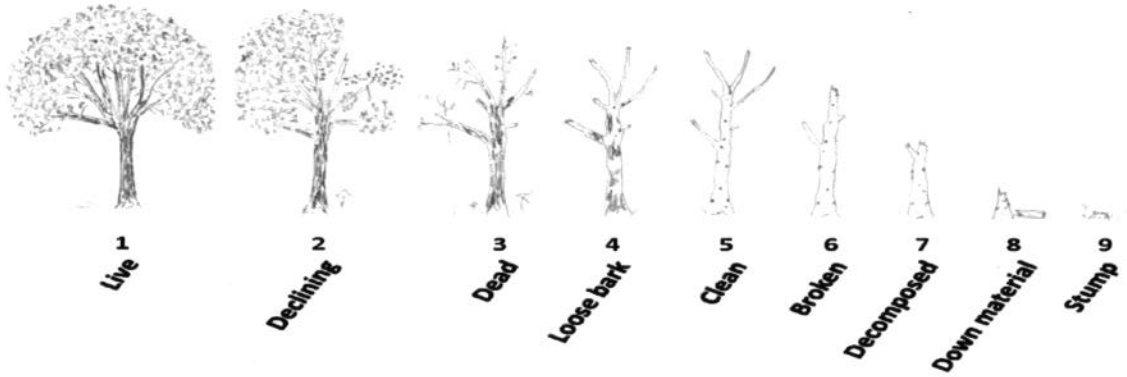
Height of roost area (if known) 12 **Dist. from capture site** 2169 m

Roost position aspect (deg)_____

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight** X

Cavities present? Y **If so, describe:** small knot hole

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 (%) 80

Approximate woodlot size (ac or ha) N/A **Distance to non-forest (ft or m)** 2253.1

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature tidal swamp forest on Alligator River Gamelands property

Additional Comments

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/6/2017 **Surveyor(s) Full Name:** JEFF HAWKINS
State: NC **County:** Tyrell **Project Name:** #537 NCDOT FALLY/WANTEE MYSE PROJECT
Site Name/#: Alligator River **Roost Name/#** RT 304 **Bat #:** CC1963
Lat/Long or UTM of Roost: N35.89728, W76.11325
Description of Roost/Habitat Feature Surveyed: Live Nyssa biflora located in tidal swamp forest ≈ 4,000ft south of US64 in Alligator River Game Lands
Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYSE
Other Suspected Bat Species (explain):
Weather Conditions during Survey (temperature, precipitation, wind speed):
Clear, ≈ 60F, wind speed < 5
Survey Start Time: 1800 **Time of Sunset:** 1807 **Survey End Time:** 1840

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	0	No bats were observed to exit. This roost was originally located on 3/3/2017

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** _____

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

* 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?

_____

_____

_____

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE / F / 112.542 Band # NCDOT 1628 Page 1 of 1

Roost Tree # 876 Project No./Project Name 537 / NCDOT MYSE Research Date First Found 5 March 2017

Location NE of capture site AR05

County Tyrrell State NC Quad Columbia East

Lat-Long/UTM: (N)/E 35.89051 W/N -76.13021 Zone — Datum: NAD 83 Observers: G. Janes, S. Cotham

#	Tree Tag #	Species	DBH (cm)	Height ft or (m) Tree	Height ft or (m) Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	876	Topaca	11.0	10	S	L	L	H	SC	cavity
2	274	Pinus spp	51.4	4	Unk	S	L	H	SC	top busted off
3		N. biflora	29.8	20	—	L	L	H	C	
4		N. biflora	30.4	19	—	L	L	H	C	
5		A. rubrum	18.0	14	—	L	L	H	SC	
6		N. biflora	20.7	16	—	L	L	H	C	
7		P. palustris	20.5	18	—	L	L	H	C	
8		N. biflora	28.5	16	—	L	L	H	C	
9		N. biflora	14.7	16	—	L	L	H	C	
10		N. biflora	17	15	—	L	L	H	C	
11	273	M. cerifera	12.8	18	7	L	L	H	C	
12		N. biflora	37.0	17	—	L	L	H	C	
13		N. biflora	24.6	12	—	L	L	H	SC	
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
(Interior)	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	(Closed)

Basal Area		
Live Trees	Snags	All Trees
120	10	130

Roost Location		
Bark	(Cavity)	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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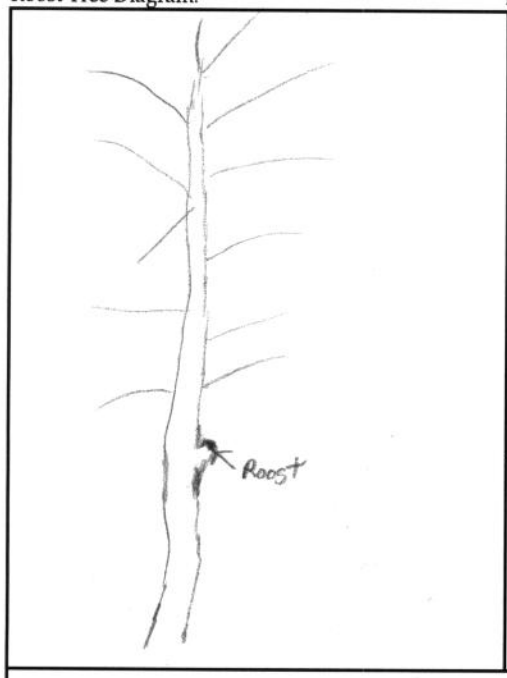
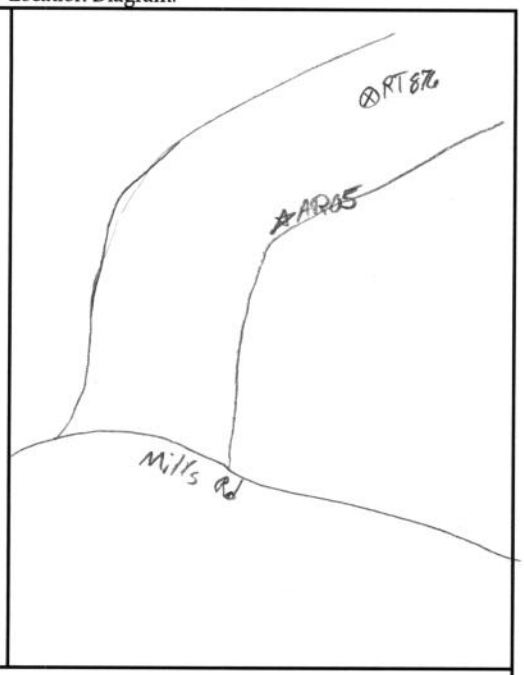
Roost Tree # 876 Bat Species/Sex/Frequency: MYSE / F / 172.542 Band # NCDOT 1628

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/5	172.542	NCDOT 1628	F	cavity
2	3/7	172.542	NCDOT 1628	F	cavity
3	3/10	172.542	NCDOT 1628	F	
4	3/11	172.542	NCDOT 1628	F	
5	3/12	172.542	NCDOT 1628	F	
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/5	51	clear	0	1803	—	—	—	—	A. Dart
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Gregg Janos, Shelby Cotham **Date:** 5 March 2017

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

LAT 35.89051 **LONG** -76.13021

Property Owner: State (Alligator River Game Lands) **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 4 **Roost Name:** RT876

Roost Tree Data

Species: Ilex opaca **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 110 **Total Height (ft or m)** 12 m

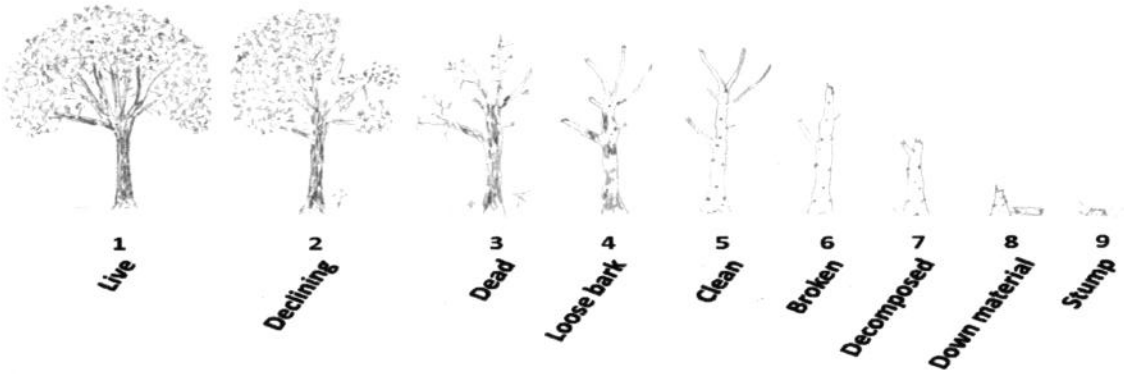
Height of roost area (if known) 5 **Dist. from capture site** 502 m

Roost position aspect (deg) 289

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight** ✓

Cavities present? ✓ **If so, describe:** Broken off branch

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)_____ **Distance to non-forest (ft or m)**_____

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

Additional Comments MYSE, ♀, Band # NCDOT 1628, Freq. 172.542

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/6/2017 **Surveyor(s) Full Name:** Alexi Dart-Padover
State: NC **County:** Tyrrell **Project Name:** NCDOT NLEB Winter Monitoring
Site Name/#: Alligator River **Roost Name/#** RT876 **Bat #:** .542
Lat/Long or UTM of Roost: 35.89051, -76.13021
Description of Roost/Habitat Feature Surveyed: Small Ilex opaca between two previous roost trees, in inundated forest
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed): Partly Cloudy, no wind, no precipitation, 51°F
Survey Start Time: 1743 **Time of Sunset:** 1803 **Survey End Time:** 1845

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: Alligator River **Roost Name/#:** RT 876

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	No bats emerged

* 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?

Tagged bat was known to be in different roost tree (RT877) at time of emergence survey

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/M/172.605(4) Band # CC1963 Page _____ of _____

Roost Tree # 139 Project No./Project Name *537 / NCDOT Fall/Winter MYSE Date First Found 3/5/2017

Location Tidal swamp forest approx. 4,000ft. South of US64 in Alligator River Game Lands Property

County Tyrrell State NC Quad _____

Lat-Long/UTM: (N)/E 35.89594 (W)/N 76.11163 Zone _____ Datum: _____ Observers: J. Hawkins, B. Scott

#	Tree Tag #	Species	DBH (cm)	Height (ft) or m Tree	Height (ft) or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	139	Nyssa biflora	30.0	65	Bark	L	10	100	Canopy	
2		N. biflora	24.2	45	N/A	L	15	100	Canopy	
3		N. biflora	13.0	40	N/A	L	5	100	Canopy	
4		N. biflora	16.2	45	N/A	L	10	100	Canp	
5		N. biflora	14.0	40	N/A	L	15	100	Canopy	
6		N. biflora	26.0	50	N/A	L	10	100	Canopy	
7		N. biflora	24.0	55	N/A	S	40	65	Canopy	
8		N. biflora	12.3	29	N/A	L	10	100	Sub	
9		N. biflora	25.4	45	N/A	L	15	100	Canopy	
10		N. biflora	19.5	40	N/A	L	10	90	Canopy	
11		N. biflora	18.5	40	N/A	L	20	100	Canopy	
12		N. biflora	19.5	40	N/A	L	10	100	Sub-	
13		Chamaecyparis thyoides	19.0	35.	N/A	L	5	90	Sub-	
14		N. biflora	9.9	20	N/A	S	25	60	Sub-	
15		C. thyoides	22.1	30	N/A	L	10	100	Sub-	
16		N. biflora	22.4	40	N/A	L	5	90	Canopy	
17		N. biflora	17.5	45	N/A	L	5	90	Canopy	
18		N. biflora	23.5	50	N/A	L	5	100	Canopy	
19		N. biflora	23.5	45	N/A	L	10	100	Subcanopy	
20		C. thyoides	24.5	40	N/A	L	10	100	Canopy	
21		C. thyoides	35.2	50	N/A	L	20	100	Canopy	
22		N. biflora	30.5	55	N/A	L	20	90	Canopy	

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

Habitat		
(Interior)	Edge	Open

Canopy Cover at Roost		
Open	(Intermediate)	Closed

Basal Area		
Live Trees	Snags	All Trees
200	20	220

Roost Location		
Bark	(Cavity)	(Crevice)

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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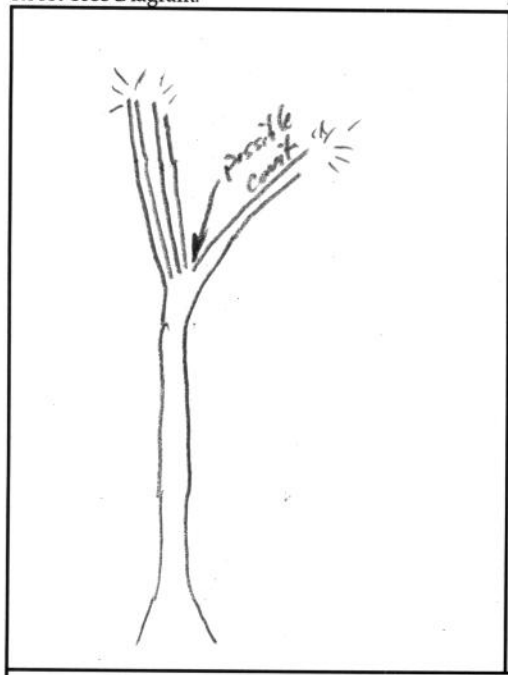
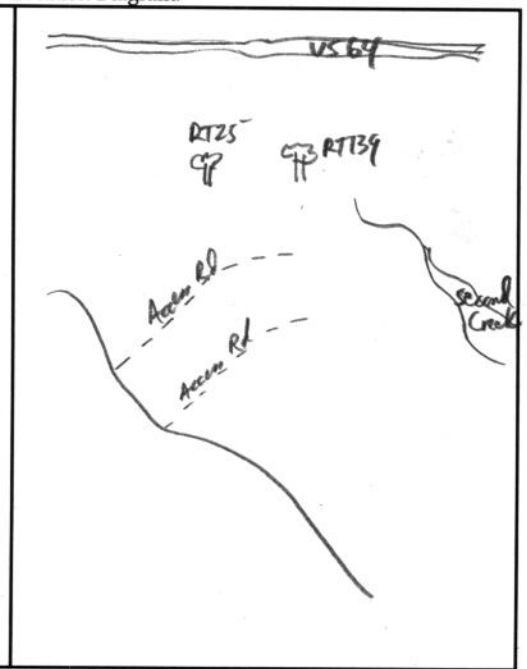
Roost Tree # 139 Bat Species/Sex/Frequency: MYSE/M/172.605 Band # CC1963

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/5	172.605	CC1963	M	No emergence, too cold
2	3/6	172.605	CC1963	M	Bat did not emerge
3	3/7	172.605	CC1963	M	
4	3/8	172.605	CC1963	M	
5	3/11	172.605	CC1963	M	
6	3/12	172.605	CC1963	M	
7	3/13	172.605	CC1963	M	
8	3/14	172.605	CC1963	M	
9	3/15	172.605	CC1963	M	
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/5	<45	No Emergence Conducted due to temp.							
2	3/6	52	Clear	0	1806	1915	—	—	Already exit	Sub. iForm
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	Crevice	N	?	45		
2						
3						

Comments:
Possible presence of crevice ≈ 45 feet up @ fork of tree
Photos submitted via iForm

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Jeff Hawkins, Bradley Scott **Date:** 3/5/2017

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

LAT_____ **LONG**_____

Property Owner: State (Alligator River Gamelands) **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 3 **Roost Name:** RT139

Roost Tree Data

Species: Nyssa biflora **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 30.0 **Total Height (ft or m)** 65

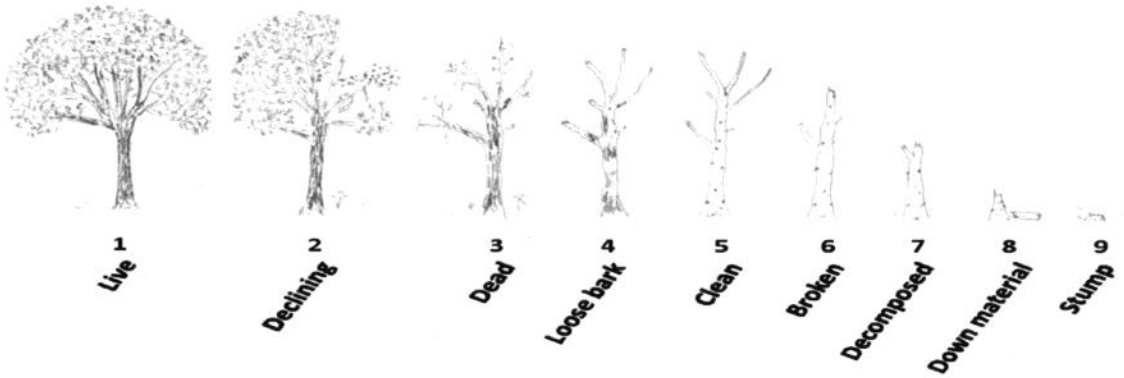
Height of roost area (if known) Unk **Dist. from capture site** 2,224 m

Roost position aspect (deg) 15

Exfoliating bark on bole (%) 5 **Describe: sloughing** __ **platy** __ **tight** ✓

Cavities present? Y **If so, describe:** Possible crack or crevice in fork of tree caused by limb breaking

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)_____ **Distance to non-forest (ft or m)**_____

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature, tidal swamp forest in Alligator River Gamelands Property

Additional Comments MYSE/♂/Band # CC1963/Freq. 172.605

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/6/2017 **Surveyor(s) Full Name:** Bradley Seal
State: NC **County:** Tyrrell **Project Name:** #537 NCDOT NLEB Fall/Winter Bats
Site Name/#: Alligator River County Land **Roost Name/#** RT139 **Bat #:** CC1963/172.605
Lat/Long or UTM of Roost: 35.89594, -76.11163
Description of Roost/Habitat Feature Surveyed:

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

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed):
Clear, 52°F, wind <5mph

Survey Start Time: 1806 **Time of Sunset:** 1806 **Survey End Time:** 1915

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	0	Bat did not exit the roost

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT139

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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?

No bats observed to exit

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/F/172.542 Band # NCDOT 1628 Page 1 of 1

Roost Tree # 877 Project No./Project Name 537 / NC DOT MYSE Research Date First Found 6 Mar 2017
Location NE of capture site AR05
County Tyrrell State NC Quad Columbia East
Lat-Long/UTM: N/E 35.89139 W/N -76.12582 Zone — Datum: Nad 83 Observers: G. Janos, S. Cotham

#	Tree Tag #	Species	DBH (cm)	Height ft or m: Tree	Height ft or m: Roost	Condition*	% Bark Cover**: Usable	% Bark Cover**: Total	Tree Ranking***	Available Roost/ Observation
1	877	A. rubrum	42.5	17	Y	L-D	L	H	C	cavity
2		N. biflora	42.0	23	—	L	L	H	C	
3		N. biflora	32.7	20	—	L	L	H	C	
4		N. biflora	15.4	16	—	L	L	H	C	
5		N. biflora	71.5	18	—	L	L	H	C	
6		N. biflora	42.2	17	—	L	L	H	C	
7		P. palustris	19.7	12	—	L-D	L	H	SC	
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
70	0	70

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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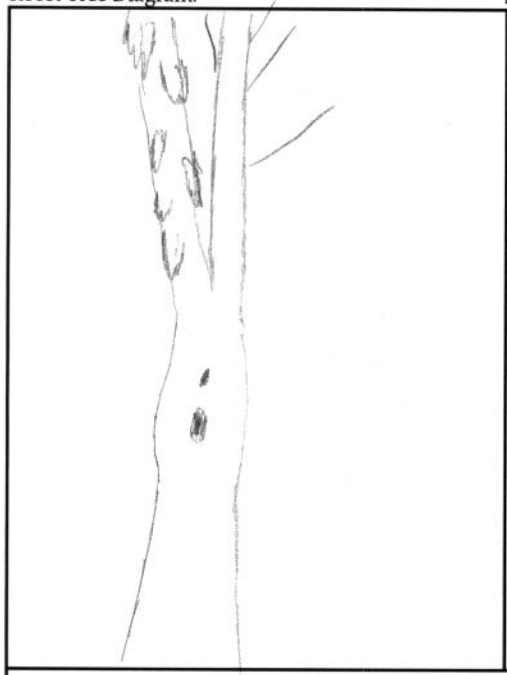
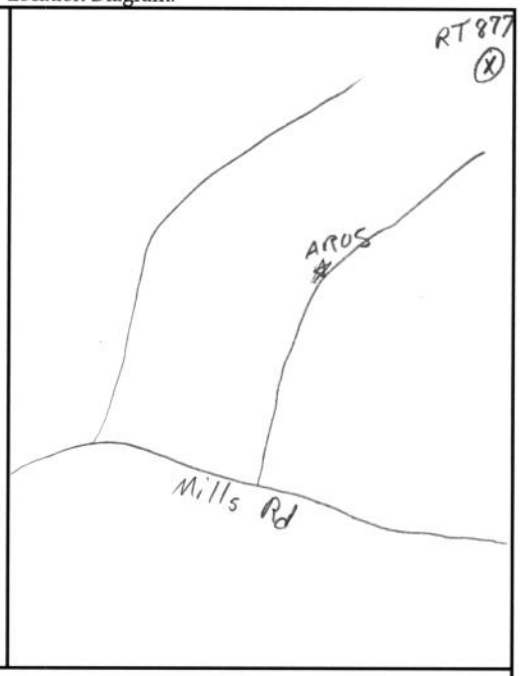
Roost Tree # 877 Bat Species/Sex/Frequency: MYSE/F/172.542 Band # NCDOT 1628

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/6	.542	NCDOT 1628	F	cavities
2	3/13	.542	NCDOT 1628	F	
3	3/14	.542	NCDOT 1628	F	
4	3/15	.542	NCDOT 1628	F	
5	3/18	.542	NCDOT 1628	F	
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/5	51	clear	0	1803	—	—	—	—	G. Janos
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Opening Measurements: Height	Opening Measurements: Ground	Opening Measurements: H_2O Level
1		50	3"	6"		
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Gregg Janos **Date:** 6 March 2017

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

LAT 35.89139 **LONG** -76.12582

Property Owner: Fale **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 5 **Roost Name:** 877

Roost Tree Data

Species: Acer rubrum **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 42.5 **Total Height (ft or m)** 17

Height of roost area (if known) 4m **Dist. from capture site** 861 m

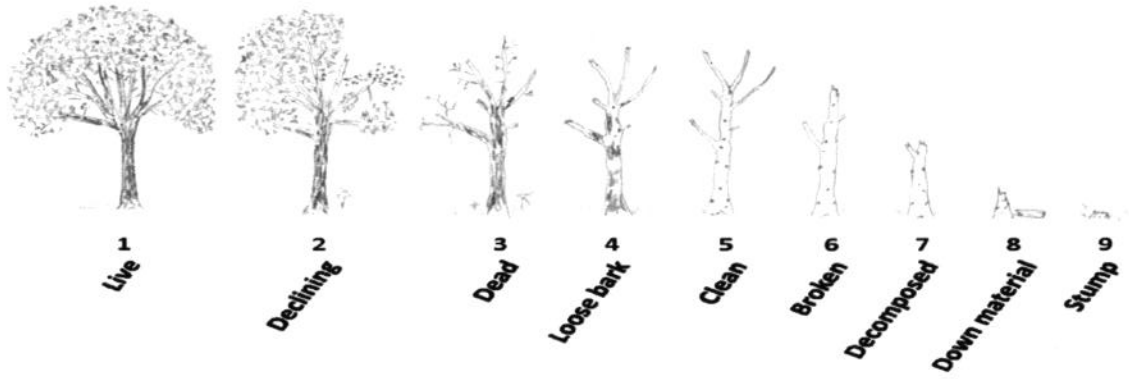
Roost position aspect (deg) 50

Exfoliating bark on bole (%) 50 **Describe: sloughing** ✓ **platy**__ **tight**__

Cavities present? ✓ **If so, describe:** two circular cavities

---

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)_____ **Distance to non-forest (ft or m)**_____

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

Additional Comments MYSE, ♀, Band NCDOT 1628, Freq. 172.542

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/6/2017 **Surveyor(s) Full Name:** Gregg Jarrs, Shelby Cotham
State: NC **County:** Tyrrell **Project Name:** NCDOT MYSE Fall/Winter Bats
Site Name/#: Alligator River **Roost Name/#** RT877 **Bat #:** NCDOT 1628
Lat/Long or UTM of Roost: N35.89139, W76.12582 Freq. 172.542
Description of Roost/Habitat Feature Surveyed: Acer rubrum w/ two cavities & exfoliating bark
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain):
Weather Conditions during Survey (temperature, precipitation, wind speed): 51°, clear
Survey Start Time: 1740 **Time of Sunset:** 1803 **Survey End Time:** 1840

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT877

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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?

No Bats emerged

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/M/172.183 Band # CC1659 Page 1 of ____

Roost Tree # RT305 Project No./Project Name 537 / NCDOT MYSE Research Date First Found 7 March 2017

Location North of RT 268

County Tyrrell State NC Quad Columbia East

Lat-Long/UTM: N/E 35.88593 W/N -76.11905 Zone — Datum: Nad 83 Observers: J. Hawkins, B. Seat

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	305	P. Taeda	32.9	23.0	7.5	Snag	Low	Low	Canopy	Cavity
2		I. glabra	10.2	6.0		Live	Low	High	S-C	N/A
3		I. glabra	3.8	4.0		Live	Low	High	S-C	N/A
4		I. glabra	6.2	6.0		Live	Low	High	S-C	N/A
5		A. rubrum	24.1	18.0		Live	Low	High	Canopy	N/A
6		A. rubrum	20.5	17.0		Live	Low	High	Canopy	N/A
7		I. glabra	9.8	6.0		Live	Low	High	S-C	N/A
8		N. biflora	18.7	20.0		Live	Low	High	Canopy	N/A
9		N. biflora	11.5	14.0		Live	Low	High	S-C	N/A
10		N. biflora	17.1	14.0		Live	Low	High	S-C	N/A
11		N. biflora	17.8	14.0		Live	Low	High	S-C	N/A
12		P. Taeda	40.8	24.0		Live	Low	High	Canopy	N/A
13		N. biflora	14.2	13.0		Live	Low	High	S-C	N/A
14		P. spp	37.1	12.0		Snag	Low	Low	S-C	N/A
15		N. biflora	20.9	14.0		Live	Low	High	S-C	N/A
16		N. biflora	18.8	13.0		Live	Low	High	S-C	N/A
17		N. biflora	18.5	13.0		Live	Low	High	S-C	N/A
18		N. biflora	9.4	6.0		Live	Low	High	S-C	N/A
19		A. rubrum	16.7	13.0		Live	Low	High	S-C	N/A
20		N. biflora	16.1	13.0		Live	Low	High	S-C	N/A
21		A. rubrum	28.4	21.0		Live	Low	High	Canopy	N/A
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
190	20	210

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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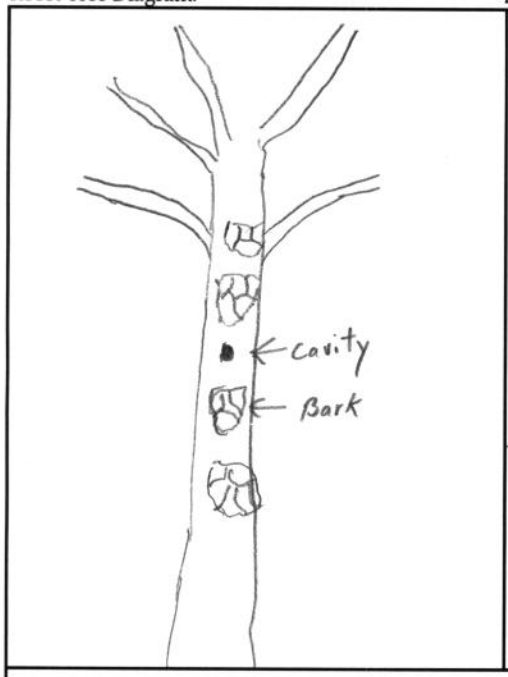
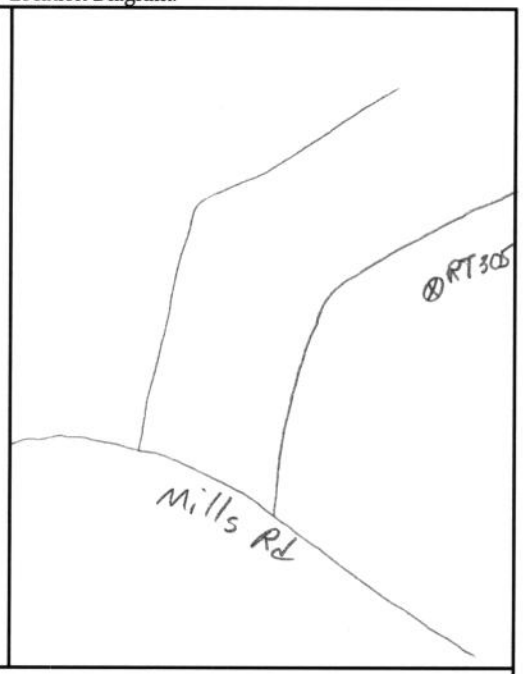
Roost Tree # RT 305 Bat Species/Sex/Frequency: MYSE / M / 172.183 Band # CC1659

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/7	172.183	CC1659	M	cavity
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/8	55°	Clear	0	1835	—	—	—	—	Sub. iform
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1	cavity	285	3in	3in	7.5m	
2						
3						

Comments:
Most bark looks too tight for bats to use

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): JEFF HAWKINS Bradley Seal **Date:** 7 March 2017

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

LAT 35.68593 **LONG** -76.11905

Property Owner: State (Alligator River Game Lands) **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 5 **Roost Name:** RT305

Roost Tree Data

Species: Pinus taeda **Live** __ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 32.9 **Total Height (ft or m)** 23.0

Height of roost area (if known) 7.5m **Dist. from capture site** 1,622m

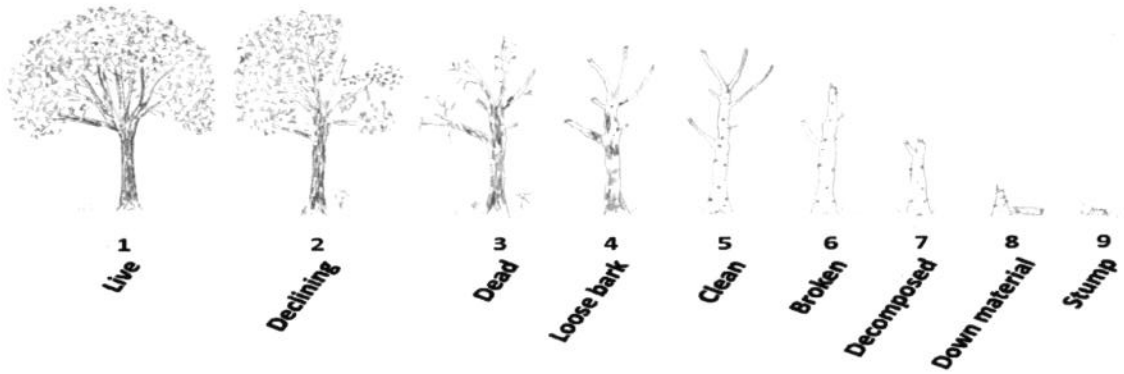
Roost position aspect (deg) 285

Exfoliating bark on bole (%) 10 **Describe: sloughing** __ **platy** ✓ **tight** __

Cavities present? ~~Yes~~ **If so, describe:** 3in x 3in, 7.5m off of ground

---

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)_____ **Distance to non-forest (ft or m)**_____

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

Additional Comments MYSE / ♂ / Band# CC1659 / Freq. 172.183

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/8/2017 **Surveyor(s) Full Name:** Brandon Seal
State: NC **County:** Tyrrell **Project Name:** #537 NCDOT MYSE Fall/Winter Survey
Site Name/#: _____ **Roost Name/#** 305 **Bat #:** CC1659/172-183
Lat/Long or UTM of Roost: N35.88593, W 76.11905
Description of Roost/Habitat Feature Surveyed: _____

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYSE
Other Suspected Bat Species (explain): _____
Weather Conditions during Survey (temperature, precipitation, wind speed):
Clear, ≈ 55°F, Wind Speed < 5mph
Survey Start Time: 1750 **Time of Sunset:** 1807 **Survey End Time:** 1840

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	0	No bats observed to exit

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** _____

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

* 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?

No bats observed to exit.

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/M/172.183 Band # CC1659 Page 1 of 1

Roost Tree # 299 Project No./Project Name #537 ~~Camelot~~ 2016/17 NCDOT MYSE Fall Bats Date First Found 3/8/2017

Location Mixed Nonriverine Swamp Forest on Alligator ~~Creek~~ approx. 1-8 mile southwest of US64

County Tyrell State NC Quad Columbia East

Lat-Long/UTM: (N)/E 35.88686 (W)/N 76.11916 Zone ____ Datum: ____ Observers: J. Hawkins, B. Seal

#	Tree Tag #	Species	DBH (cm)	Height (ft or m) Tree	Height (ft or m) Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	299	Persea borbonia/palustris	14.1	45	30	L-D	10	75	Canopy	Bark
2		Nyssa biflora	20.9	60		L	Low	High	Canopy	
3		Unknown	14.6	40		D	Low	High	Sub	
4		Acer rubrum	15.3	50		L	low	high	Canopy	
5		A. rubrum	27.6	60		L	low	high	Canopy	
6		Liquidambar styraciflua	26.4	55		L	low	high	Canopy	
7		N. biflora	15.1	40		L	low	high	Sub	
8		N. biflora	24.4	45		L-D	low	high	Canopy	
9		N. biflora	26.8	45		L	low	high	Canopy	
10		L. styraciflua	23.5	45		L	low	high	Canopy	
11		N. biflora	29.5	60		L	low	high	Canopy	
12		N. biflora	12.9	35		L	low	high	Sub	
13		N. biflora	24.8	40		L	low	high	Canopy	
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
(Interior)	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	(Closed)

Basal Area		
Live Trees	Snags	All Trees
120	10	130

Roost Location		
(Bark)	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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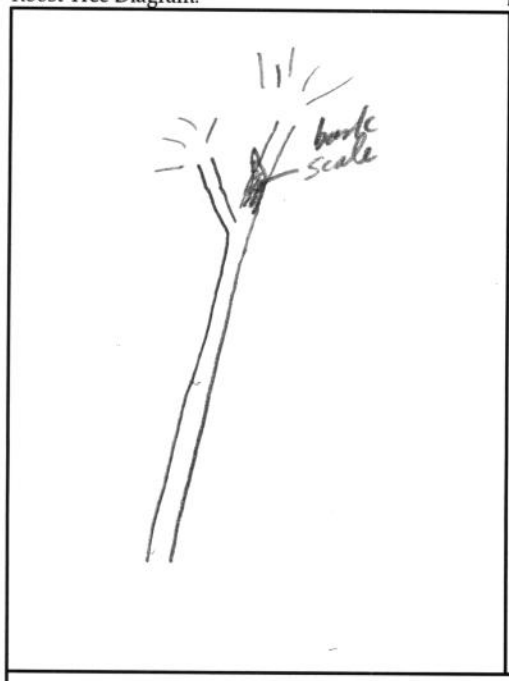
Roost Tree # 299

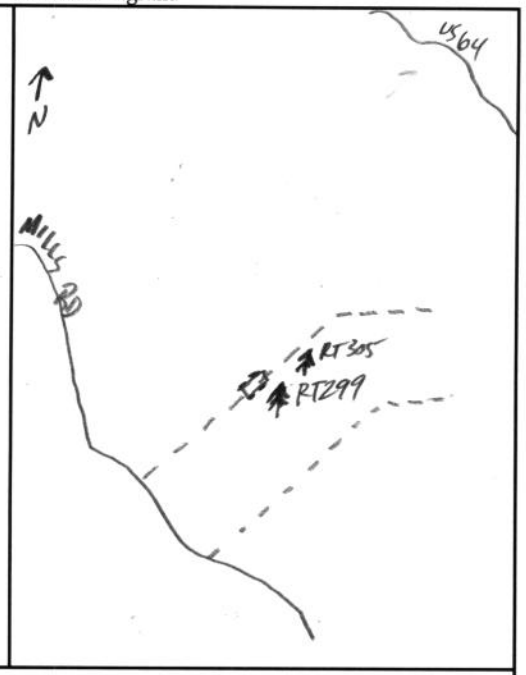
Bat Species/Sex/Frequency: MYSE/M/172.183

Band # CC1659

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/8	.183	CC1659	M	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/8	55	Clear	—	1826	—	—	—	Sabellow	Sub. iForm
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Opening Measurements: Height	Opening Measurements: Ground	H_2O Level
1	Bark	25	5"	10"	30'	
2						
3						

Comments:
Bat did not emerge before darkness fell
Photo submitted via iForm

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Jeff Hawkins **Date:** 3/8/2017

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

LAT 35.88686 **LONG** 76.11916

Property Owner: State Alligator River Game Lands **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 6 **Roost Name:** RT 299

Roost Tree Data

Species: Persea borbonia/palustris **Live** __ **Snag** __ **Other** ✓ live-damaged

(if other, explain) _____

DBH (in or cm) 14.1 **Total Height (ft or m)** 45

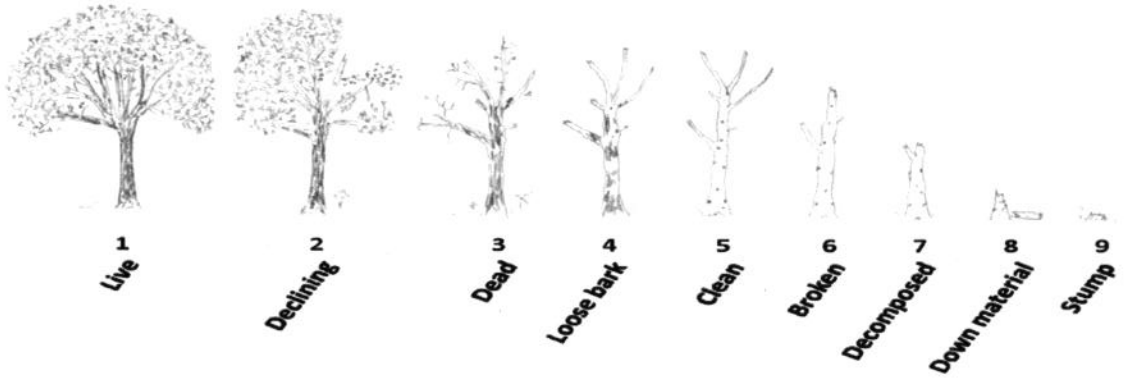
Height of roost area (if known) 30 **Dist. from capture site** 1,693m

Roost position aspect (deg) 25

Exfoliating bark on bole (%) 5 **Describe: sloughing** __ **platy** ✓ **tight** __

Cavities present? N **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 (%) 60

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

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

Additional Comments MYSE/♂/Band# CC1659/Freq. 172.183

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/8/2017 **Surveyor(s) Full Name:** JEFF HAWKINS
State: NC **County:** Tyrrell **Project Name:** #537 NCDOT MYSE Fall/Winter Bats
Site Name/#: _____ **Roost Name/#** 299 **Bat #:** CC1659/(172.183)
Lat/Long or UTM of Roost: 35.88686, -76.11916
Description of Roost/Habitat Feature Surveyed: Mixed nonriverine swamp forest on Alligator Bamelands
Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE
Other Suspected Bat Species (explain): _____
Weather Conditions during Survey (temperature, precipitation, wind speed): 55°F, clear, wind <5mph
Survey Start Time: 17 **Time of Sunset:** 1826 hrs **Survey End Time:** 1920

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	0	No bats observed to exit

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT299

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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?

No bats emerged during observation period

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/F/364 Band # CC 1674 Page ____ of ____

Roost Tree # 11 Project No./Project Name 537 / NC DOT NLEB Winter monitoring Date First Found 3-15-2017

Location East of Road directly after third water crossing in flooded forest

County Bertie State NC Quad Hamilton

Lat-Long/UTM: N/E 35.95632 W/N -77.14409 Zone ____ Datum: NAD83 Observers: Price S. Molly G.

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	11	Nyssa aquatica	58.4	24		L	0	100	C	
2		Acer rubrum	54.5	20		L-D	0	100	S-C	
3		Nyssa aquatica	34.0	17		L	0	100	S-C	
4		Nyssa aquatica	63.6	24		L	0	100	C	
5		Populus heterophylla	30.5	23		L	0	100	C	
6		Populus heterophylla	48.0	24		L	0	100	C	
7		Populus heterophylla	41.7	24		L	0	100	C	
8		Nyssa aquatica	56.1	24		L	0	100	C	
9		taxodium distichum	9.5	7		S	0	100	U	
10		Nyssa aquatica	70.1	25		L	0	100	C	
11		Populus heterophylla	40.8	23		L	0	100	C	
12		Populus heterophylla	30.1	19		L-D	0	100	S-C	
13		Populus heterophylla	23.9	19		L	0	100	S-C	
14	38	Populus heterophylla	37.8	24		L-D	0	100	C	
15		Nyssa aquatica	59.5	23		L	0	100	C	
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
140	10	150

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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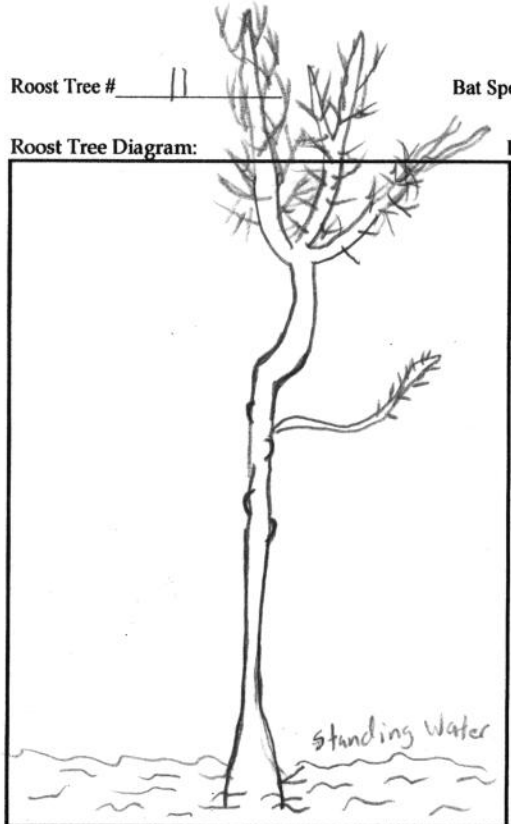
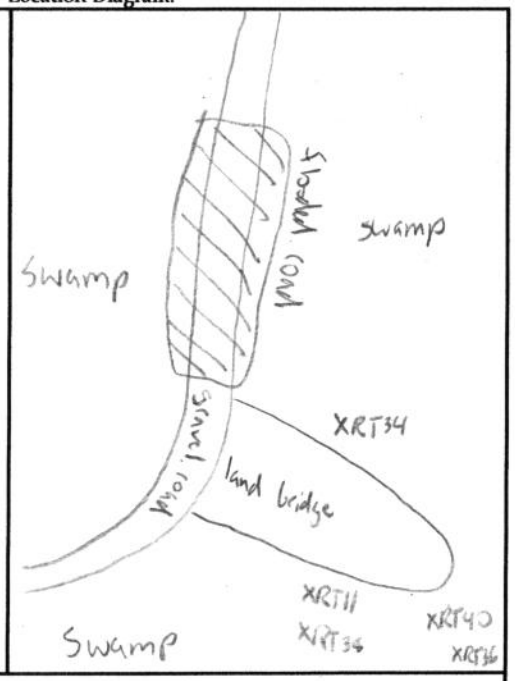
Roost Tree # 11 Bat Species/Sex/Frequency: MYSE/F/364 Band # CC1674

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3-15-17	364	CC1674	F	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3-17				1918					
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:

14°	1.9	Y	141°	4.7	Y
56°	7	Y	210°	3.5	Y
72°	9	N	232°	12	Y
91°	6.4	Y	248°	4.2	Y
125°	5	Y	317°	8	N

80%

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Price Sewell, Molly Gooder **Date:** 3/15/2017

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

LAT 35.95632 **LONG** -77.14809

Property Owner:_____ **Phone#**_____

State NC **County** Bertie **Site #**_____

Roost # 5 **Roost Name:** RT11

Roost Tree Data

Species: Nyssa aquatica **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 58.4 **Total Height (ft or m)** 24

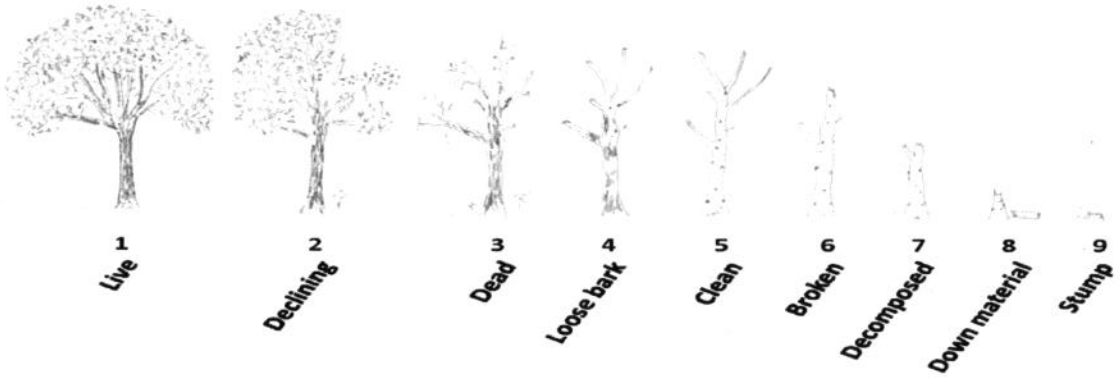
Height of roost area (if known) unk **Dist. from capture site** 422 m

Roost position aspect (deg) unk

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy**__ **tight**__

Cavities present? Y **If so, describe:** several knot holes up and down the trunk of the tree

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 (%) 80

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

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

Cypress-Gum Swamp (Brownwater Subtype)

Additional Comments MYSE/♀/Band # CC 1674/Freq. 172.364

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3-17-2017 **Surveyor(s) Full Name:** Molly Gooden

State: NC **County:** Bertie **Project Name:** 537 NC DoT NLEB Winter Monitoring

Site Name/#: Roanoke River Wildlife Refuge **Roost Name/#** RT11 **Bat #:** 364 (Freq.) Band #CC1674

Lat/Long or UTM of Roost: 35.95632, -77.14809

Description of Roost/Habitat Feature Surveyed: Nyssa aquatica in flooded forest, 5 m from land bridge

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

Other Suspected Bat Species (explain): N/A

Weather Conditions during Survey (temperature, precipitation, wind speed): overcast, no precipitation, some wind (1), temp -

Survey Start Time: 1845 **Time of Sunset:** 1918 **Survey End Time:** 2010

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
1947	0	female 364 left RT36*

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT11

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

* 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?

*This tree was originally located on 15 March but emergence was not conducted due to low temperatures. Focal bat .364 emerged from the nearby RT36 while the emergence count was conducted on RT11

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/M/064 Band # NCWRC A0736 Page ____ of ____

Roost Tree # 15 Project No./Project Name 537 / NC DOT NLEB Winter Monitoring Date First Found 3-15-2017

Location 145 m East of gravel Road and 313 m South of the Capture sites and 164 m West of RT29

County Bertie State NC Quad Hamilton

Lat-Long/UTM: N/E 35.96796 W/N -77.13987 Zone ____ Datum: NAD83 Observers: Price S. Molly G.

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	15	Nyssa sp.	91.9	11		S	1	30	U	
2		Nyssa aquatica	38.0	15		L	0	100	S-C	
3		Nyssa aquatica	76.4	21		L	0	100	C	
4		Nyssa aquatica	116.2	25		L-D	0	100	C	blue spot tag 180
5		Nyssa aquatica	64.0	23		L-D	0	100	C	
6		Nyssa aquatica	73.2	23		L	0	100	C	
7		Nyssa aquatica	56.3	21		L	0	100	C	
8		Nyssa aquatica	65.1	22		L	0	100	C	
9		Nyssa aquatica	56.3	21		L-D	0	100	C	
10		Nyssa aquatica	59.6	21		L	0	100	C	
11		Nyssa aquatica	48.3	20		L-D	0	100	C	
12		Nyssa sp.	61.1	7		S	0	30	U	
13		Nyssa aquatica	88.2	25		L	0	100	C	
14		Nyssa aquatica	87.8	25		L-D	0	100	C	
15		Nyssa aquatica	85.7	25		L-D	0	90	C	
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
130	20	150

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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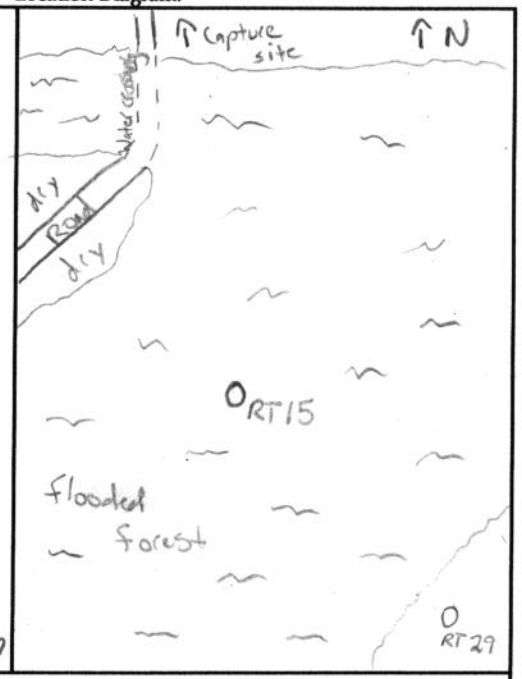
Roost Tree # 15

Bat Species/Sex/Frequency: MYSE/M/1.064 172

Band # NCWRC A0736

Roost Tree Diagram:

Location Diagram:



Bat Days

No.	Date 2017	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	15-Mar	064	A0736	Male	Transmitter is only tried no beep
2	16-Mar	064	A0736	Male	"
3	17-Mar	064	A0736	Male	"
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	2017 Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	17 MAR		Overcast	0	1916	—	—	—	—	PLS See below
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Height	Ground	H_2O Level
1						
2						
3						

Comments:
17 March emergence no bats emerged transmitter (Bat?) still in tree @ 2040.
Several bats flying in canopy & above starting @ 1925

5°	6.8	Y	176°	11	Y
56°	1.3	N	201°	5.5	Y
85°	7.8	Y	241°	9	Y
113°	2.8	N	298°	1.5	Y
155°	3	N	321°	4.3	Y

70%

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Price Sewell, Molly Gooker **Date:** 3-15-2017

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

LAT 35.96796 **LONG** -77.13987

Property Owner: USFWS (Roanoke River NWR) **Phone#**_____

State NC **County** Bertie **Site #**_____

Roost # 4 **Roost Name:** RT15

Roost Tree Data

Species: Nyssa sp. **Live** __ **Snag** X **Other** __

(if other, explain) could be N. aquatica or biflora

DBH (in or cm) 91.9 **Total Height (ft or m)** 11

Height of roost area (if known) Unknown **Dist. from capture site** 309 m

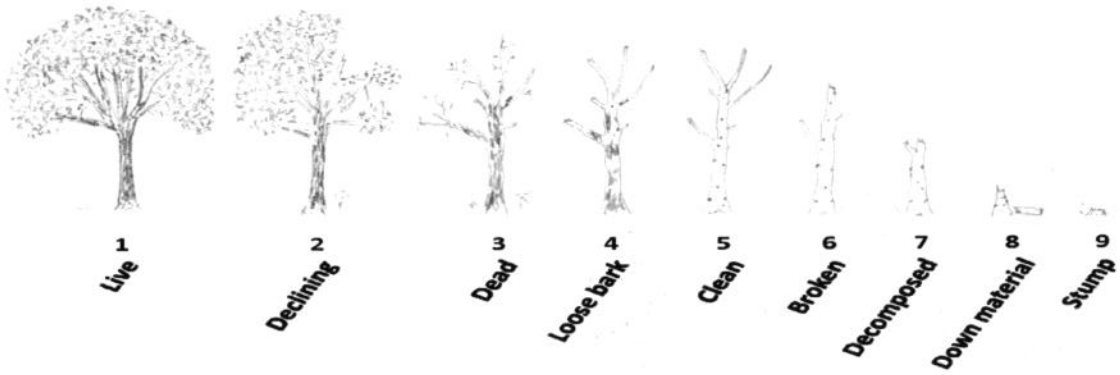
Roost position aspect (deg) Unknown

Exfoliating bark on bole (%) 3 **Describe: sloughing** __ **platy**__ **tight** X

Cavities present? Yes **If so, describe:** many openings and cavities in this snag

---

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 (%) 70%

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

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

Additional Comments MYSE/M/Band # NCWRC A0736/Freq. 172.064

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 17 March 2017 **Surveyor(s) Full Name:** Price L. Sewell
State: NC **County:** Bertie **Project Name:** NCDOT NLEB Winter Monitoring
Site Name/#: Roanoke River, NWR **Roost Name/#** RT 15 **Bat #:** .064
Lat/Long or UTM of Roost: 35.96796, -77.13997
Description of Roost/Habitat Feature Surveyed: Nyssa snag in tupelo swamp

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):
Overcast, , Wind - 2 mph
Survey Start Time: 1830 **Time of Sunset:** 1918 **Survey End Time:** 2040

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
		No bats emerged
		transmitter never left the
		tree.
		Bats were flying starting @
		1925 in and above the
		Canopy.
		Possible bat dropped the transmitter
		in the tree.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT15

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	No bats emerged

* 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?

_____

_____

_____

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/F/542

Band # NCDOT 1628

Page 1 of 1

Roost Tree # 306 Project No./Project Name 537 / NCDOT. MYSE Research Date First Found 3/16/17

Location NE capture site AR05

County Tyrrell State North Carolina Quad Columbia East

Lat-Long/UTM: N/E 35.89083 W/N -76.13998 Zone —— Datum: NAD83 Observers: SC, MH

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	306	N. Biflora	71.6	21	2	live	L	H	Canopy	Cavity
2		N. Biflora	70.8	17		live	L	H	Canopy	
3		N. Biflora	50.1	7		Snag	L	H	Sub	
4		N. Sylvatica	39.3	15		live	L	H	Canopy	
5		N. Biflora	57	20		live	L	H	Canopy	
6		N. Biflora	94.1	16		live	L	H	Canopy	
7		N. Biflora	43	21		live	L	H	Canopy	
8		N. Biflora	51.1	20		live	L	H	Canopy	
9		N. Biflora	52	10		Snag	L	H	Sub	
10		N. Biflora	49.8	7		Snag	L	H	Sub	
11		A. Rubrum	14.4	15		live	L	H	Sub	
12		N. Biflora	38.1	21		live	L	H	Canopy	
13		N. Biflora	54.8	19		live	L	H	Canopy	
14		N. Biflora	28.6	22		live	L	H	Canopy	
15		N. Biflora	19.8	21		live	L	H	Canopy	
16		N. Biflora	24.8	22		live	L	H	Canopy	
17		N. Biflora	35.5	23		live	L	H	Canopy	
18		A. Rubrum	12.9	6		Snag	L	H	Sub	
19		A. Rubrum	14.2	12		Snag	L	H	Sub	
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
140	50	190

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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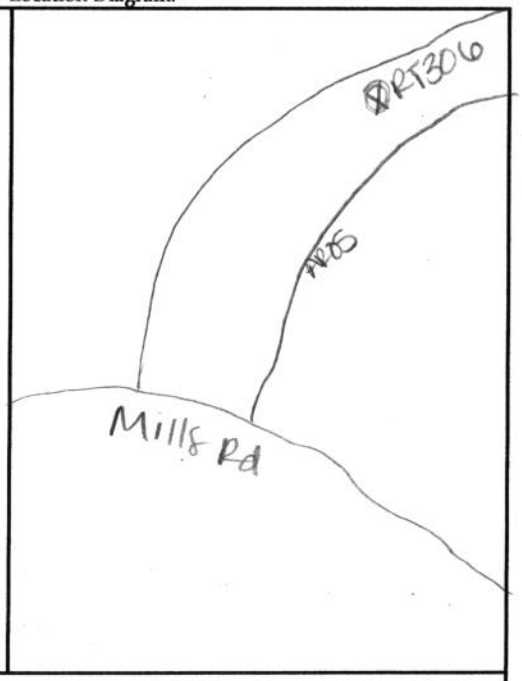
Roost Tree # 309 Bat Species/Sex/Frequency: MYSE/F/542 Band # NCDOT 1628

Roost Tree Diagram:

Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/16	542	NCDOT1628	F	
2	3/17	542	NCDOT1628	F	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/17	50°	clear	0	1914	—	—	—	—	S. Cotham M. Hine
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Opening Measurements: Height	Opening Measurements: Ground	H_2O Level
1		190	0.15m	0.30	2	
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Shelby Cothom, Matt Hinds **Date:** 3/16/2017

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

LAT 35.89083 **LONG** -76.13498

Property Owner: State (Alligator River Game Lands) **Phone#** —

State NC **County** Tyrrell **Site #** —

Roost # 6 **Roost Name:** RT306

Roost Tree Data

Species: Nyssa biflora **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 71.6 **Total Height (ft or m)** 21

Height of roost area (if known) 2m **Dist. from capture site** 446m

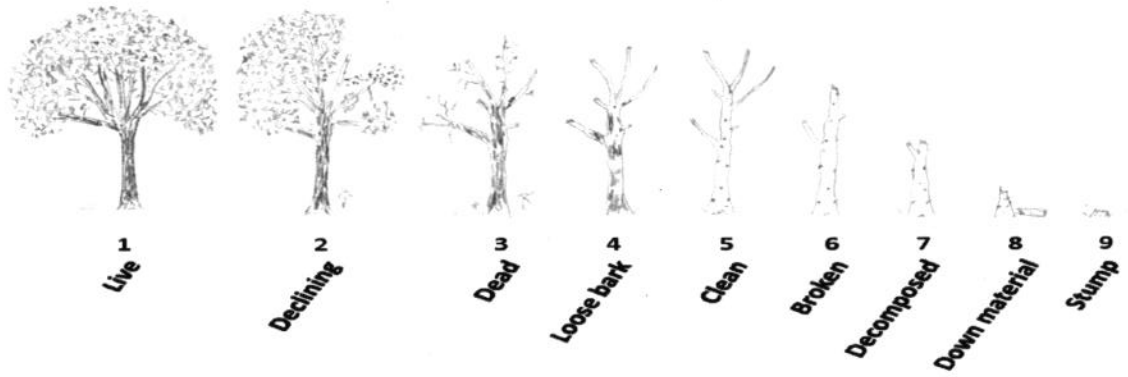
Roost position aspect (deg) 190

Exfoliating bark on bole (%) 0 **Describe: sloughing** __ **platy** __ **tight** X

Cavities present? ✓ **If so, describe:** large cavity near base of tree

---

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 (%) 50

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

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

Additional Comments MYSE / ♀ / Band NCDOT 1628 / Freq. 172.542

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/17/2017 **Surveyor(s) Full Name:** Shelby Cotham, Matt Hinds
State: NC **County:** Tyrrell **Project Name:** NCDOT MYSE Research
Site Name/#: RT 306 **Roost Name/#** RT306 **Bat #:** Band NCDOT 1628 Freq. 172.542
Lat/Long or UTM of Roost: 35.89083/-76.13498
Description of Roost/Habitat Feature Surveyed: N Bifloral with large cavity ~2m from ground.
Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYSE
Other Suspected Bat Species (explain):
Weather Conditions during Survey (temperature, precipitation, wind speed):
Partly cloudy, light breeze, 50°
Survey Start Time: 6:49 **Time of Sunset:** 7:14 **Survey End Time:** 750

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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 surveyors are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence, 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

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: RT306 **Roost Name/#:** 306

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	No bats emerged

* 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?

Roost Tree Data Form (2014) Bat Species/Sex/Frequency: MYSE/M/172.605 Band # CC1963 Page 1 of 1

Roost Tree # 878 Project No./Project Name 537.04 / NCDOT MYSE Research Date First Found 16 March 2017

Location SE of RT 139

County Tyrrell State NC Quad Columbia East

Lat-Long/UTM: N/E 35.89477 W/N -76.11066 Zone — Datum: NAD 83 Observers: G. Jones, B. Seat

#	Tree Tag #	Species	DBH (cm)	Height ft or m		Condition*	% Bark Cover**		Tree Ranking***	Available Roost/ Observation
				Tree	Roost		Usable	Total		
1	878	T. distichum	66	18	14	LD	L	H	C	split in tree
2		N. biflora	8.5	6	—	L	L	H	SC	
3		N. biflora	10	6	—	L	L	H	SC	
4		C. thyoides	27.6	15	—	LD	L	H	C	
5		C. thyoides	24.2	15	—	LD	L	H	C	
6		C. thyoides	10.2	5	—	S	L	H	SC	
7		C. thyoides	23.7	15	—	LD	L	H	C	
8		C. thyoides	23.6	15	—	LD	L	H	C	
9		C. thyoides	21.5	14	—	LD	L	H	C	
10		N. biflora	11.8	7	—	L	L	H	SC	
11		P. palustris	3.8	5	—	L	L	H	U	
12		P. palustris	4.4	5	—	L	L	H	U	
13		T. distichum	7.9	5	—	S	L	H	U	
14		C. thyoides	25.0	10	—	S	L	M	SC	
15		C. thyoides	28.2	14	—	L	L	H	C	
16		C. thyoides	19.9	14	—	S	L	M	SC	
17		C. thyoides	22.5	14	—	LD	L	M	C	
18		C. thyoides	15.4	10	—	S	L	H	SC	
19		N. biflora	10.5	8	—	L	L	H	SC	
20		N. biflora	8.5	8	—	L	L	H	SC	
21		C. thyoides	26.6	12	—	S	L	H	C	
22		N. biflora	13.3	8	—	S	L	H	SC	

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

N. biflora	11	8	—	S	L	H	SC
P. palustris	4.5	4	—	L	L	H	U
C. thyoides	17.2	8	—	S	L	H	U
N. biflora	9.2	8	—	S	L	H	U
C. thyoides	11.1	4	—	S	L	L	U

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
170	120	290

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

***Tree Ranking		
Canopy	Sub-Canopy	Understory

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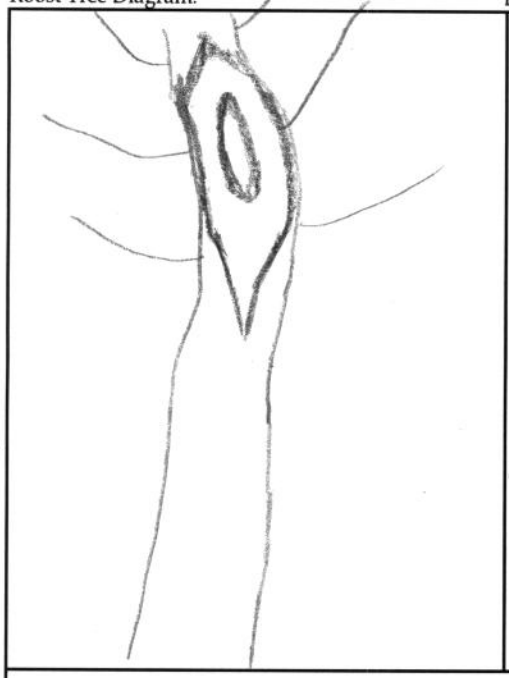
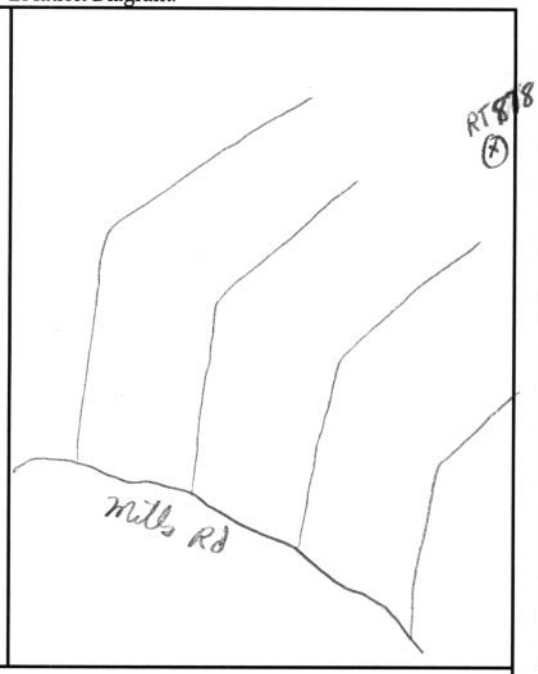
Roost Tree # 878 Bat Species/Sex/Frequency: MYSE/M/172.605 Band # CC1963

Roost Tree Diagram:



Location Diagram:



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/16	.605	CC1963	M	cavity
2	3/17	.605	CC1963	M	
3	3/18	.605	CC1963	M	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	3/17	50°	clear	0	1914	—	—	—	—	G. Janos B. Seat
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Opening Measurements: Height	Opening Measurements: Ground	Opening Measurements: H_2O Level
1		75°	3ft	6ft		
2						
3						

Comments:

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APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Gregg Janos, Bradley Gat **Date:** 3/16/2017

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

LAT 35.89477 **LONG** -76.11066

Property Owner: ~~State~~ (Alligator River Game Lands) **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 84 **Roost Name:** RT878

Roost Tree Data

Species: Taxodium distichum **Live** ✓ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 66 **Total Height (ft or m)** 18

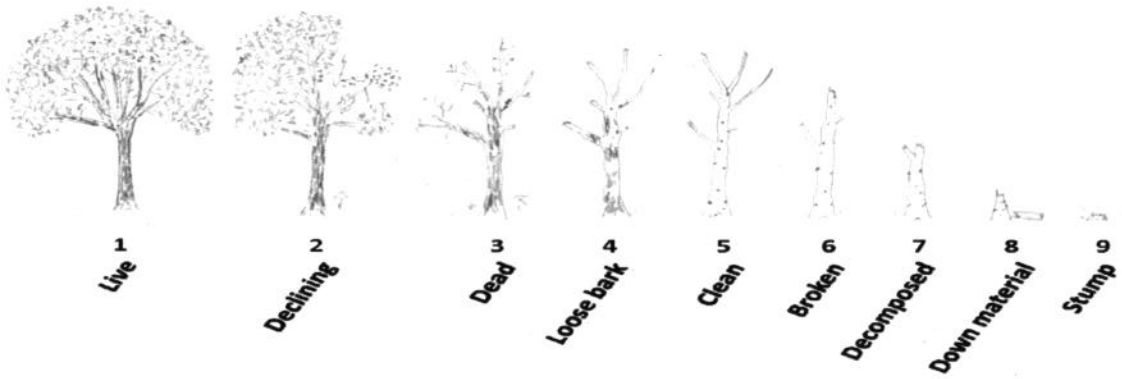
Height of roost area (if known) 14m **Dist. from capture site** 2,249m

Roost position aspect (deg) 75°

Exfoliating bark on bole (%) 2 **Describe: sloughing** ✓ **platy**__ **tight**__

Cavities present? ✓ **If so, describe:** Large split in tree near 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 (%) 90%

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

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

Additional Comments MYSE/♂/CC1963 Band/Freq. 172.605

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/17/2007 **Surveyor(s) Full Name:** Gregg Janos, Bradley Seal
State: NC **County:** Tyrrell **Project Name:** _____
Site Name/#: _____ **Roost Name/#** 878 **Bat #:** CC1963/172.605
Lat/Long or UTM of Roost: N35.89477, -76.11066
Description of Roost/Habitat Feature Surveyed: Large split in tree

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

Other Suspected Bat Species (explain): _____

Weather Conditions during Survey (temperature, precipitation, wind speed):
Partly cloudy, light breeze, ≈50°

Survey Start Time: 1840 **Time of Sunset:** 1914 **Survey End Time:** 1950

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour 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
—	0	No bats emerged

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** RT878

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	No bats emerged

* 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?

_____

_____

_____

Roost Tree Data Form (2014)

Bat Species/Sex/Frequency: MYSE/F/172.542 Band # NCDOT 1628 Page ____ of ____

Roost Tree # 300 Project No./Project Name 537 / NCDOT MYSE Date First Found 3/19/16

Location NE capture site AP05

County Tyrrell State NC Quad East Columbia

Lat-Long/UTM: N/E 35.89102 W/N -76.12581 Zone – Datum: NAD 83 Observers: SC, MH

#	Tree Tag #	Species	DBH (cm)	Height ft or m Tree	Height ft or m Roost	Condition*	% Bark Cover** Usable	% Bark Cover** Total	Tree Ranking***	Available Roost/ Observation
1	300	N Biflora	28.9	18	3m	L	L	H	C	cavity
2		N Biflora	27.3	18	–	L	L	H	C	–
3		N. Biflora	21.3	16	–	L	L	H	C	–
4		N Biflora	13.8	15	–	L	L	H	C	–
5		N Biflora	20.6	13	–	L	L	H	C	–
6		N. Biflora	34.9	14	–	LD	L	H	C	–
7		A Rubrum	34.5	19	–	L	L	H	C	–
8		N Biflora	15.8	12	–	L	L	H	SC	–
9		A Rubrum	19.5	13	–	L	L	H	SC	–
10		N Sylvatica	23.9	16	–	L	L	H	C	–
11		N Biflora	30.6	18	–	L	L	H	C	–
12		Persea borbonia	15.9	10	–	L	L	H	SC	–
13		A Rubrum	27.6	12	–	LD	L	H	SC	
14										
15										
16										
17										
18										
19										
20										
21										
22										

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

Habitat		
Interior	Edge	Open

Canopy Cover at Roost		
Open	Intermediate	Closed

Basal Area		
Live Trees	Snags	All Trees
130	0	130

Roost Location		
Bark	Cavity	Crevice

↓QUICK REFERENCE / ↑ CIRCLE

*Condition		
Snag	Live	Live-Damaged

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

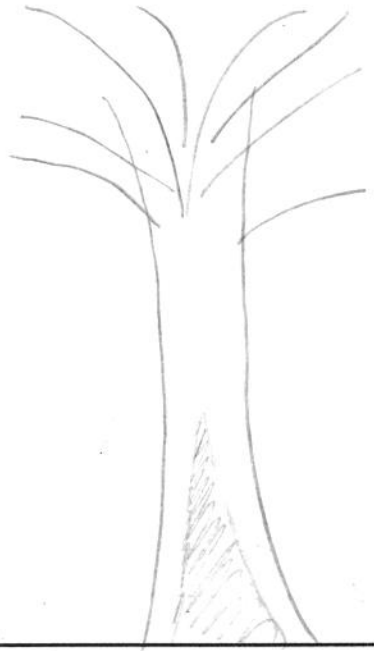
***Tree Ranking		
Canopy	Sub-Canopy	Understory

COPPERHEAD ENVIRONMENTAL CONSULTING

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

Roost Tree # 300 Bat Species/Sex/Frequency: MYSE/F/172.542 Band # NCDOT 1628

Roost Tree Diagram:



Location Diagram:

Bat Days					
No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	3/19	542		F	
2	3/20	542		F	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp °F	Weather	# of Bats	Time: Sunset	Time: Bats Start	Time: Bats End	Time: Tagged Bat	Focal Bat exit #	Personnel/ Comments
1	See below									
2										
3										
4										

Cavity or Crevice Characteristics

No.	Nature	Aspect	Opening Measurements: Width	Opening Measurements: Height	Opening Measurements: Ground	Opening Measurements: H_2O Level
1		134	0.3m	2m		
2						
3						

Comments:
No emergence conducted as this was the 7th roost for this bat

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Paint Lick, KY 40461 (859) 925-9012

APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Shelby Cotham, Matt Hinds **Date:** 3/19/2017

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

LAT 35.89102 **LONG** -76.12581

Property Owner: State (Alligator River Game Lands) **Phone#**_____

State NC **County** Tyrrell **Site #**_____

Roost # 370 **Roost Name:** RT300

Roost Tree Data

Species: Nyssa biflora **Live** X **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm) 28.9 **Total Height (ft or m)** 18m

Height of roost area (if known) 3m **Dist. from capture site** 839m

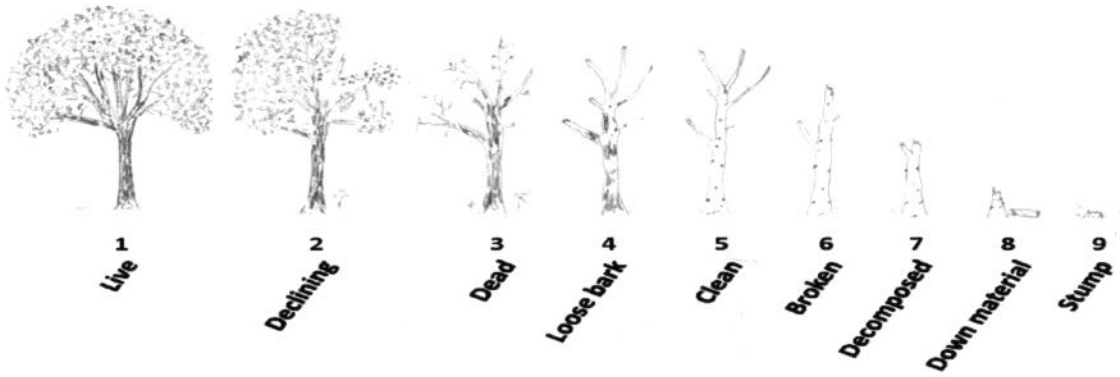
Roost position aspect (deg) 134

Exfoliating bark on bole (%) 2 **Describe: sloughing** __ **platy**__ **tight** X

Cavities present? Yes **If so, describe:** Base of tree 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 (%) 70

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

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

Additional Comments MYSE / ♀ / Band NCDOT 1628 / Frq. 172.542

Appendix E
Digital Photographs of Mist Net and Acoustic Survey Sites

BL01_Net A_15 Nov 2016

BL01_Net B_15 Nov 2016

BL01_Net C_15 Nov 2016

BL02_Net A_15 Nov 2016

BL02_Net B_15 Nov 2016

BL01_Acoustic_15 Nov 2016

BL02_Net C_15 Nov 2016

BL02_Acoustic_15 Nov 2016

BL03_Net A_15 Nov 2016

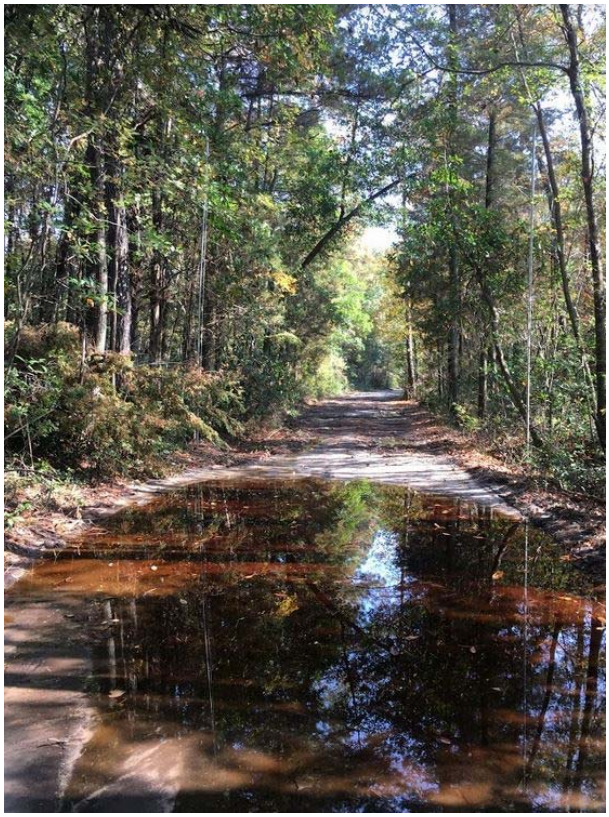
BL03_Net B_15 Nov 2016

BL03_Net C_15 Nov 2016

BL03_Acoustic_15 Nov 2016

BL04_Net A_15 – 16 Nov 2016

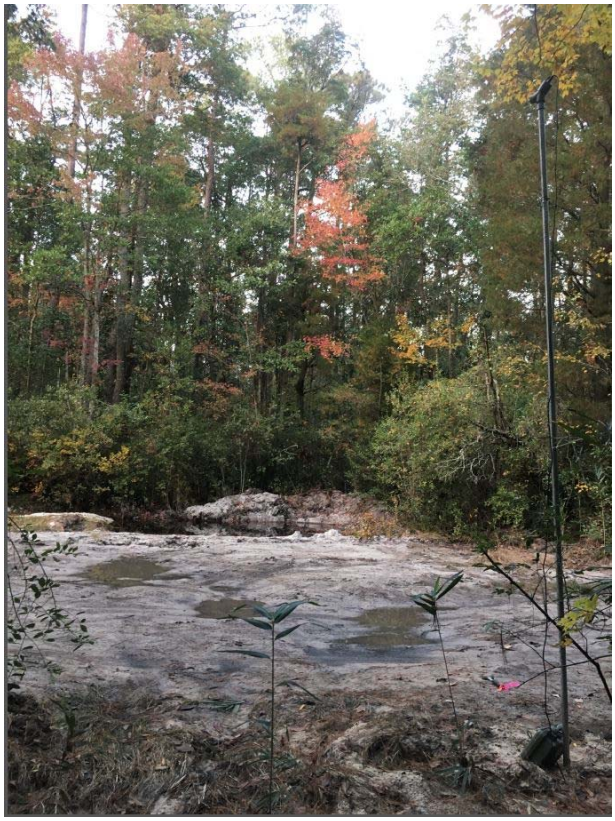
BL04_Net B_15 – 16 Nov 2016



BL04_Net C_15 – 16 Nov 2016

MYSE Capture .664

BL04_Net D_15 – 16 Nov 2016



BL04_Acoustic_15 - 16 Nov 2016

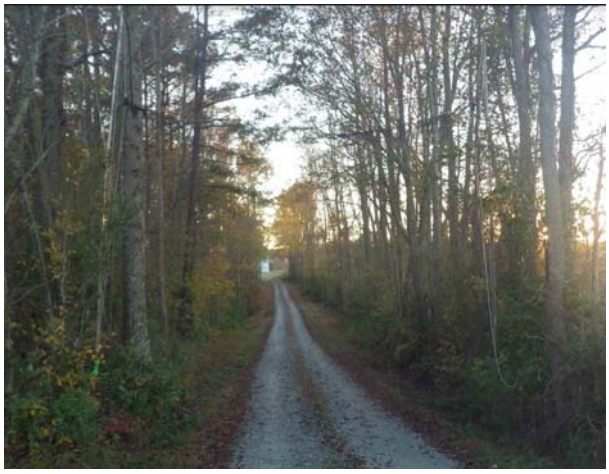
BL04_Net A_17 Nov 2016

BL04_Net B_17 Nov 2016

BL04_Net C_17 Nov 2016

BL04_Net D_17 Nov 2016

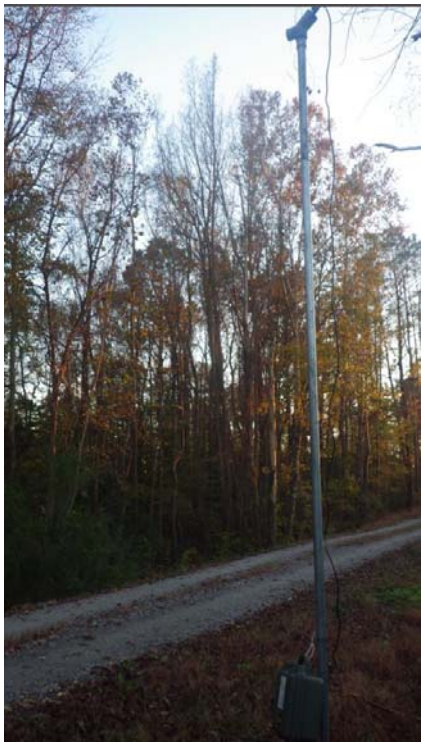
BL04_Acoustic_17 Nov 2017



LR01_Net A_17 Nov 2016

LR01_Net B_17 Nov 2016

LR01_Net C_17 Nov 2016



LR01_Acoustic_17 Nov 2016

LR02_Net A_17 Nov 2016

LR02_Net B_17 Nov 2016

LR02_Net C_17 Nov 2016

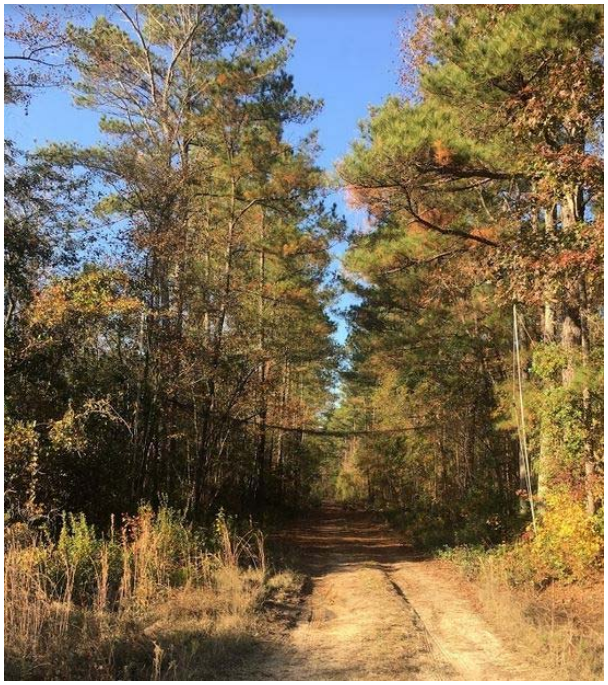
LR02_Acoustic_17 Nov 2016

BL05_Net A_18 Nov 2016

BL05_Net B_18 Nov 2016

BL05_Net C_18 Nov 2016

BL05_Acoustic_18 Nov 2016



BL06_Net A_18 Nov 2016

BL06_Net B_18 Nov 2016

BL06_Net C_18 Nov 2016

BL06_Acoustic_18 Nov 2016

BL07_Net A_19 Nov 2016

BL07_Net B_19 Nov 2016

BL07_Net C_19 Nov 2016

BL07_Acoustic_19 Nov 2016

LR03_Net A_19 Nov 2016

LR03_Net B_19 Nov 2016

LR03_Net C_19 Nov 2016

LR03_Acoustic_19 Nov 2016

LR04_Net A_19 Nov 2016

LR04_Net B_19 Nov 2016

LR04_Net C_19 Nov 2016

LR04_Acoustic_19 Nov 2016

BL04_Net A_1 Dec 2016

BL04_Net B_1 Dec 2016

BL04_Net C_1 Dec 2016

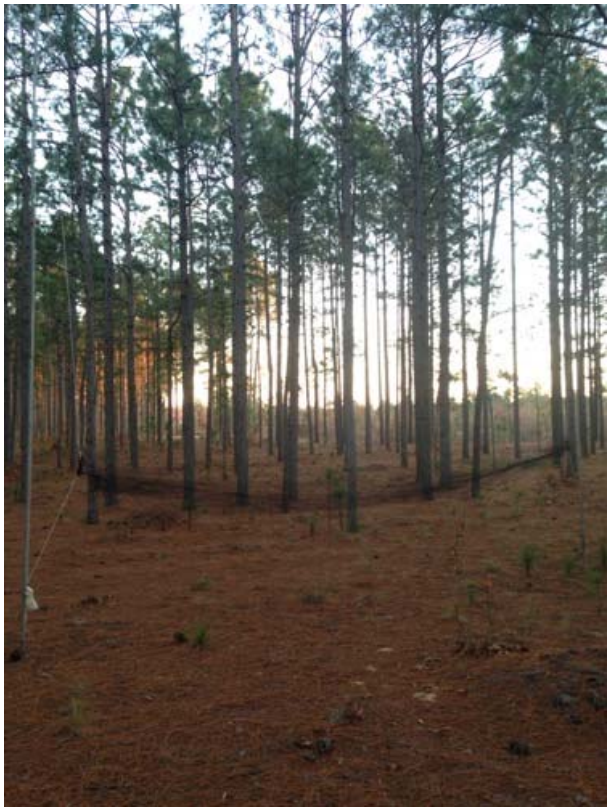
MYSE Capture .907

BL04_Net D_1 Dec 2016

BL04_Acoustic_1 Dec 2016

BL08_Net A_1 Dec 2016

BL08_Net B_1 Dec 2016



BL08_Net C_1 Dec 2016

BL08_Net D_1 Dec 2016

BL08_Acoustic_1 Dec 2016

BL09_Net A_2 Dec 2016

BL09_Net B_2 Dec 2016

BL09_Net C_2 Dec 2016

BL09_Acoustic_2 Dec 2016

RR01_Net A_2 Dec 2016

RR01_Net B_2 Dec 2016

RR01_Net C_2 Dec 2016

RR01_Acoustic_2 Dec 2016

RR02_Net A_2 Dec 2016

RR02_Net B_2 Dec 2016

RR02_Net C_2 Dec 2016

RR02_Acoustic_2 Dec 2016

BL10_Net A_3 Dec 2016

BL10_Net B_3 Dec 2016

BL10_Net C_3 Dec 2016

BL11_Net A_5 Dec 2016

BL10_Acoustic_3 Dec 2016

BL11_Net B_5 Dec 2016

BL11_Net C_5 Dec 2016

BL11_Acoustic_5 Dec 2016

RR03_Net B_5 Dec 2016

RR03_Acoustic_5 Dec 2016

RR03_Net A_5 Dec 2016

RR03_Net C_5 Dec 2016

AR01_Net A_6 Dec 2016

AR01_Net B_6 Dec 2016

AR01_Net C_6 Dec 2016

AR01_Acoustic_6 Dec 2016

AR02_Net A_6 Dec 2016

AR02_Net B_6 Dec 2016

AR02_Net C_6 Dec 2016

AR02_Acoustic_6 Dec 2016

AR03_Net A_11 Jan 2017

AR03_Net B_11 Jan 2017

AR03_Net C_11 Jan 2017

AR03_Net D_11 Jan 2017

AR03_Acoustic_11 Jan 2017

AR04_Net A_11 Jan 2017

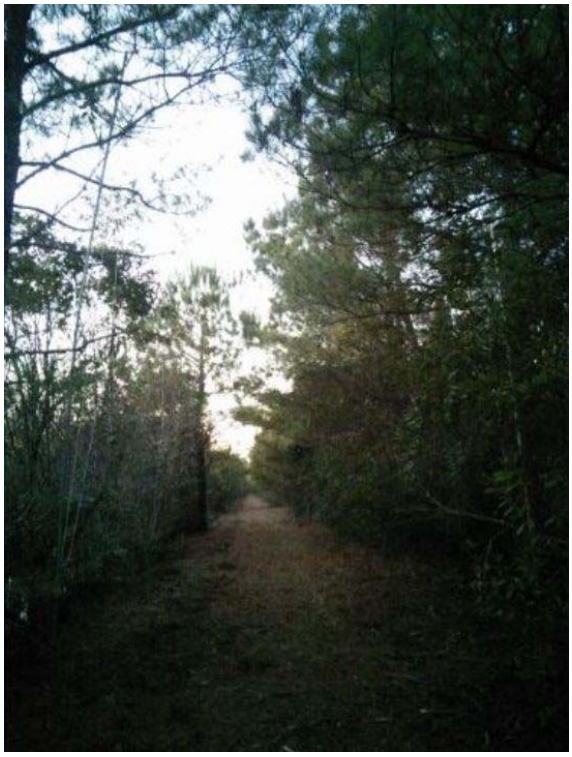
AR04_Net B_11 Jan 2017

AR04_Net C_11 Jan 2017

AR04_Acoustic_11 Jan 2017

BR01_Net A_13 Jan 2017

BR01_Net B_13 Jan 2017



BR01_Net C_13 Jan 2017

MYSE Capture .423

BR01_Acoustic_13 Jan 2017

BR02_Net A_13 Jan 2017

BR02_Net B_13 Jan 2017

BR02_Net C_13 Jan 2017

BR02_Net D_13 Jan 2017

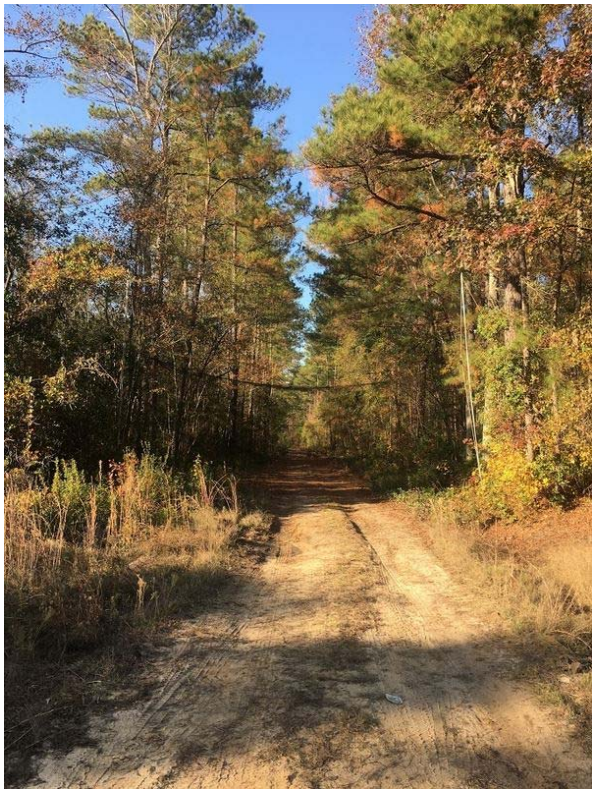
BR02_Acoustic_13 Jan 2017

BL04_Net A_14 Jan 2017

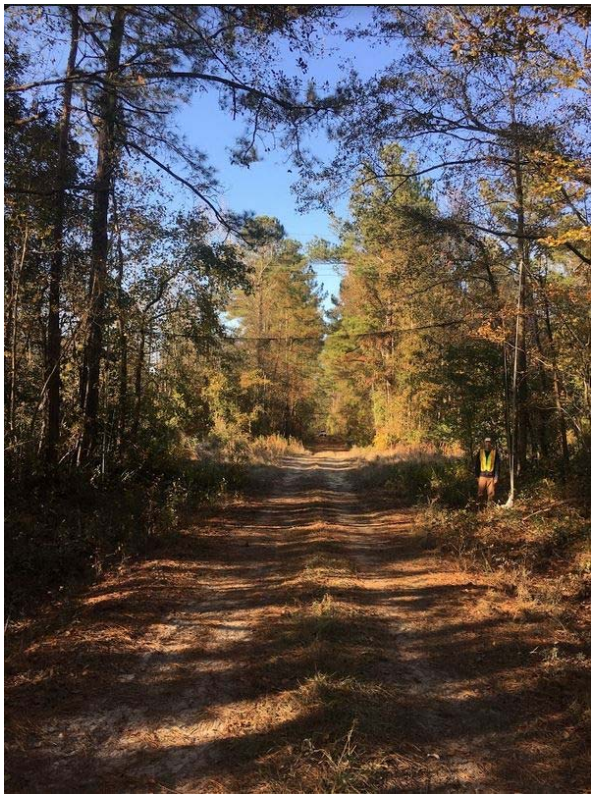
BL04_Net B_14 Jan 2017

BL04_Acoustic_14 Jan 2017

BL04_Net C_14 Jan 2017



BL06_Net A_16 Jan 2017



BL06_Net B_16 Jan 2017

BL06_Net C_16 Jan 2017

BL06_Acoustic_16 Jan 2017

BL11_Net B_16 Jan 2017

BL11_Net D_16 Jan 2017

BL11_Net E_16 Jan 2017

BL11_Acoustic_16 Jan 2017

BL12_Net A_18 Jan 2017

BL12_Net B_18 Jan 2017

BL12_Net C_18 Jan 2017

BL12_ Acoustic_18 Jan 2017

BL13_Net A_18 Jan 2017

BL13_Net B_18 Jan 2017

BL13_Net C_18 Jan 2017

BL13_Acoustic_18 Jan 2017

BL13_Net D_20 Jan 2017

BL13_Net E_20 Jan 2017

BL13_Net F_20 Jan 2017

BL13_Acoustic_20 Jan 2017

LR01_Net A_22 Feb 2017

LR01_Net B_22 Feb 2017

LR01_Net C_22 Feb 2017

LR01_Acoustic_22 Feb 2017

LR04_Net A_22 Feb 2017

LR04_Net B_22 Feb 2017

LR04_Net C_22 Feb 2017

LR04_Acoustic_22 Feb 2017

RR01_Net B_22 Feb 2017

MYSE Captures (2) .483, .064

RR01_Acoustic_22 Feb 2017

RR01_Net A_22 Feb 2017

RR01_Net C_22 Feb 2017

RR04_Net A_22 Feb 2017

RR04_Net B_22 Feb 2017

RR04_Net C_22 Feb 2017

RR04_Acoustic_22 Feb 2017

LR02_Net A_24 Feb 2017

LR02_Net B_24 Feb 2017

LR02_Net C_24 Feb 2017

LR02_Acoustic_24 Feb 2017

LR03_Net A_24 Feb 2017

LR03_Net B_24 Feb 2017

LR03_Net C_24 Feb 2017

LR03_Acoustic_24 Feb 2017

RR03_Net A_25 Feb 2017

RR03_Net B_25 Feb 2017

MYSE Capture .364

RR03_Net C_25 Feb 2017

RR05_Net A_25 Feb 2017

MYSE Capture .125

RR03_Acoustic_25 Feb 2017

RR05_Acoustic_25 Feb 2017

RR05_Net B_25 Feb 2017

RR05_Net C_25 Feb 2017

AR05_Net A_27 Feb 2017

AR05_Net B_27 Feb 2017

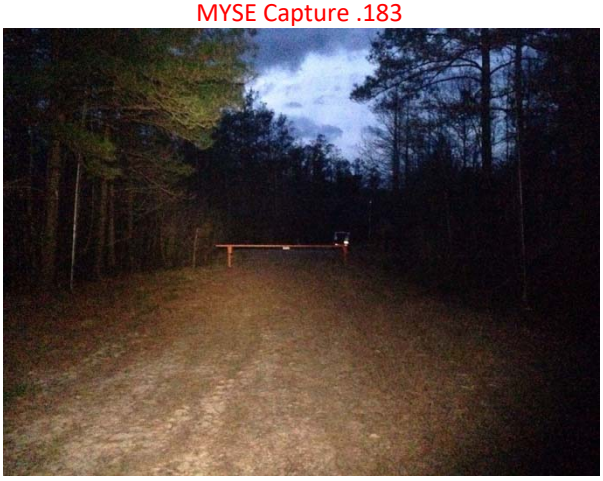
MYSE Capture .542

AR05_Net C_27 Feb 2017

MYSE Capture .605

AR06_Net A_27 Feb 2017

MYSE Capture .183



AR06_Net C_27 Feb 2017

AR05_Acoustic_27 Feb 2017

AR06_Net B_27 Feb 2017

AR06_Acoustic_27 Feb 2017

Appendix F
Digital Photographs of Captured *Myotis septentrionalis*

MYOSEP_NC-WRC A0732_Freq 664

MYOSEP_NC-WRC A0732_Freq 664

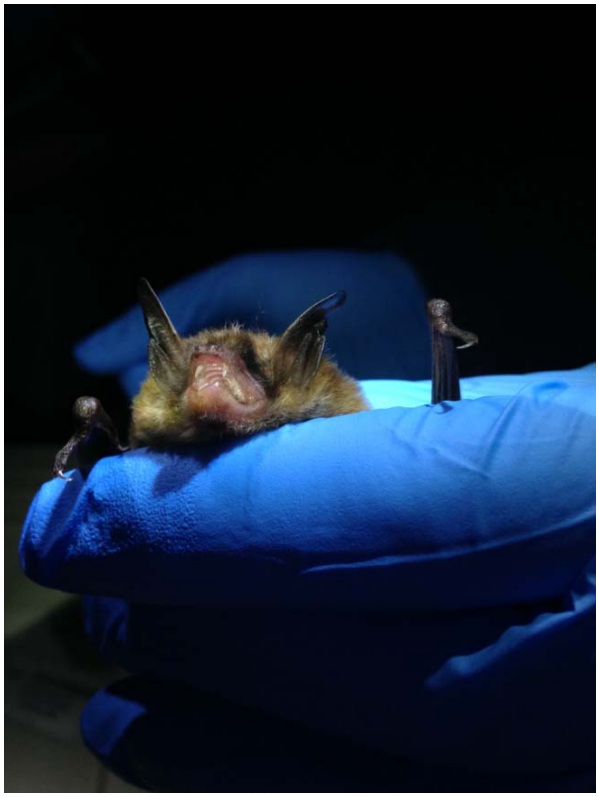
MYOSEP_NC-WRC A0732_Freq 664

MYOSEP_NC-WRC A0726_Freq 905

MYOSEP_NC-WRC A0726_Freq 905

MYOSEP_NC-WRC A0726_Freq 905

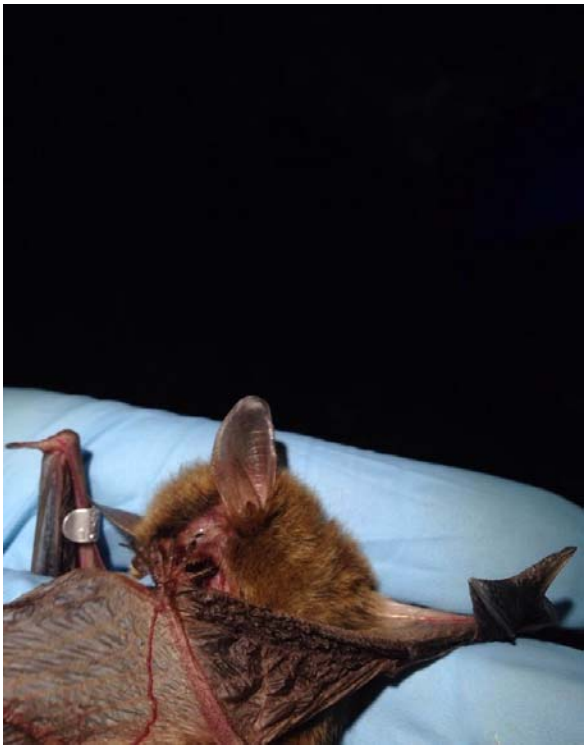
MYOSEP_NC-WRC A0726_Freq 905



MYOSEP_NC-WRC A0729_Freq 423

MYOSEP_NC-WRC A0729_Freq 423

MYOSEP_NC-WRC A0734_Freq 483



MYOSEP_NC-WRC A0734_Freq 483

MYOSEP_NC-WRC A0734_Freq 483

MYOSEP_NC-WRC A0736_Freq 064

MYOSEP_NC-WRC A0736_Freq 064

MYOSEP_NC-WRC A0736_Freq 064

MYOSEP_CC 1674_Freq 364

MYOSEP_CC 1674_Freq 364

MYOSEP_CC 1674_Freq 364

MYOSEP_NCDOT 1629_Freq 125

MYOSEP_NCDOT 1629_Freq 125

MYOSEP_NCDOT 1629_Freq 125

MYOSEP_NCDOT 1628_Freq 542

MYOSEP_NCDOT 1628_Freq 542

MYOSEP_NCDOT 1628_Freq 542

MYOSEP_NCDOT 1628_Freq 542

MYOSEP_CC 1963_Freq 605

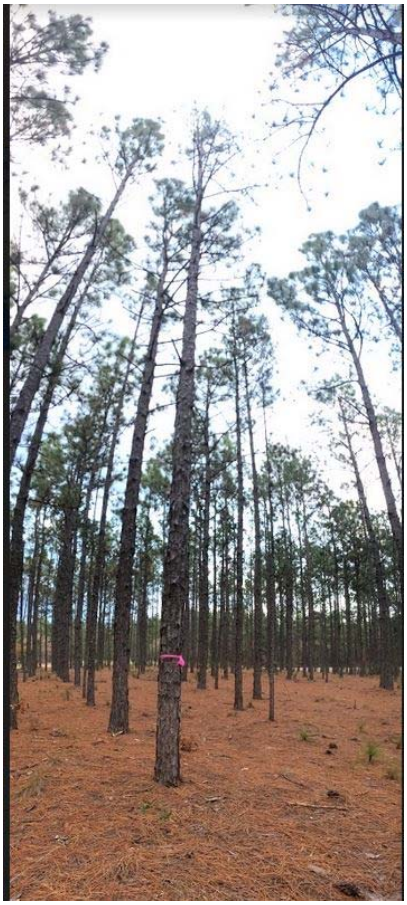
MYOSEP_CC 1963_Freq 605

MYOSEP_CC 1659_Freq 183

MYOSEP_CC 1659_Freq 183

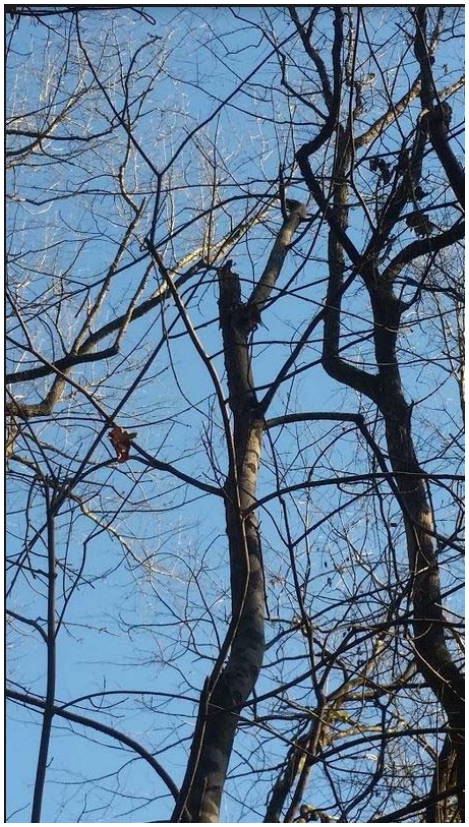
MYOSEP_CC 1659_Freq 183

Appendix G
Digital Photographs of Day Roosts

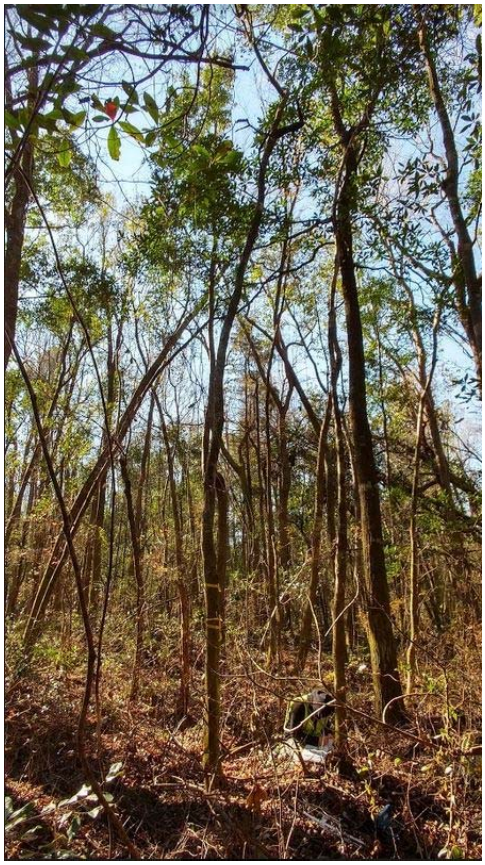


Roost 613_Bat 664

Roost 66a_Bat 905



Roost 66b_Bat 905



Roost 67_Bat 905

Roost 614a_Bat 905

Roost 614b_Bat 905

Roost 68a_Bat 905

Roost 68b_Bat 905

Roost 615a_Bat 905

Roost 615b_Bat 905

Roost 616a_Bat 423

Roost 616b_Bat 423

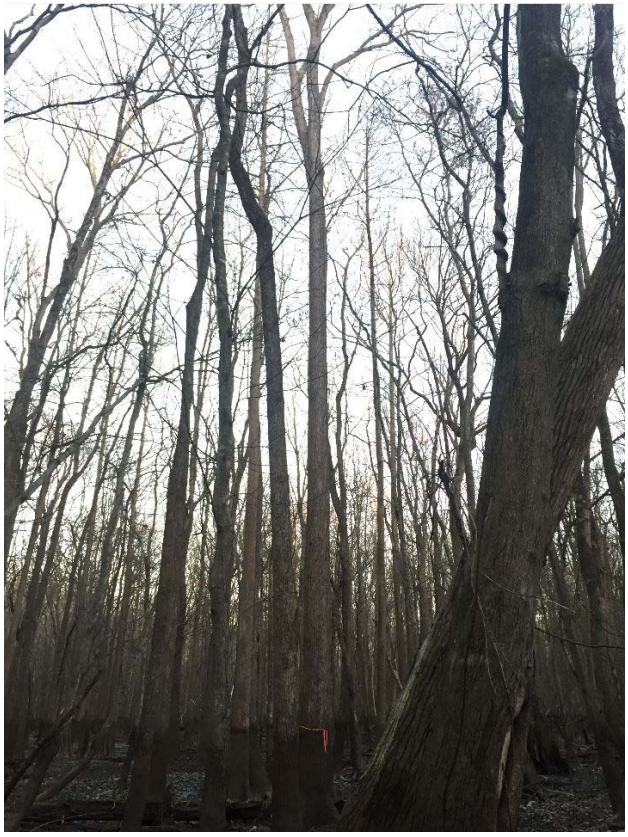
Roost 617a_Bat 423

Roost 617b_Bat 423

Roost 30_Bat 483

Roost 31a_Bat 064

Roost 31b_Bat 064

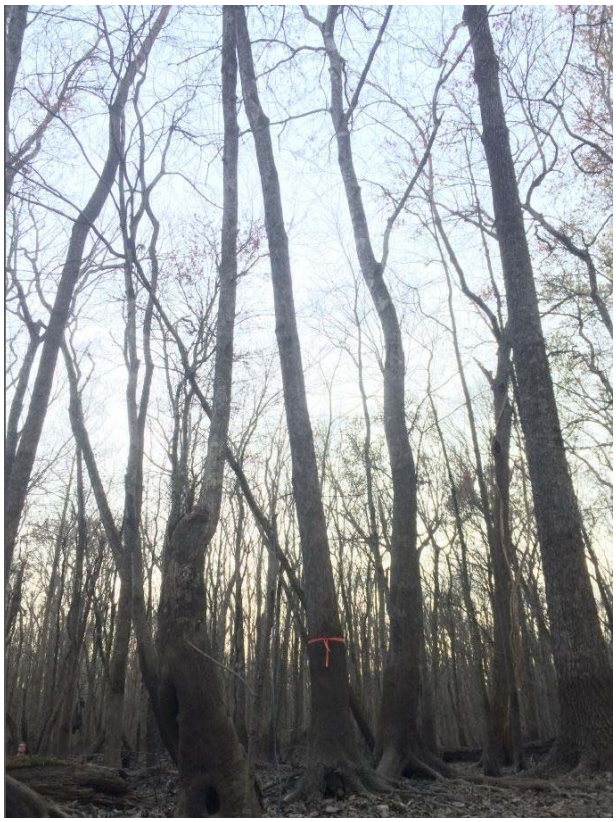


Roost 28a_Bat 064

Roost 28b_Bat 064

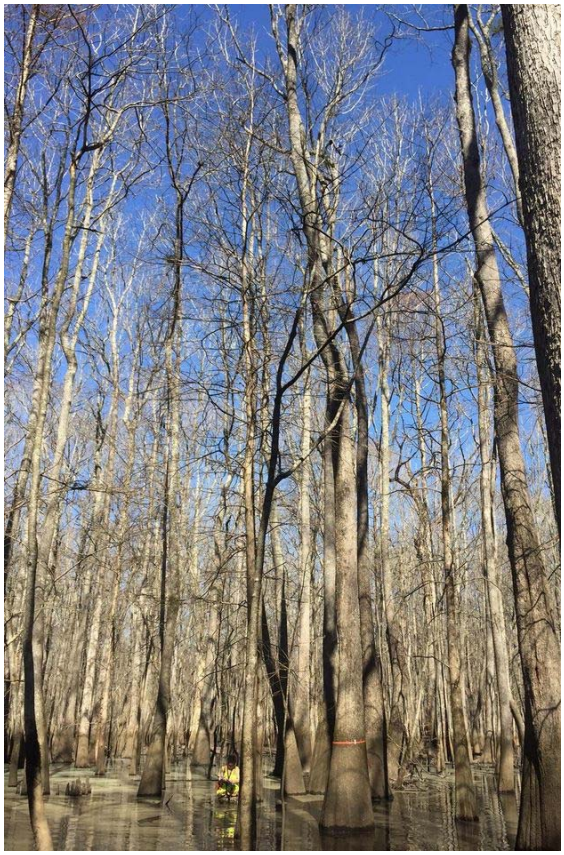
Roost 49a_Bat 483

Roost 49b_Bat 483

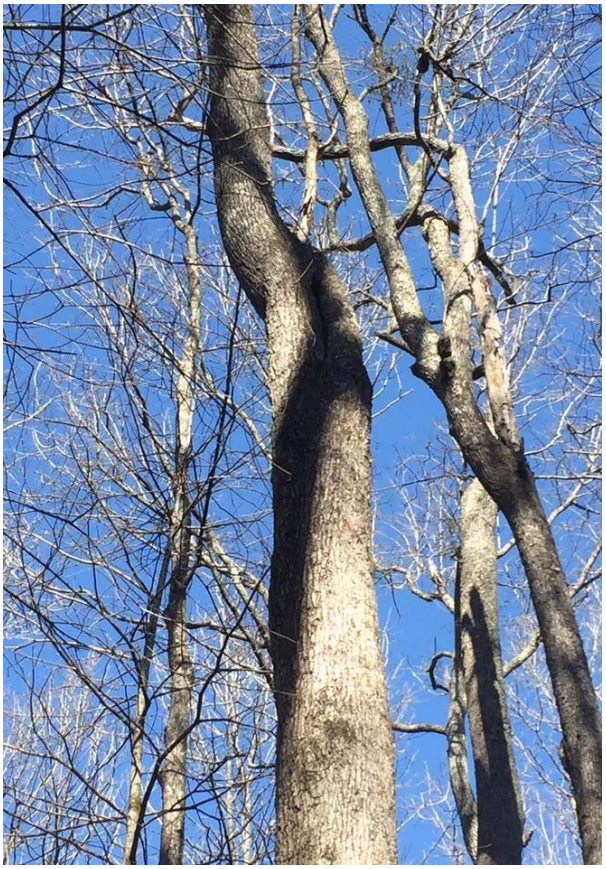


Roost 29a_Bat 064

Roost 29b_Bat 064



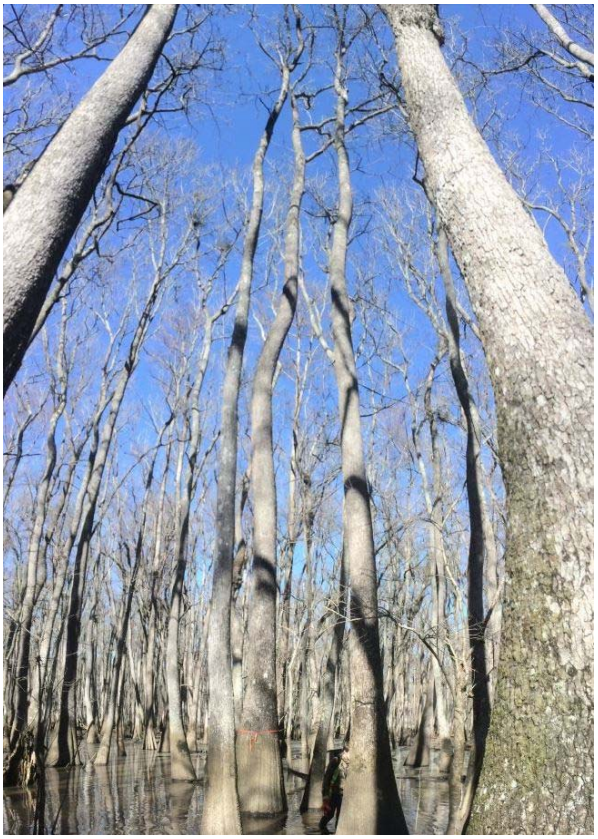
Roost 36a_Bat 364



Roost 36b_Bat 364

Roost 37a_Bat 483

Roost 37b_Bat 483



Roost 66a_Bat 125

Roost 66b_Bat 125

Roost 98a_Bat 125

Roost 98b_Bat 125

Roost 25_Bat 605

Roost 34a_Bat 364

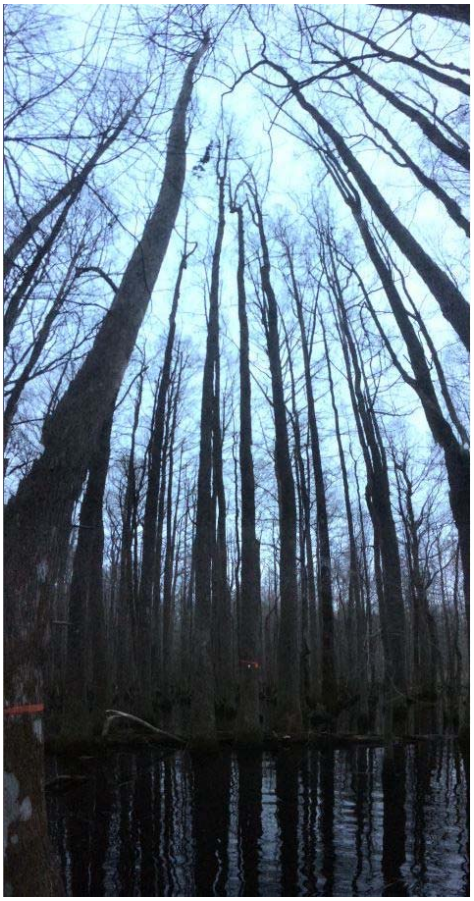
Roost 34b_Bat 364

Roost 271_Bat 183

Roost 272a_Bat 542

Roost 272b_Bat 542

Roost 303a_Bat 125



Roost 303b_Bat 125

Roost 38a_Bat 364

Roost 38b_Bat 364

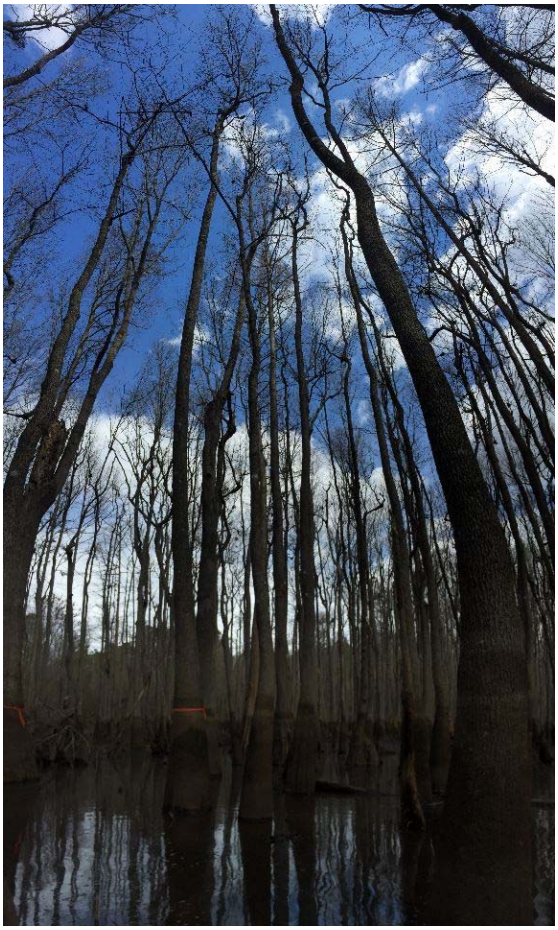
Roost 270a_Bat 183

Roost 270b_Bat 183 (transmitter antenna visible)

Roost 273_Bat 542

Roost 269_Bat 183

Roost 274_Bat 542



Roost 39a_Bat 483

Roost 39b_Bat 483

Roost 40a_Bat 364

Roost 40b_Bat 364

Roost 268a_Bat 183

Roost 268b_Bat 183

Roost 304_Bat 605

Roost 139a_Bat 605

Roost 139b_Bat 605

Roost 876_Bat 542

Roost 877a_Bat 542

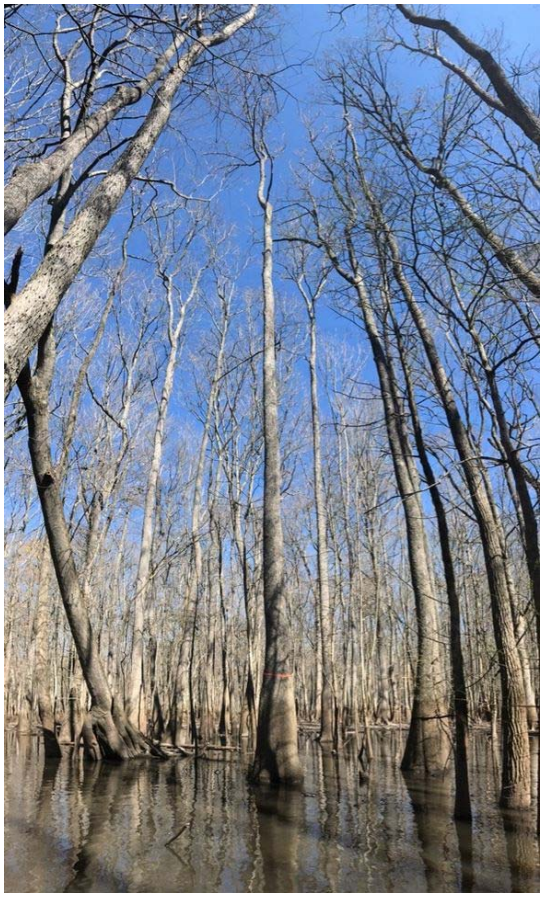
Roost 877b_Bat 542

Roost 305a_Bat 183

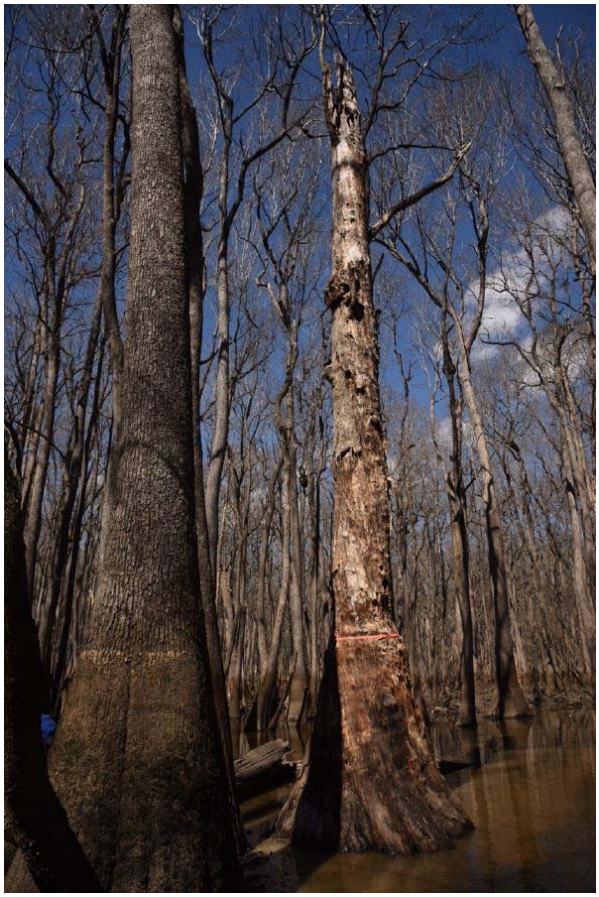
Roost 305b_Bat 183

Roost 299a_Bat 183

Roost 299b_Bat 183



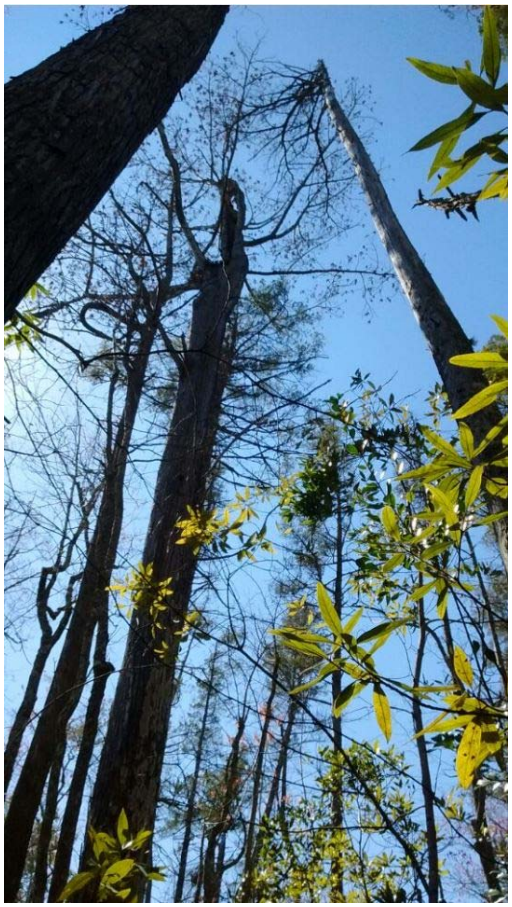
Roost 11_Bat 364



Roost 15_Bat 064

Roost 306a_Bat 542

Roost 306b_Bat 542



Roost 878a_Bat 605

Roost 878b_Bat 605

Roost 300_Bat 542

Appendix H
Digital Photographs of Captured Myotines

MYOAUS_NC-WRC A0688

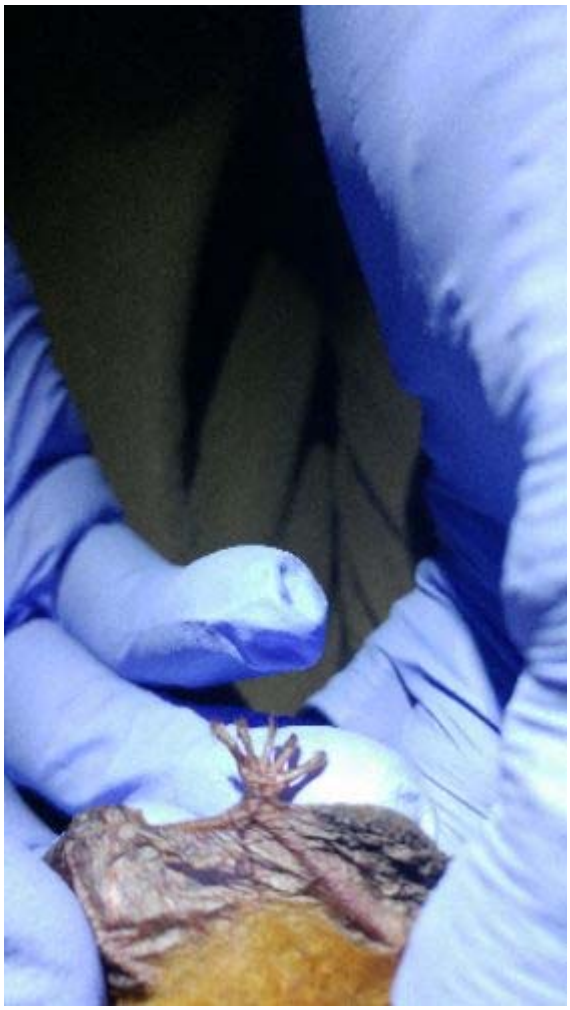
MYOAUS_NC-WRC A0688

MYOAUS_NC-WRC A0699

MYOAUS_NC-WRC A0699

MYOAUS_NC-WRC A0698

MYOAUS_NC-WRC A0698



MYOAUS_NC-WRC A0675

MYOAUS_NC-WRC A0675

MYOAUS_NC-WRC A0747

MYOAUS_NC-WRC A0684

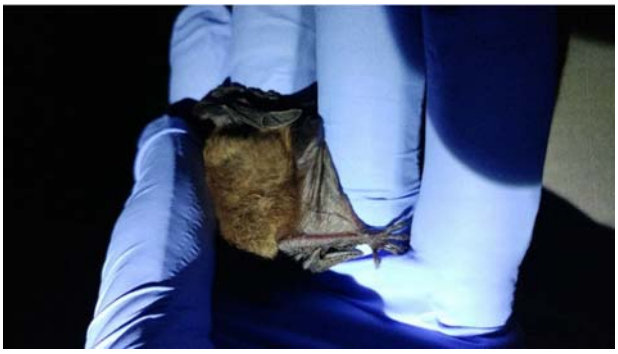
MYOAUS_NC-WRC A0747

MYOAUS_NC-WRC A0684

MYOAUS_NC-WRC A0683

MYOAUS_NC-WRC A0683

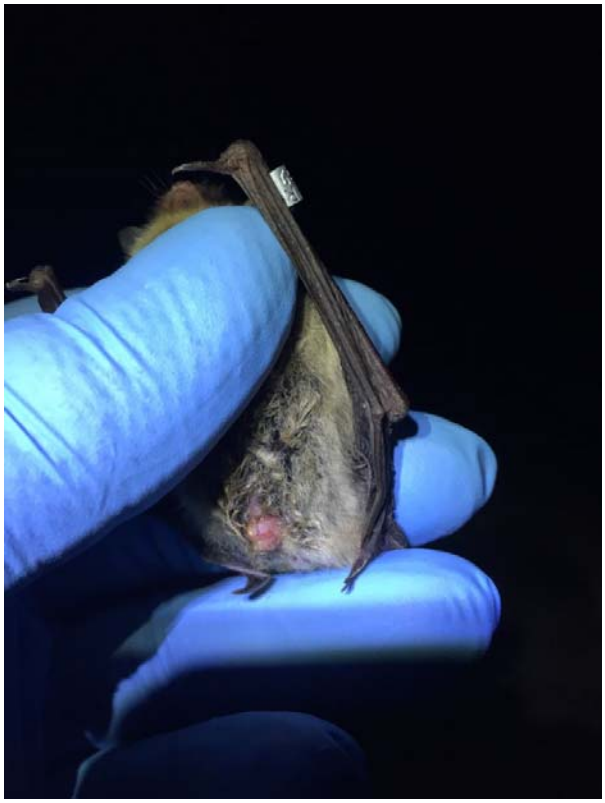
MYOAUS_NC-WRC A0682



MYOAUS_NC-WRC A0682

MYOAUS_NC-WRC A0689

MYOAUS_NC-WRC A0689



MYOAUS_NC-WRC A0689

MYOAUS_NC-WRC A0690

MYOAUS_NC-WRC A0690

MYOAUS_NC-WRC A0690

MYOAUS_NC-WRC A0691

MYOAUS_NC-WRC A0691

MYOAUS_NC-WRC A0691

MYOAUS_NC-WRC A0692

MYOAUS_NC-WRC A0692

MYOAUS_NC-WRC A0692

MYOAUS_NC-WRC A0694

MYOAUS_NC-WRC A0694

MYOAUS_NC-WRC A0694

MYOAUS_NC-WRC A0697

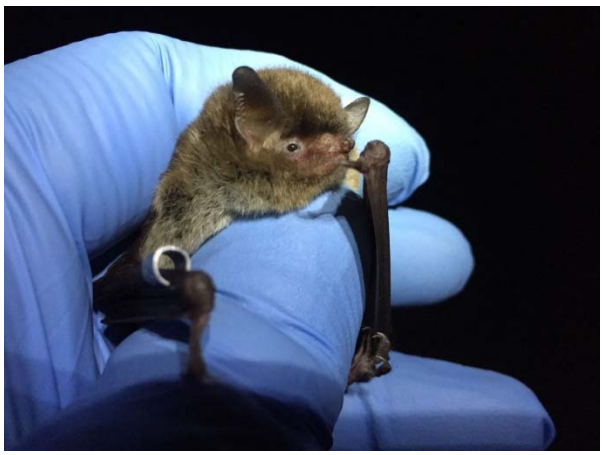
MYOAUS_NC-WRC A0697

MYOAUS_NC-WRC A0739

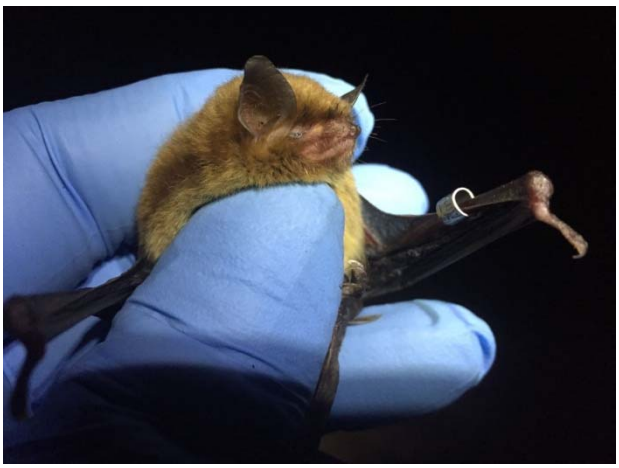
MYOAUS_NC-WRC A0739

MYOAUS_NC-WRC A0740

MYOAUS_NC-WRC A0740

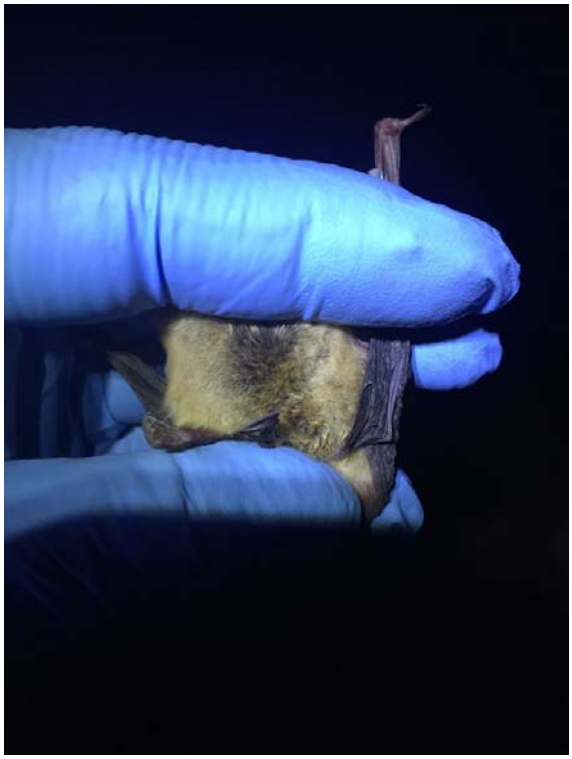


MYOAUS_NC-WRC A0740



MYOAUS_NC-WRC A0741

MYOAUS_NC-WRC A0741



MYOAUS_NC-WRC A0741

MYOAUS_NCDOT 1627

MYOAUS_NCDOT 1627

MYOAUS_NCDOT 1615

MYOAUS_NCDOT 1615

MYOAUS_NCDOT 1615

MYOAUS_NCDOT 1617

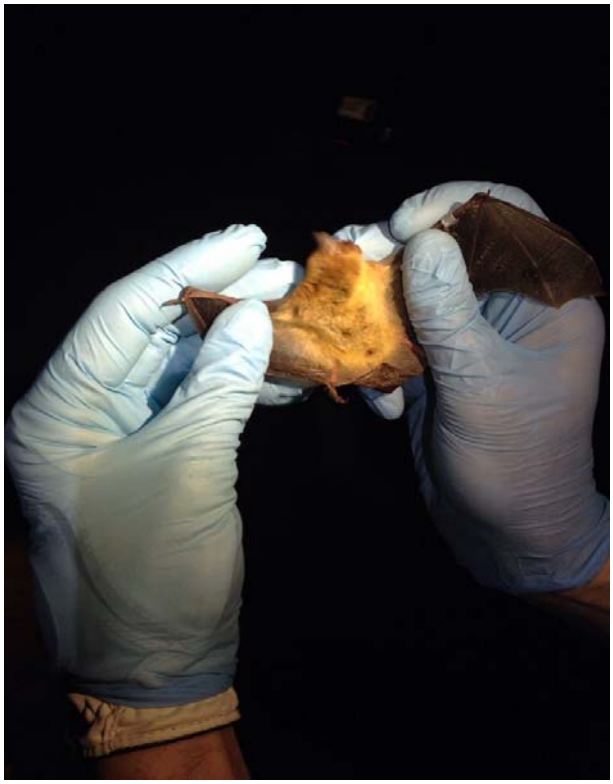
MYOAUS_NCDOT 1617

MYOAUS_NCDOT 1617

MYOAUS_NC-WRC A0737

MYOAUS_NC-WRC A0737

MYOAUS_NC-WRC A0737



MYOAUS_NC-WRC A0738

MYOAUS_NC-WRC A0738

MYOAUS_NCDOT 1757

MYOAUS_NCDOT 1757

MYOAUS_NCDOT 1757

MYOAUS_NCDOT 1759

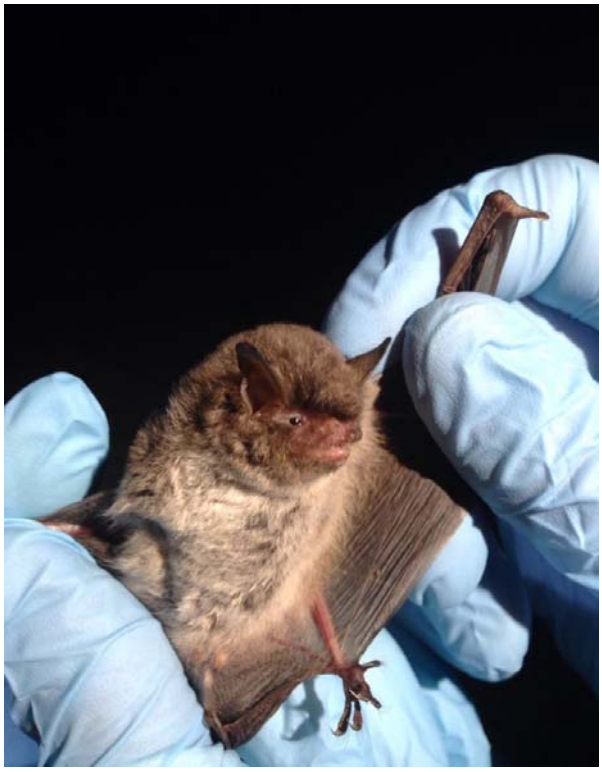
MYOAUS_NCDOT 1759

MYOAUS_NCDOT 1759

MYOAUS_NO BAND_B7 RR04 N2

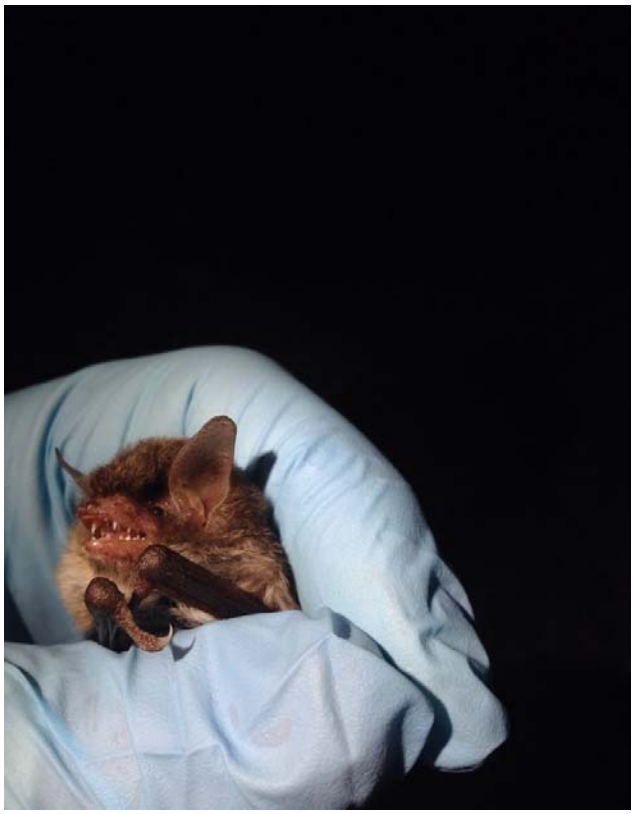
MYOAUS_NO BAND_B7 RR04 N2

MYOAUS_NO BAND_B7 RR04 N2



MYOAUS_NO BAND_B8 RR04 N2

MYOAUS_NO BAND_B8 RR04 N2



MYOAUS_NO BAND_B8 RR04 N2

MYOAUS_NO BAND_B9 RR04 N2

MYOAUS_NO BAND_B9 RR04 N2

MYOAUS_NCDOT 1619

MYOAUS_NCDOT 1619

MYOAUS_NCDOT 1619

MYOAUS_NCDOT 1620

MYOAUS_NCDOT 1620

MYOAUS_NCDOT 1620

MYOAUS_30aksNO 0259

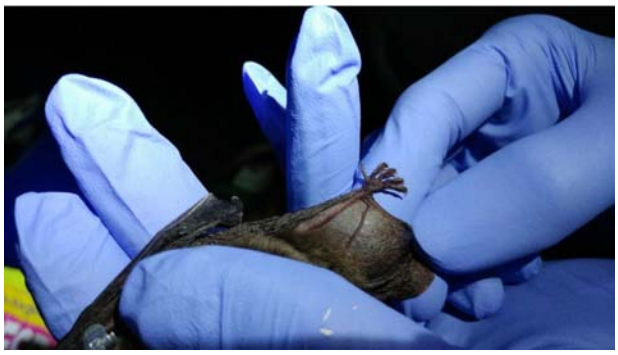
MYOAUS_30aksNO 0259

MYOAUS_30aksNO 0259

MYOAUS_CC 1961

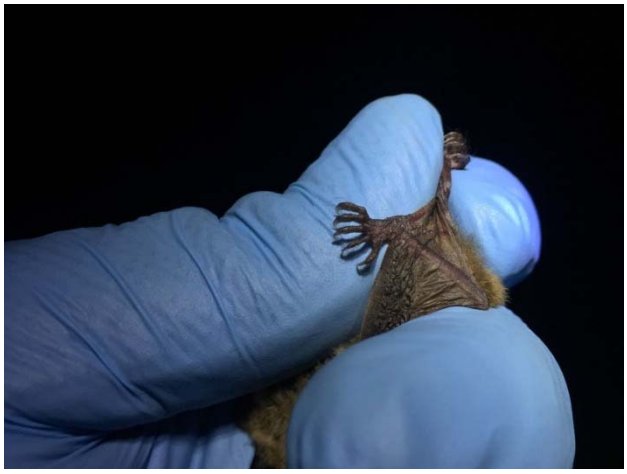
MYOAUS_CC 1961

MYOAUS_CC 1961



MYOAUS_CC 1995

MYOAUS_CC 1995



MYOAUS_CC 1672

MYOAUS_CC 1672

MYOAUS_CC 1672

MYOAUS_CC 1672

Appendix I
Laboratory Report Detailing the Results of White-nose Syndrome Analysis

WHITE-NOSE SYNDROME SURVEILLANCE DIAGNOSTIC RESULTS

SOUTHEASTERN COOPERATIVE WILDLIFE DISEASE STUDY (SCWDS)
COLLEGE OF VETERINARY MEDICINE
THE UNIVERSITY OF GEORGIA
ATHENS, GEORGIA 30602-7393
TELEPHONE: 706-542-1741; FAX: 706-542-5865

CASE NUMBER CC17-204 A-NNN
DATE RECEIVED April 13, 2017
DATE OF REPORT May 3, 2017

STATE NC **COUNTY** Varies **AREA** Varies

SPECIES (NO.) Varies **UTM** Varies

CASE HISTORY: A total of 67 swabs were submitted by Mr. Jeffrey Hawkins of Copperhead Consulting for *Pseudogymnoascus destructans* (Pd) testing on behalf of Dr. Maria Palamar of the North Carolina Wildlife Resources Commission.

The swabs arrived on April 13, 2017.

FINAL DIAGNOSIS: Samples A-NNN: *Pseudogymnoascus destructans* not detected

COMMENTS: *Pseudogymnoascus destructans,* the causative agent of white-nose syndrome, was not detected in any swab tested. The results are summarized in the table below.

Mr. Jeff Hawkins, Mr. Chris Manley (North Carolina Department of Transportation), and Mr. Gary Jordan (United States Fish and Wildlife Service) were notified of the results by electronic mail on April 27, 2017.

POLYMERASE CHAIN REACTION (PCR): *Pseudogymnoascus destructans* was not detected from any swab by polymerase chain reaction (PCR). Our current limit of detection for *Pseudogymnoascus destructans* is an estimated 100 copies. While a highly sensitive assay, there is always a possibility of false negatives. A negative sample does not guarantee a negative individual, only that the amount of Pd genetic material is below the limit of detection.

DIAGNOSTICIAN Martha Frances Dalton, DVM **SUPERVISOR** Heather Fenton, DVM, MVSc, DACVP

DISTRIBUTION: SCWDS File, Hawkins, Manley, Jordan, Palamar, Caldwell

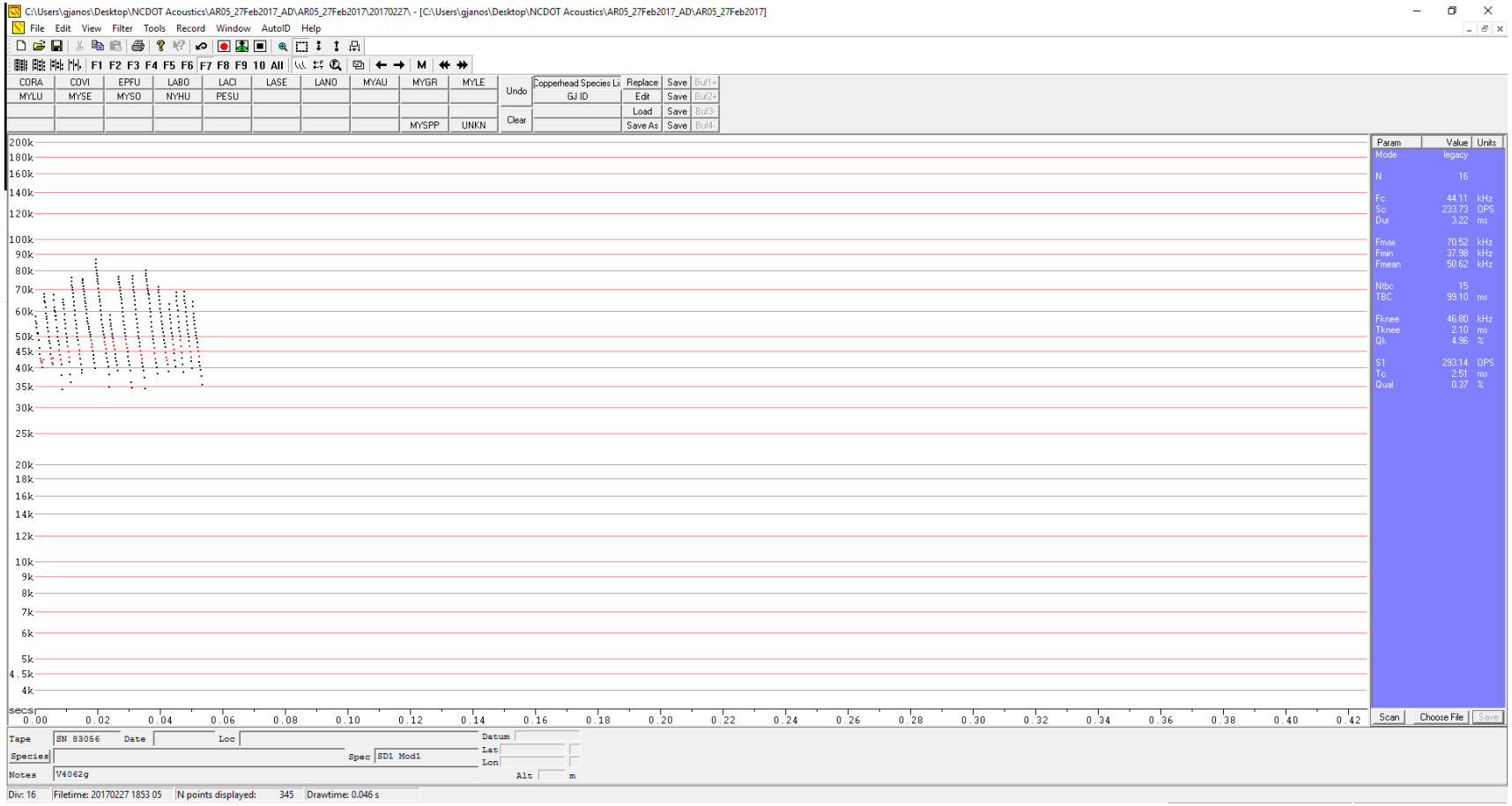
CC number	Agency ID#	County	Species	Sex	Age	Weight	Results
CC17-204A	NCWRC A0738	Bertie	*Myotis austroriparius*	Female	Adult	6.5g	negative
CC17-204AA	NCWRC A0714	Martin	*Myotis austroriparius*	Male	Adult	7g	negative
CC17-204AAA	NCWRC A0730	Martin	*Eptesicus fuscus*	Male	Adult	13.5g	negative
CC17-204B	CC1963	Tyrrell	*Myotis septentrionalis*	Male	Adult	7g	negative
CC17-204BB	NCDOT 1759	Bertie	*Myotis austroriparius*	Female	Adult	6.25g	negative
CC17-204BBB	NCDOT 1617	Martin	*Myotis austroriparius*	Male	Adult	7.25g	negative
CC17-204C	CC1957	Martin	*Eptesicus fuscus*	Female	Adult	13.25g	negative
CC17-204CC	NCWRC A0736	Bertie	*Myotis septentrionalis*	Male	Adult	6g	negative
CC17-204CCC	CC1997	Martin	*Eptesicus fuscus*	Female	Adult	15.25g	negative
CC17-204D	NCDOT 1620	Martin	*Myotis austroriparius*	Male	Adult	6.75g	negative
CC17-204DD	NCWRC A0704	Martin	*Myotis austroriparius*	Male	Adult	6.5g	negative
CC17-204DDD	none	Martin	*Eptesicus fuscus*	Female	Adult	14.25g	negative
CC17-204E	NCDOT 1762	Bertie	*Myotis austroriparius*	Male	Adult	6.5g	negative
CC17-204EE	NCDOT 1755	Bertie	*Myotis austroriparius*	Male	Adult	6.5g	negative
CC17-204EEE	NCDOT 1629	Bertie	*Myotis septentrionalis*	Male	Adult	6g	negative
CC17-204F	NCWRC A0699	Tyrrell	*Myotis austroriparius*	Female	Adult	7.75g	negative
CC17-204FF	NCDOT 1763	Bertie	*Myotis austroriparius*	Male	Adult	6.75g	negative
CC17-204FFF	none	Bertie	*Myotis austroriparius*	Female	Adult	6.75g	negative
CC17-204G	NCWRC A0675	Bladen	*Myotis austroriparius*	Female	Adult	7.25g	negative
CC17-204GG	NCWRC A0719	Bertie	*Myotis austroriparius*	Male	Adult	6.75g	negative
CC17-204GGG	NCWRC A0708	Martin	*Myotis austroriparius*	Female	Adult	7.5g	negative
CC17-204H	NCWRC A0672	Martin	*Myotis austroriparius*	Female	Adult	7.75g	negative
CC17-204HH	NCWRC A0747	Martin	*Myotis austroriparius*	Male	Adult	7g	negative
CC17-204HHH	NCWRC A0732	Bladen	*Myotis septentrionalis*	Female	Adult	6.25g	negative

CC number	Agency ID#	County	Species	Sex	Age	Weight	Results
CC17-204II	CC1659	Tyrrell	*Myotis septentrionalis*	Male	Adult	6.25g	negative
CC17-204III	NCWRC A0703	Martin	*Myotis austroriparius*	Female	Adult	7.75g	negative
CC17-204J	NCWRC A0715	Martin	*Myotis austroriparius*	Male	Adult	6.75g	negative
CC17-204JJ	NCWRC A0734	Bertie	*Myotis septentrionalis*	Male	Adult	6.25g	negative
CC17-204JJJ	CC2000	Martin	*Eptesicus fuscus*	Male	Adult	13.5g	negative
CC17-204K	NCWRC A0688	Tyrrell	*Myotis austroriparius*	Male	Adult	6.75g	negative
CC17-204KK	CC1998	Martin	*Eptesicus fuscus*	Male	Adult	14.75g	negative
CC17-204KKK	NCWRC A0687	Martin	*Myotis austroriparius*	Female	Adult	7g	negative
CC17-204L	NCWRC A0729	Tyrrell	*Myotis septentrionalis*	Male	Adult	7g	negative
CC17-204LL	NCDOT 1628	Tyrrell	*Myotis septentrionalis*	Female	Adult	7.5g	negative
CC17-204LLL	NCDOT 1757	Bertie	*Myotis Austroriparius*	Female	Adult	6.5g	negative
CC17-204M	none	Bertie	*Myotis austroriparius*	Male	Adult	6.25g	negative
CC17-204MM	NCDOT 1633	Martin	*Eptesicus fuscus*	Male	Adult	13g	negative
CC17-204MMM	30AKSNO 0989	Martin	*Eptesicus fuscus*	Female	Adult	13.75g	negative
CC17-204N	none	Martin	*Eptesicus fuscus*	Male	Adult	12.75g	negative
CC17-204NN	NCDOT 1756	Tyrrell	*Myotis austroriparius*	Male	Adult	7.75g	negative
CC17-204NNN	none	Bertie	*Myotis austroriparius*	Female	Adult	7.25g	negative
CC17-204O	CC1660	Tyrrell	*Eptesicus fuscus*	Male	Adult	16g	negative
CC17-204OO	NCDOT 1615	Martin	*Myotis austroriparius*	Male	Adult	7g	negative
CC17-204P	CC1959	Martin	*Eptesicus fuscus*	Female	Adult	15.5g	negative
CC17-204PP	NCWRC A0682	Martin	*Myotis austroriparius*	Female	Adult	6.75g	negative
CC17-204Q	30AKSNO 0259	Martin	*Myotis austroriparius*	Male	Adult	7.75g	negative
CC17-204QQ	NCDOT 1641	Martin	*Eptesicus fuscus*	Male	Adult	13.25g	negative
CC17-204R	NCWRC A0679	Martin	*Eptesicus fuscus*	Female	Adult	16.25g	negative
CC17-204RR	NCWRC A0737	Bertie	*Myotis austroriparius*	Female	Adult	6.25g	negative
CC17-204S	NCWRC A0683	Martin	*Myotis austroriparius*	Female	Adult	7.25g	negative

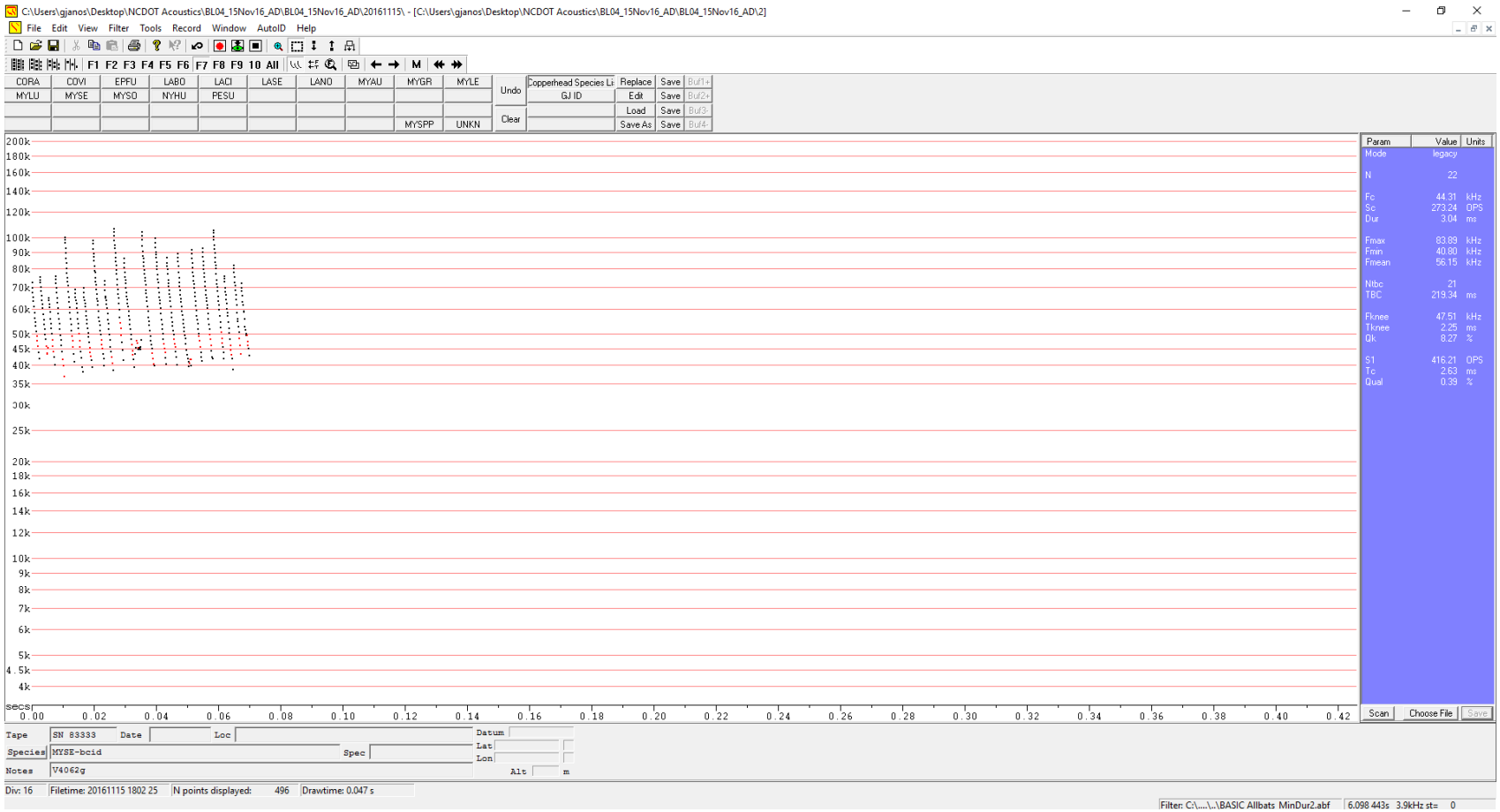
CC number	Agency ID#	County	Species	Sex	Age	Weight	Results
CC17-204SS	CC1995	Martin	*Myotis austroriparius*	Male	Adult	9.25g	Negative
CC17-204T	NCDOT 1767	Bertie	*Myotis austroriparius*	Male	Adult	6g	negative
CC17-204TT	NCWRC A0684	Martin	*Myotis austroriparius*	Female	Adult	7.25g	negative
CC17-204U	NCDOT 1619	Martin	*Myotis austroriparius*	Male	Adult	7.5g	negative
CC17-204UU	NCWRC A0678	Martin	*Eptesicus fuscus*	Male	Adult	14g	negative
CC17-204V	NCDOT 1640	Martin	*Eptesicus fuscus*	Male	Adult	13.75g	negative
CC17-204VV	NCWRC A0713	Martin	*Myotis austroriparius*	Male	Adult	6.75g	negative
CC17-204W	CC1953	Martin	*Eptesicus fuscus*	Female	Adult	13.75g	negative
CC17-204WW	NCWRC A0673	Martin	*Myotis austroriparius*	Female	Adult	7.25g	negative
CC17-204X	NCWRC A0679	Martin	*Eptesicus fuscus*	Female	Adult	16.25g	negative
CC17-204XX	NCWRC A0698	Tyrrell	*Myotis austroriparius*	Male	Adult	7.5g	negative
CC17-204Y	NCWRC A0718	Bertie	*Myotis austroriparius*	Male	Adult	6.75g	negative
CC17-204YY	NCWRC A0706	Martin	*Myotis austroriparius*	Female	Adult	8.5g	negative
CC17-204Z	NCWRC A0705	Martin	*Myotis austroriparius*	Male	Adult	6.25g	negative
CC17-204ZZ	none	Martin	*Eptesicus fuscus*	Female	Adult	14.75g	negative

Appendix J
Jpeg Images of Sonogram Outputs

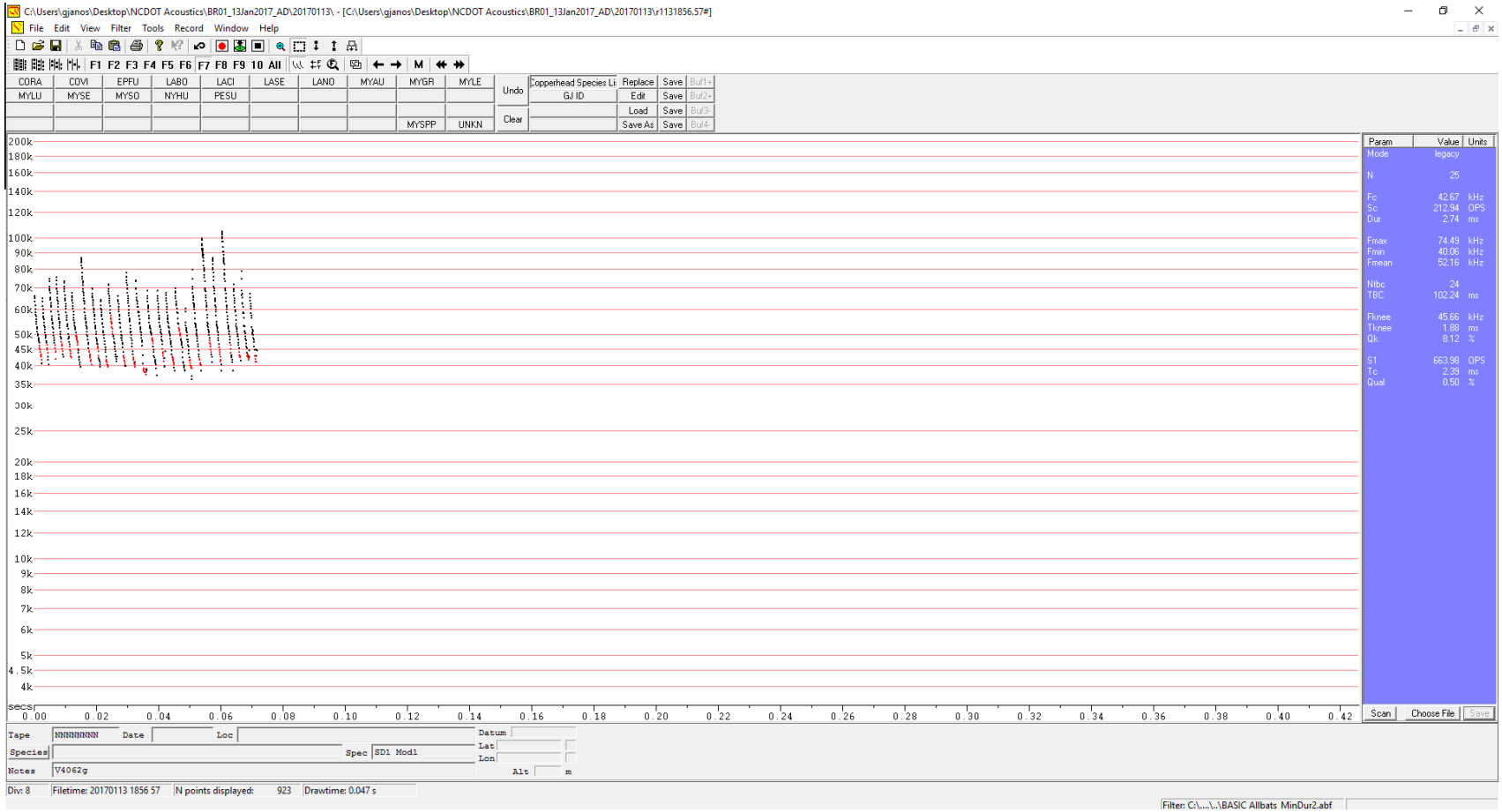
Sonograms of files confirmed as MYSE by manual vetting.



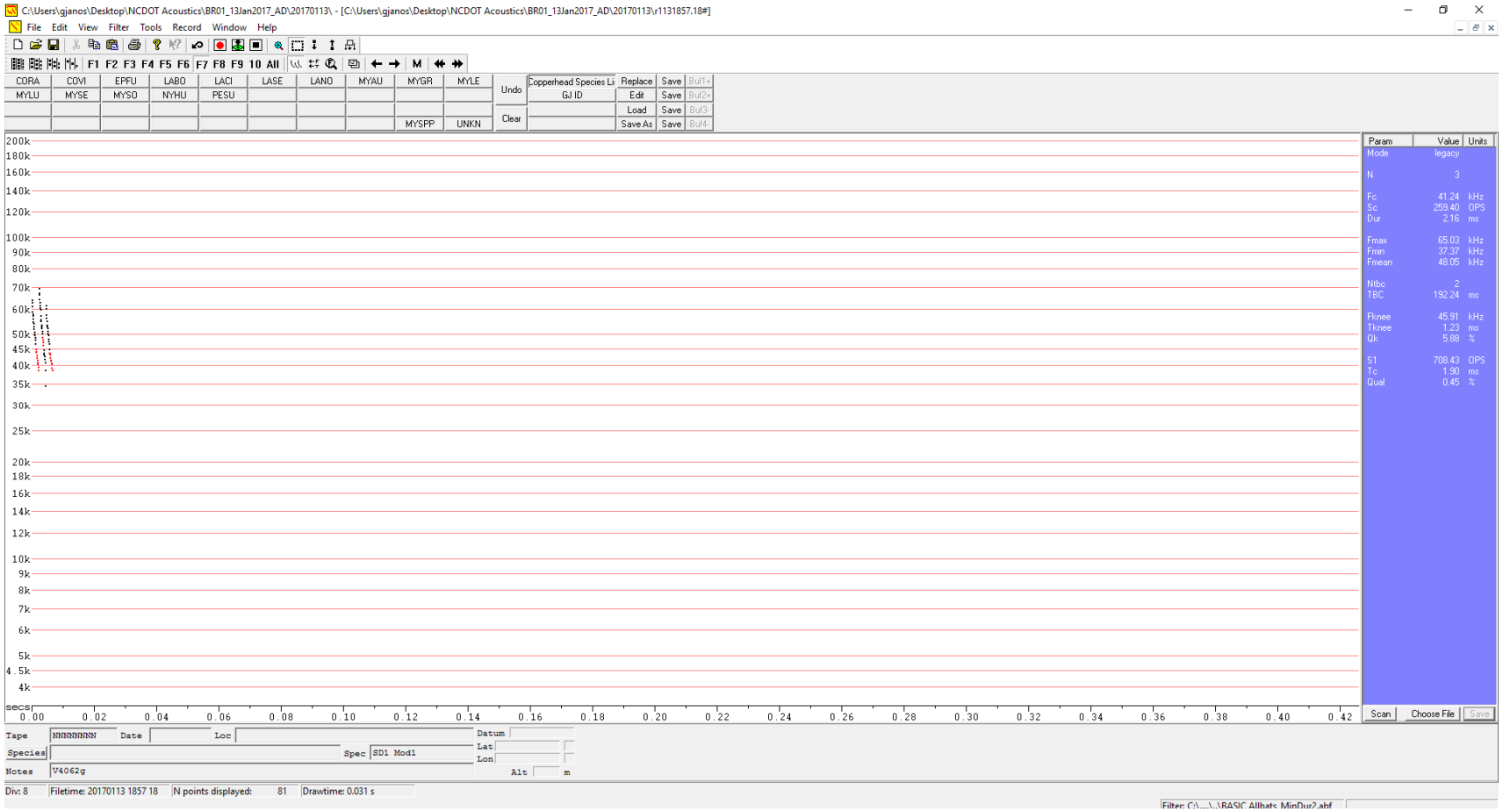
Sonogram 1: Alligator River, AR05, R2271853.05#, F7, compressed, filtered to remove noise (filter: Basic Allbats_MinDur2)



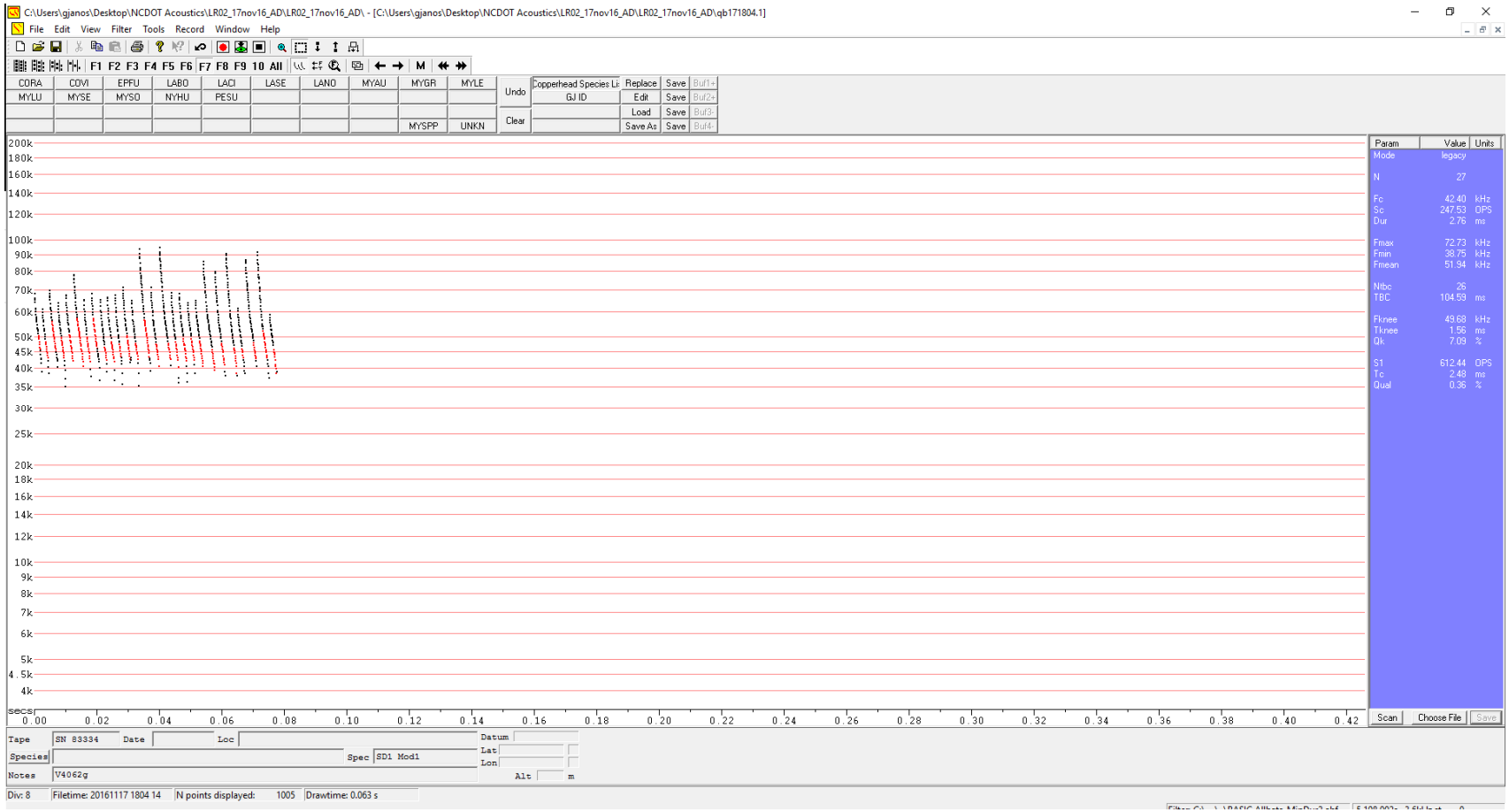
Sonogram 2: Bladen Lakes, BL04, QB151802.25#, F7, compressed, filtered to remove noise (filter: Basic Allbats_MinDur2)



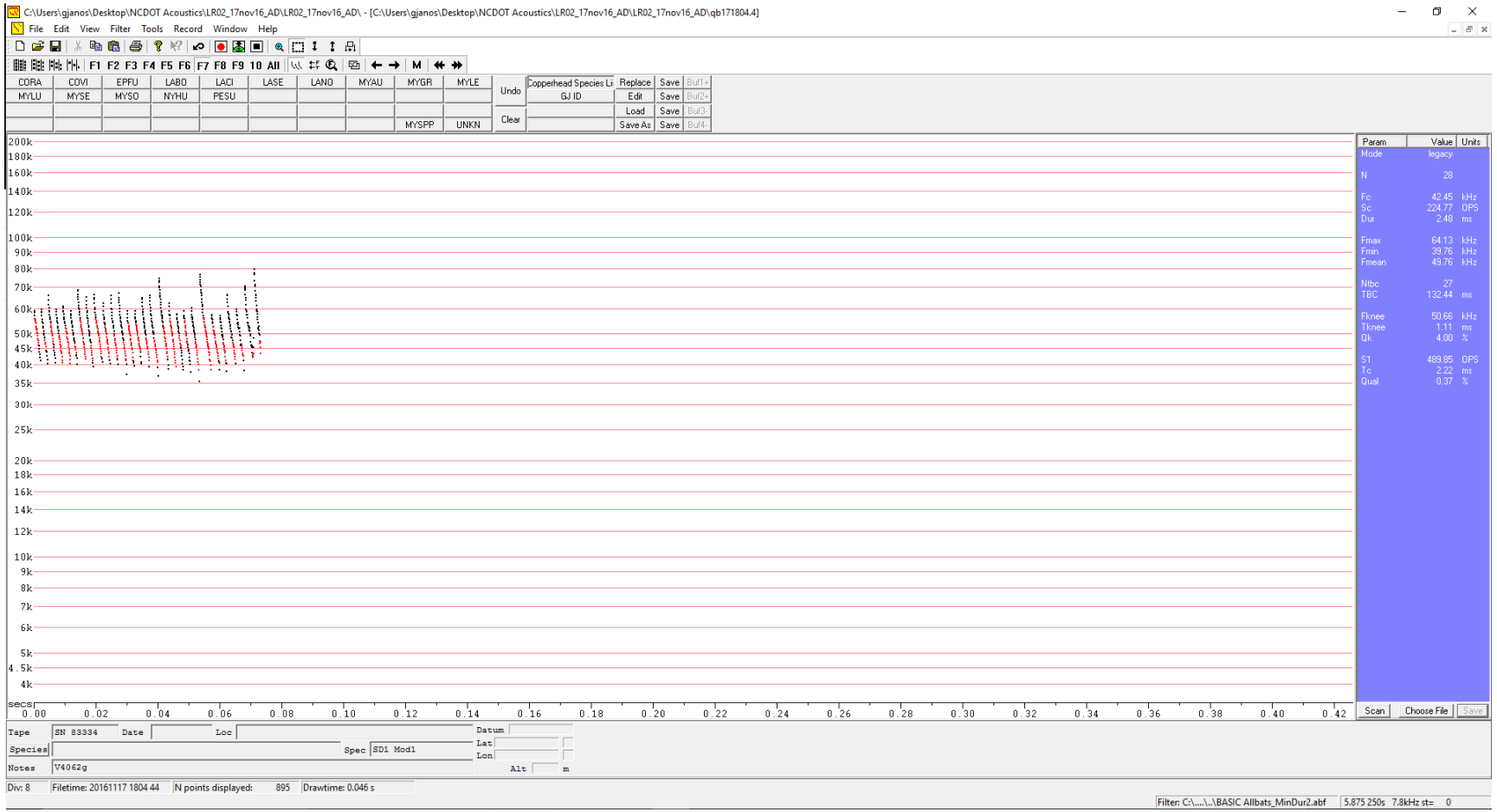
Sonogram 3: Buck Ridge, BR01, R1131856.57#, F7, compressed, filtered to remove noise (filter: Basic Allbats_MinDur2)



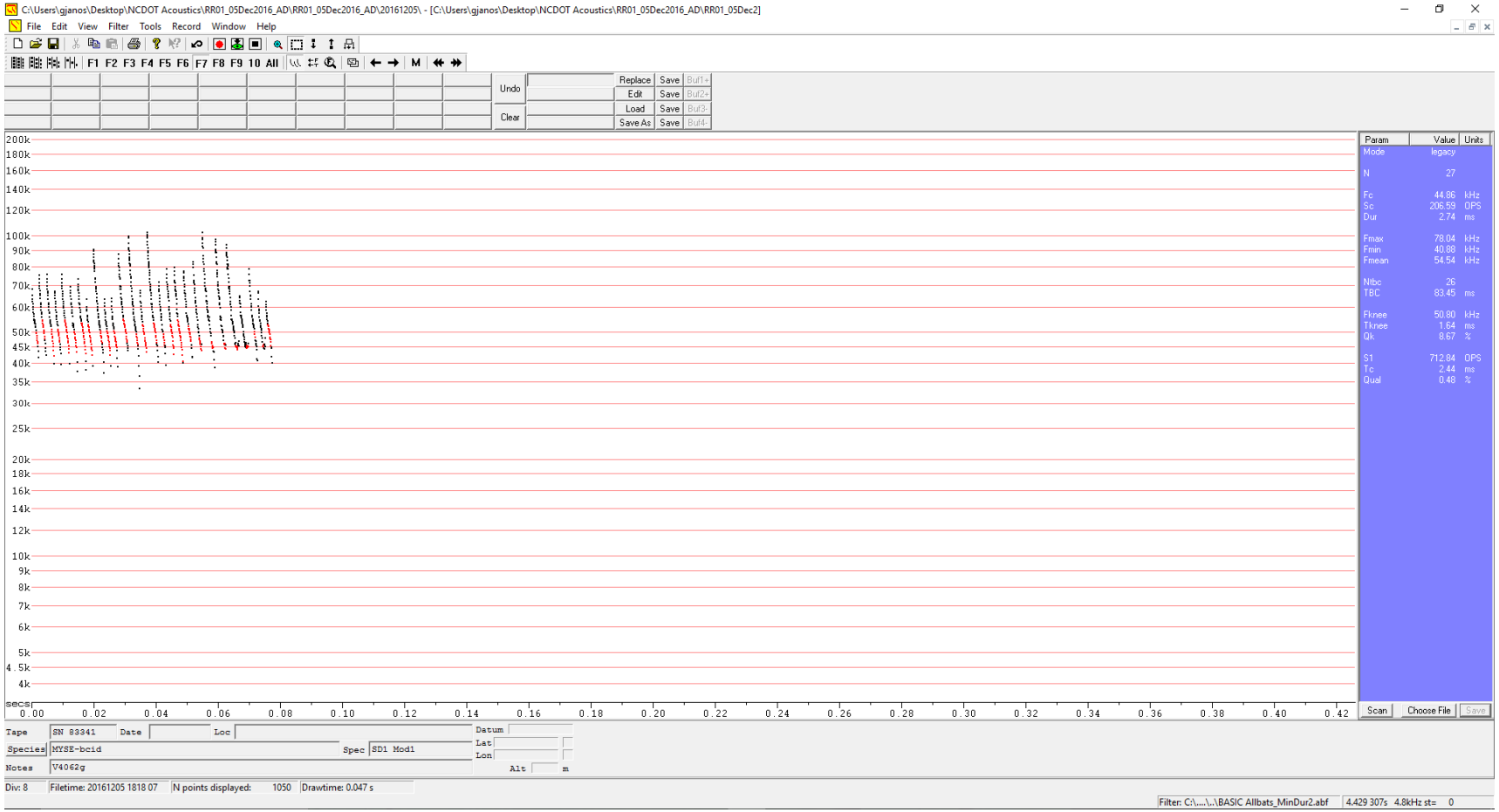
Sonogram 4: Buck Ridge, BR01, R1131857.18#, F7, compressed, filtered to remove noise (filter: Basic Allbats_MinDur2)



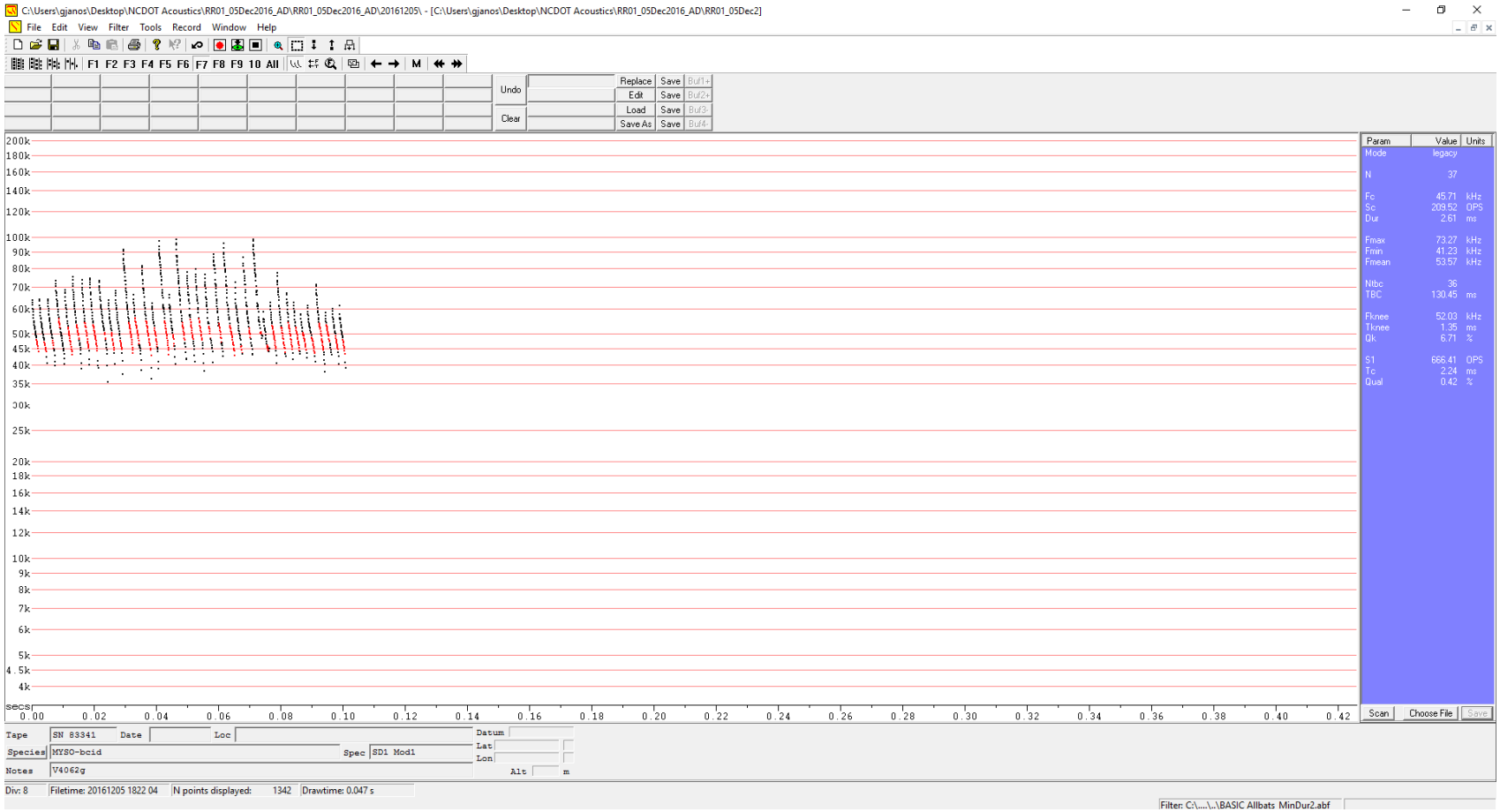
Sonogram 5: Lower Roanoke, LR02, QB171804.14#, F7, compressed, filtered to remove noise (filter: Basic Allbats_MinDur2)



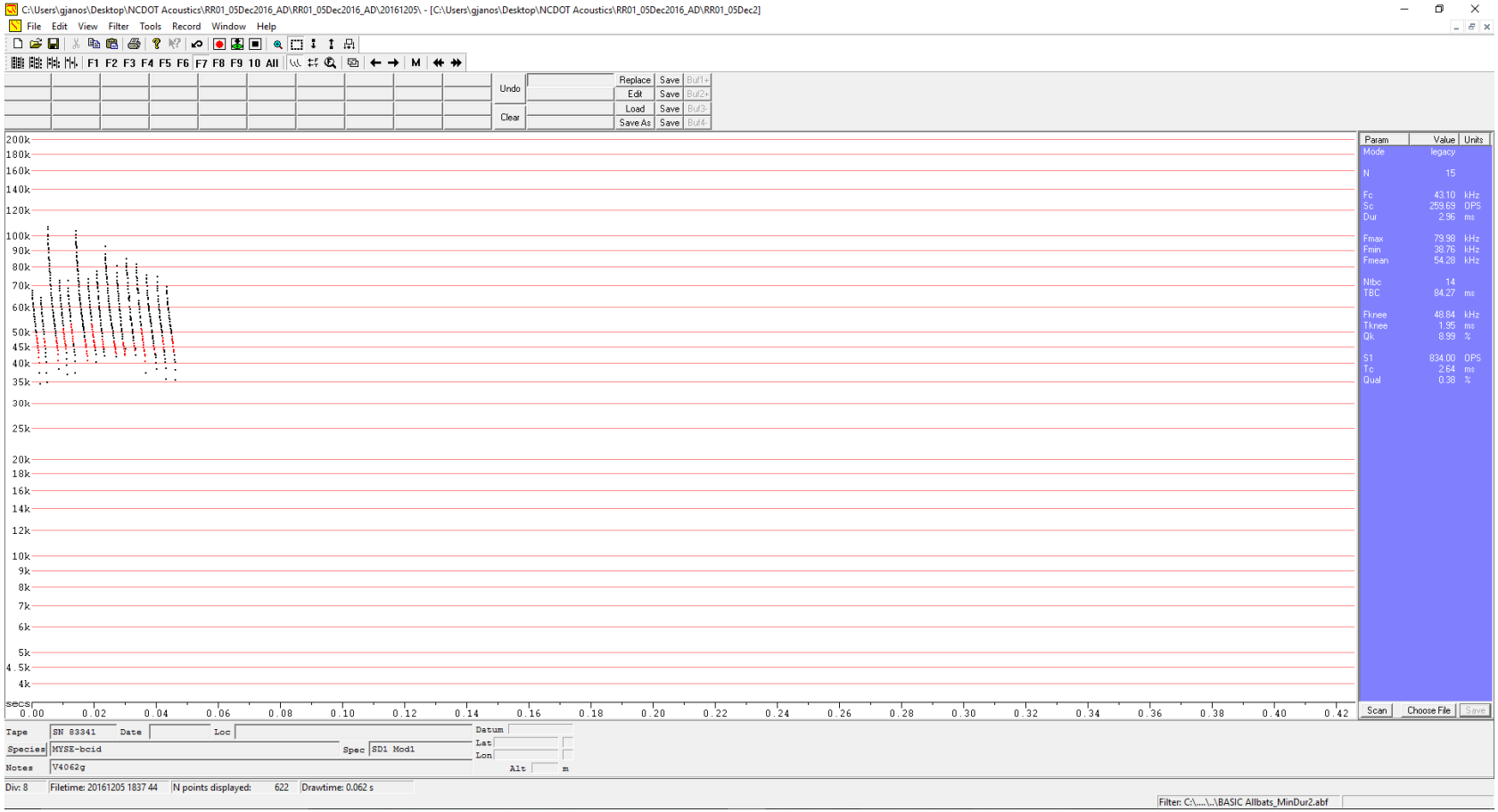
Sonogram 6: Lower Roanoke, LR02, QB171804.44#, F7, compressed, filtered to remove noise (filter: Basic Allbats_MinDur2)



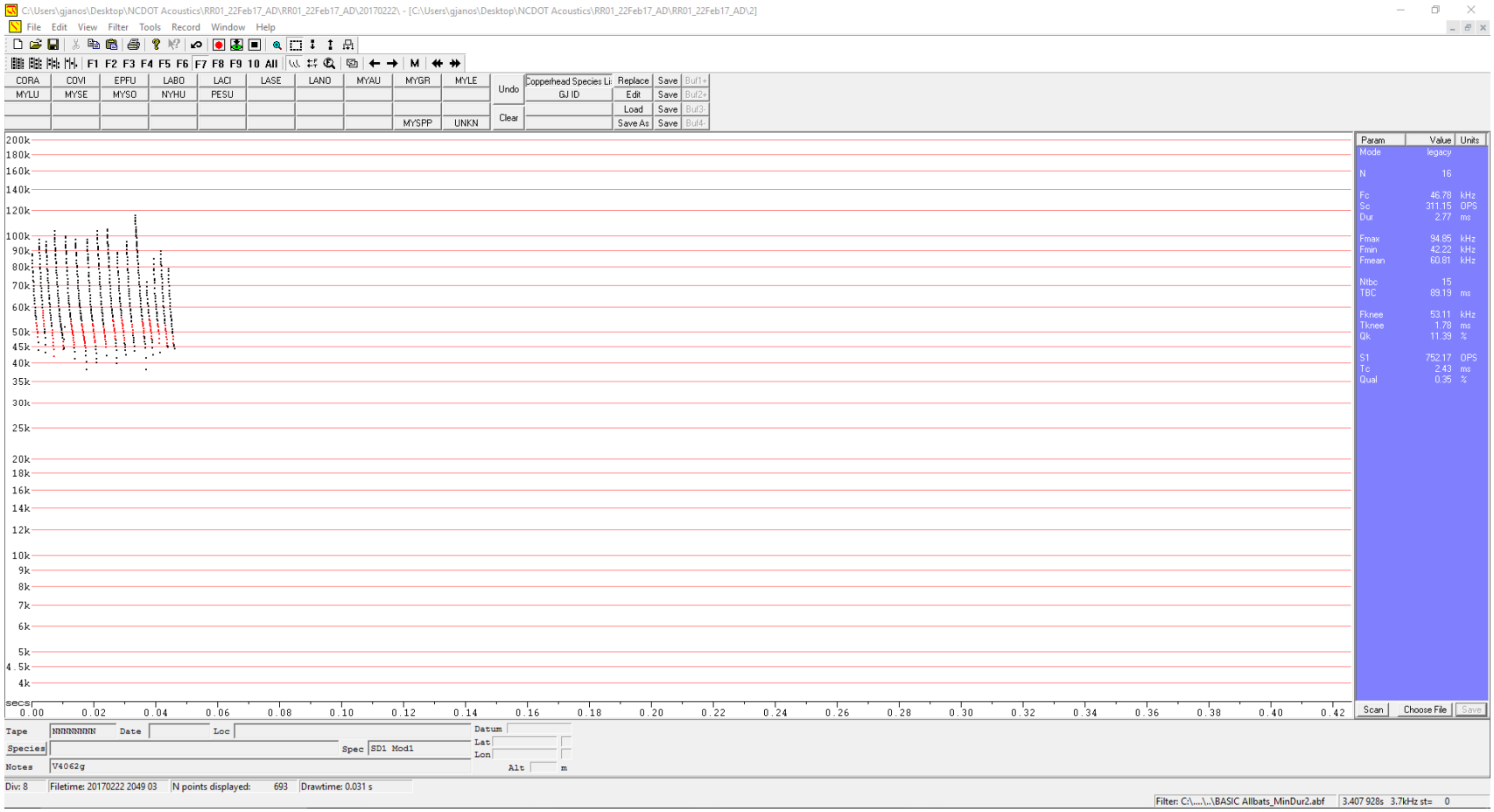
Sonogram 7: Roanoke River, RR01, QC051818.07#, F7, compressed, filtered to remove noise (filter: Basic Allbats_MinDur2)



Sonogram 8: Roanoke River, RR01, QC051822.04#, F7, compressed, filtered to remove noise (filter: Basic Allbats_MinDur2)



Sonogram 9: Roanoke River, RR01, QC051837.44#, F7, compressed, filtered to remove noise (filter: Basic Allbats_MinDur2)



Sonogram 10: Roanoke River, RR01, R2222049.03#, F7, compressed, filtered to remove noise (filter: Basic Allbats_MinDur2)