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ENVIRONMENTAL CONSULTING

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**Final Report:**  
**2019 Eastern North Carolina Northern Long-eared Bat**  
**Research Project, Phase VII, Dare County, North**  
**Carolina**

TIP No. R-9999

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2 December 2019

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## EXECUTIVE SUMMARY

North Carolina Department of Transportation contracted Copperhead Environmental Consulting, Inc. (Copperhead) to assist with portions of a research study of the federally threatened northern long-eared bat (*Myotis septentrionalis*; NLEB) in eastern North Carolina's Coastal Plain. The species was first documented in the Coastal Plain in 2007, as such, relatively little is known about the natural history of the species in this region. This study is part of a multi-year research project designed to elucidate the distribution, habitat preferences, and behavior of the NLEB in the region. A detailed summary of the results of this field study are provided herein.

Copperhead conducted bat mist-net surveys at Alligator River National Wildlife Refuge in Dare County, North Carolina from 23 April – 15 July 2019. All surveys were conducted within suitable NLEB roosting and foraging habitat with the goal of capturing and radio-tagging reproductive females. Mist-netting protocols generally followed guidelines established by the US Fish and Wildlife Service (USFWS 2019).

Surveys were conducted at 12 sites over 71 crew nights. A total of 236 bats of 7 species were captured, including 26 NLEB. Two NLEB were fitted with radio-transmitters and subsequently tracked by Copperhead, utilizing ground-based radio-telemetry to locate day roosts and characterize habitat preferences. Both focal bats were tracked for 4 days each.

Tracking efforts located seven roost trees of four tree species in the study area. The most common trees used were dead trees with exfoliating bark of the *Pinus* genus. A minimum of one emergence count was conducted at each roost tree and the maximum number of bats observed emerging from a single roost was eight.

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## **PROJECT BACKGROUND**

The US Fish and Wildlife Service (USFWS) formally listed the northern long-eared bat (*Myotis septentrionalis*; NLEB) as a threatened species under the Endangered Species Act on 4 May 2015. Subsequently, the North Carolina Department of Transportation (NCDOT) entered into a Programmatic Agreement with the USFWS that includes a research program designed to establish conclusive information concerning the existence of the NLEB in the Coastal Plain of North Carolina. As such, NCDOT has funded NLEB surveys during the summer and winter months since 2015 to better understand the species' habitat requirements.

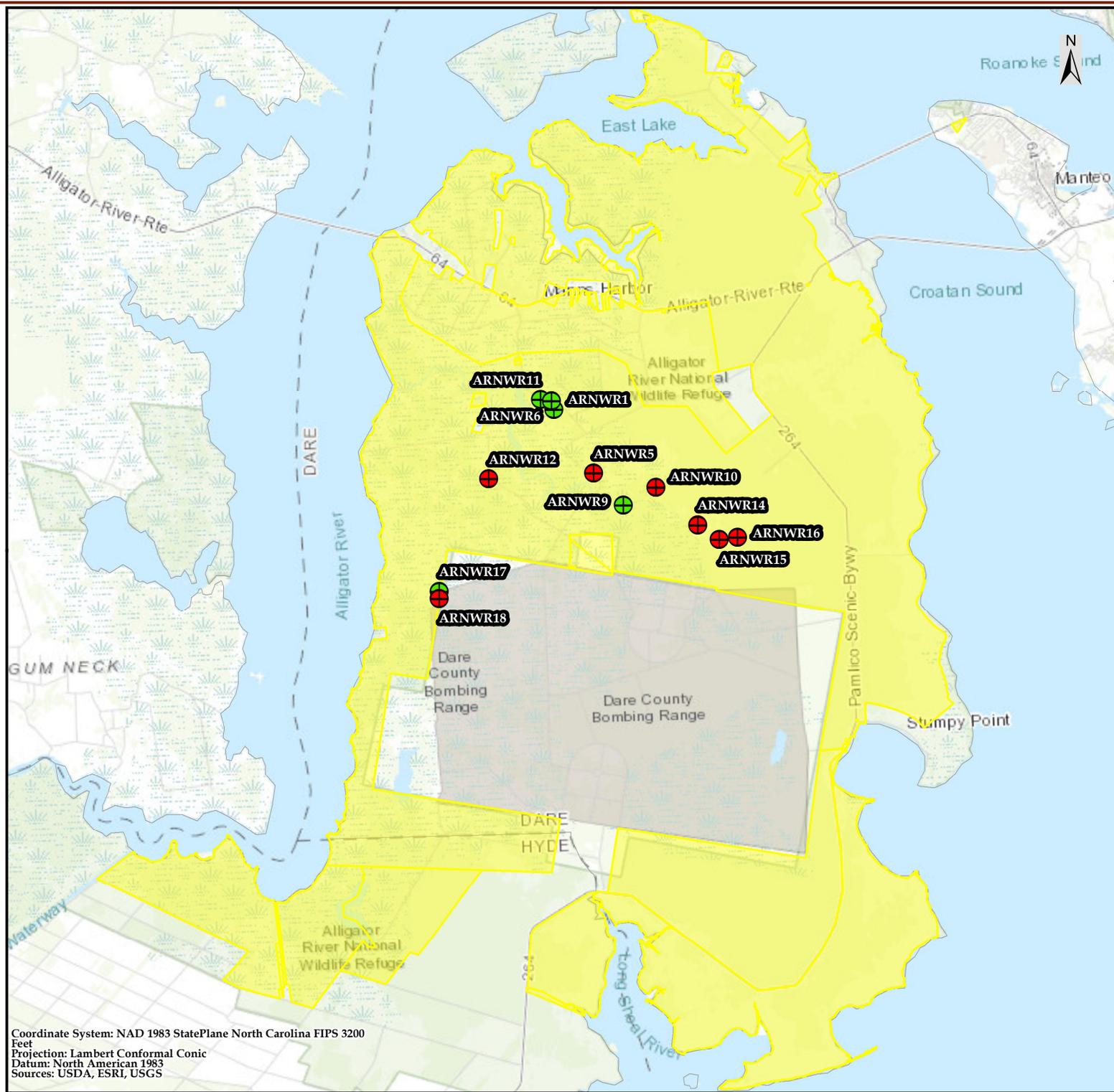
The NLEB was first documented in the Coastal Plain of North Carolina in 2007 (Morris et al. 2009). While most NLEB across their range hibernate underground, the Coastal Plain has no known caves or mines. Subsequent research (NCDOT 2016, Three Oaks 2016, Copperhead 2017, Copperhead 2018) has shown that a population of the species overwinters on the Coastal Plain where the relatively mild winter temperatures appear to allow a level of insect activity high enough to provide winter foraging opportunities (Grider 2016).

In February 2019, Copperhead Environmental Consulting, Inc. (Copperhead) was contracted by NCDOT to conduct a mist-net survey and radio-telemetry study at the Alligator River National Wildlife Refuge (ARNWR). The 2019 NLEB Research Project (detailed herein) represents the 7<sup>th</sup> phase of an ongoing multi-year effort to clarify the range, habitat preferences, and behavior of the species in the Coastal Plain of North Carolina. The objectives of this study outlined by NCDOT in the provided Scope of Work include the following:

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

### **Study Area Description**

Copperhead was tasked with sampling ARNWR in Dare County, NC (Figure 1). ARNWR had been surveyed previously with acoustic and/or mist-net surveys, and NLEB were captured and/or detected via acoustics at eight sites total.



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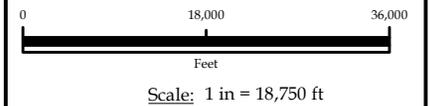
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**NCDOT**

FIGURE 1:  
Alligator River National Wildlife Refuge  
Study Area and Survey Sites sampled  
during the 2019 Northern Long-eared Bat  
Research Project - Phase VII,  
Dare County, North Carolina

**Legend**

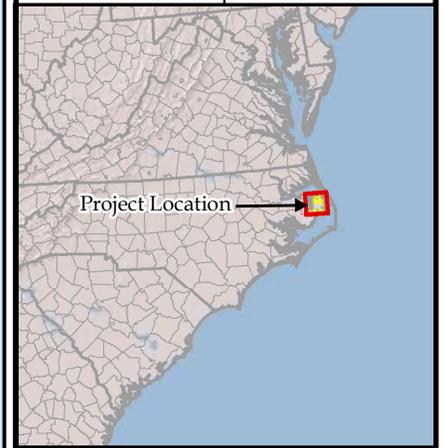
- Mist-net Site
  - No MYSE Captures
  - MYSE Captures
- ARNWR Boundary



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Coordinate System: NAD 1983 StatePlane North Carolina FIPS 3200  
Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
Sources: USDA, ESRI, USGS

## METHODS

### Mist-Net Surveys

Mist-net surveys followed methodologies outlined by the *2019 Range-Wide Indiana Bat Summer Survey Guidelines* (USFWS 2019), except for survey level of effort which was pre-determined by NCDOT and USFWS. Mist-net surveys were conducted over 71 crew nights at 12 sites across the study area. A crew night was defined as one crew at one site surveyed for five hours after sunset. The 12 surveyed sites included seven sites where NLEB had been captured during previous year's studies and five new sites that were established after field reconnaissance by Copperhead biologists in areas of suitable NLEB habitat.

Mist-nets were set to maximize coverage of flight paths used by NLEB along suitable travel corridors, foraging areas, or drinking areas. The placement of mist-nets was based on the extent of canopy cover, presence of an open flyway, and forest conditions near the site. The actual location and orientation of each net was determined in the field. Mist-net sites were surveyed for a minimum of two nights based on capture success and/or the quality of surrounding habitat. At least one qualified bat biologist with current applicable USFWS and North Carolina Wildlife Resources Commission (NCWRC) bat collection permits was present at each site during mist-netting efforts.

A minimum of four net sets were deployed each night at each site. Each net set consisted of a minimum of a double-high net configuration (i.e., 2 nets stacked; 5.2 m tall). Low visibility, high-quality nylon nets, 4 to 12 m (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.

Weather data, including temperature, wind speed, and cloud cover, were recorded at each site on an hourly basis to ensure compliance with the mist-netting guidelines. A survey night was considered incomplete if weather conditions at a site dropped below 50 degrees Fahrenheit, the winds moved the nets more than 50 % of the time, and/or rain or fog persisted for 30 minutes or continued intermittently throughout the survey period.

Bats were live-caught in mist-nets and released unharmed near the point of capture. Data was recorded on NCDOT Mist-Netting Data Forms. Biological and morphometric data collected include species, sex, age class (juvenile or adult), reproductive condition (pregnant, lactating, post-lactating, scrotal, or non-reproductive), forearm length (mm), and mass (g). Wing-Damage Index (WDI) was scored and recorded for each bat based on Reichard and Kunz (2009) to determine possible White-nose Syndrome (WNS) infection. 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 Copperhead were applied at the biologists' discretion to the right forearm of male and left forearm of female captured bats. Prior to release, NLEB were photographed following USFWS (2019) techniques.

## **Radio-Telemetry**

All radio-transmitters used during the study were programmed to 172 kHz. Visibly pregnant or lactating adult female NLEB were fitted with 12-day transmitters (Holohil Systems Ltd. LB-2X, 0.27 g). Transmitter attachment followed methodologies outlined in the *2019 Range-wide Indiana Bat Summer Survey Guidelines* (USFWS 2019). Radio-transmitters were tested and attached between the scapulae of each NLEB 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. The unique frequency of each transmitter was used to identify individual NLEB during radio-tracking.

## **Ground Telemetry**

Model TRX-1000S (Wildlife Materials Inc., Carbondale, Illinois, USA) and model R-1000 (Communications Specialist Inc., Orange, California, USA) tracking receivers and 172-3FB 3- and 5-element Yagi directional antennas were used to search for radio-tagged NLEB. Diurnal roosts were to be located for at least 12 days, or until the transmitter was shed or malfunctioned, whichever occurred first.

Roost trees were 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 tree was made on Copperhead's Roost Tree Datasheet and a uniquely numbered aluminum tree tag and high visibility flagging were placed on each tree to aid in locating trees in the future. Basal area [an expression of tree density (Avery 1967)] of the forest surrounding the roost tree was determined with a 10-factor prism. All trees within the plot were identified to species and the following data were recorded for each tree: diameter at breast height (dbh; cm), tree height (m; estimated), roost height (m; estimated if known), condition (i.e., snag, live, or live-damaged), % usable bark cover for roosting (Gardner et al. 1991), % total bark cover, tree ranking (i.e., whether a tree's crown was in the canopy, sub-canopy, or understory), and any other noteworthy observations (e.g., bat vocalization, guano).

At least one emergence count was completed at each roost. Emergence counts started one-half hour before dusk and ended one hour after dusk, or when it became too dark to see bats. Bats exiting the roost were tallied in five-minute intervals. Emergence surveys were not conducted if temperature was below 50°F or if there was rain, heavy fog, or high winds. Emergence counts were documented on USFWS Emergence Count Datasheets (USFWS 2019) and Copperhead Roost Tree Datasheets.

## **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, Fourth Approximation* (Schafale 2012). In addition, habitat in the survey area was characterized using the following attributes:

- 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 just the flyway.

### **White-Nose Syndrome Protocol**

To minimize the transmission of WNS between captured bats, all netting and field activities followed the most recent USFWS *National White-Nose Syndrome Decontamination Protocol* as well as the *North Carolina's White-nose Syndrome Surveillance and Response Plan*. 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 submerged in hot water (60°C) 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) which came into contact with bats was sanitized immediately following the handling of each bat.

### **Biological Sampling**

At the biologist's discretion, biological wing-punch samples were collected from NLEB that were not fitted with a radio-transmitter (i.e. males, non-reproductive females, or reproductive females that did not receive a transmitter). A sterile 3-mm biopsy punch was used to collect a tissue sample from the plagiopatagium of each wing near the bat's body (avoiding veins and arteries). Tissue samples were then placed in a tube filled with 90% ethanol and refrigerated. Biological samples were submitted to Dr. Mark Ford at Virginia Tech to be used in university research.

## **RESULTS**

### **Mist-Net Surveys**

A total of 236 bats of seven species were captured, including 26 NLEB (6 adult females, 7 adult males, and 13 juveniles; Table 1). Twelve sites were surveyed, of which two resulted in no bats being captured, and five resulted in the capture of NLEBs (Figure 1). A detailed mist-net capture summary table is provided in Appendix A. Completed mist-net datasheets are provided in Appendix B. Photographs of mist-net sites are in Appendix C and photos of captured NLEB are provided in Appendix D.

**Table 1. Summary of total bat captures by species, age, sex, and reproductive status captured during the 2019 Northern Long-eared Bat Research Project - Phase VII, Dare County, North Carolina.**

Species	Male				Female				Escaped	Total	
	Juvenile		Adult		Juvenile		Adult				
	NR*	TD*	NR	TD	NR	P*	L*	PL*			NR
<i>Corynorhinus rafinesquii</i>	6	-	4	2	3	-	5	-	1	1	22
<i>Eptesicus fuscus</i>	3	-	19	-	3	7	2	-	1	-	35
<i>Lasiurus borealis</i>	1	-	8	-	3	3	2	-	7	-	24
<i>Lasiurus seminolus</i>	-	-	1	-	1	-	-	-	3	-	5
<i>Myotis septentrionalis</i>	7	-	7	-	6	1	2	2	1	-	26
<i>Nycticeius humeralis</i>	10	14	51	4	19	11	1	4	4	-	118
<i>Perimyotis subflavus</i>	1	-	2	-	-	3	-	-	-	-	6
<b>Total</b>	<b>28</b>	<b>14</b>	<b>92</b>	<b>6</b>	<b>35</b>	<b>25</b>	<b>12</b>	<b>6</b>	<b>17</b>	<b>1</b>	<b>236</b>

\* NR = non-reproductive, TD = testes descended, P = pregnant, L = lactating, PL = post-lactating

### Bat Capture by Netting Event

Five netting events were completed over the course of the study (Table 2). Of these, the May and July netting events produced the most bat captures with 74 and 92, respectively. The number of bats captured was lowest during the June netting events. The majority of NLEBs were captured during the second June netting event (n = 9) and the July (n = 13) netting event. One visibly pregnant female NLEB was captured on 11 May, 1 lactating female NLEB was captured on 3 June and another on 22 June.

**Table 2. Bat capture by netting event during the 2019 Northern Long-eared Bat Research Project - Phase VII, Dare County, North Carolina.**

Netting Event	Total Bat Captures	No. of Crew Nights	Survey Cancellations	Average Bats Per Night	# NLEB Captured	# Reproductive Female NLEB
April (23-28)	33	5	-	6.60	2	0
May (7-14)	74	14	-	5.29	1	1
June (1-14)	20	22	2	0.87	1	1
June (18-25)	17	9	2	1.70	9	1
July (7-15)	92	21	5	3.83	13	0
<b>Total</b>	<b>236</b>	<b>71</b>	<b>9</b>	<b>3.11</b>	<b>26</b>	<b>3</b>

### NLEB Radio-telemetry, Roosts, and Emergence Counts

Although three reproductive adult female NLEB were captured, one was not radio-tagged due to a previous band injury. Two individuals were fitted with radio-transmitters and tracked to locate day roosts. Each bat was tracked for four days, after which transmitters malfunctioned/fell off and tracking ceased. Roost trees were located each day.

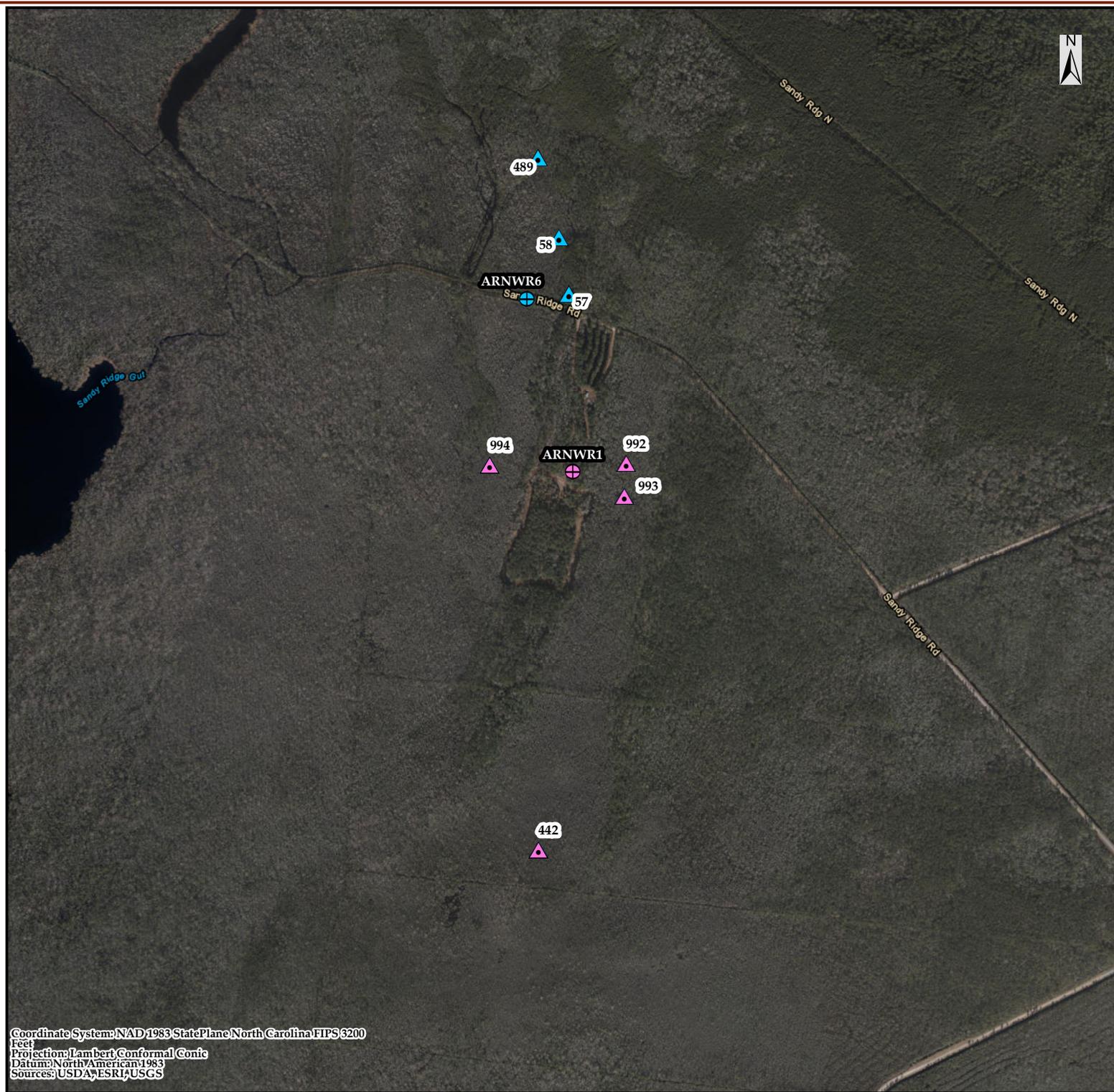
A total of seven roost trees of four tree species were located (Table 3, Figure 2). Overall, the most commonly used species were in the *Pinus* genus (n = 4), followed by *Persea palustris* (n = 2), and *Nyssa biflora* (n = 1). Only one roost tree was live, all others were declining or dead. Five roost trees had a dbh >15 cm (range 6.0 - 33.9 cm) and four roost trees were >18 m tall (range 6.0 - 75.0 m). Roosting microhabitat used by NLEB included exfoliating bark (n = 5) and cavities (n = 2).

**Table 3. Roost tree use by two reproductive females during the 2019 Northern Long-eared Bat Research Project - Phase VII, Dare County, North Carolina.**

Roost Tree No.	Tree Species	Tagged Bat No.	Microhabitat Used	Tree dbh (cm)	Tree Height (m)	No. of Days Used	Highest No. of Emerging Bats
57	<i>Pinus palustris</i>	333	Exfoliating Bark	33.9	28	2	1
58	<i>Pinus palustris</i>	333	Exfoliating Bark	21.5	25	1	4
489	<i>Pinus taeda</i>	333	Exfoliating Bark	25.7	75	1	8
442	<i>Nyssa biflora</i>	932	Cavity	21.2	12	1	1
992	<i>Persea palustris</i>	932	Exfoliating Bark	7.5	7.0	1	4
993	<i>Persea palustris</i>	932	Cavity	6.0	6.0	1	1
994	<i>Pinus taeda</i>	932	Exfoliating Bark	33	18	1	1

A total of eight emergence counts were conducted (minimum of one emergence count per roost). The highest number of bats to emerge (n=8) was from roost tree 489 on 7 June. A detailed summary table of the tracking effort, emergence counts, and day roosts is provided in Appendix A.

Completed roost tree and emergence datasheets are provided in Appendix E and photographs of roost trees are provided in Appendix F.



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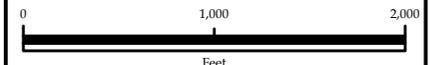
**NCDOT**

FIGURE 2:

Roost tree and capture site locations for radio-tagged bats at the Alligator River National Wildlife Refuge during the 2019 Northern Long-eared Bat Research Project - Phase VII, Dare County, North Carolina

### Legend

- |              |              |
|--------------|--------------|
| Bat 333      | Bat 932      |
| Capture Site | Roost Tree   |
| Roost Tree   | Capture Site |



Scale: 1 in = 1,000 ft

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Drawn by:	CWM	Date:	9/3/2019
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Checked by:	TANW	Revision:	01
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Coordinate System: NAD 1983 StatePlane North Carolina FIPS 3200  
Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
Sources: USDA, ESRI, USGS

## **NLEB Capture Site Results and Habitat Characterizations**

This section describes the mist-net sites within the ARNWR where NLEB were captured. Community type narratives are not provided for mist-net sites where NLEB were not captured. Capture and Habitat Characterization Datasheets are in Appendix B.

**ARNWR1** (35.82789, -75.90300) is in the north-central part of the refuge. The mist-net site was positioned south of Sandy Ridge Road and south of a series of four narrow freshwater ponds. NLEB were captured at this site during previous studies. The surrounding forest most closely resembled a Blackwater Bottomland Hardwoods (High Subtype) Forest with dominant species including *Ilex* spp., *Liquidambar styraciflua*, *Morella cerifera*, *Pinus taeda*, and *Quercus* spp. It was a mature forest with 40-75 % canopy cover. Eleven NLEBs were caught on five different nights: on 24 April 2019, one adult male (CC0254) was caught in net B; on 11 May 2019, one pregnant female (CC1453 - originally banded in 2017) was caught in net A and not fitted with a transmitter due to concerns of health; on 22 June 2019, one male juvenile was caught in net A, one female juvenile was caught in net E, two juveniles (one male, one female) were caught in net F, and one juvenile male and one lactating female (CC1908) were caught in net G. The lactating female (CC1908) was fitted with transmitter 172.932. None of the juvenile NLEBs were banded due to small size.

**ARNWR6** (35.83141, -75.90401) is in the north-central part of the refuge. The mist-net site was positioned on an overgrown portion of Sandy Ridge Road. A water channel ran parallel to the north side of the road and forested wetlands were present to the north of the channel and south of the road. NLEB were captured at this site during previous studies. The surrounding forest most closely resembled a Blackwater Bottomland Hardwoods (High Subtype) Forest transitioning into a mix of a Cypress-Gum Swamp (Blackwater Subtype) with dominant species including *Ilex* spp., *Liquidambar styraciflua*, *Lyonia lucidula*, *Morella cerifera*, *Nyssa* spp., *Pinus* spp., *Quercus* spp., and *Taxodium distichum*. The forest was mature with 40-75 % canopy cover. Three NLEBs were caught on three different nights: on 3 June 2019, one lactating female (CC1047) was caught in net B and fitted with transmitter 172.333; on 22 June 2019, one juvenile male (not banded due to small size) was caught in net D; and on 9 July 2019, one adult male (CC0105) was caught in net A.

**ARNWR9** (35.79123, -75.87230) is in the center of the refuge north of the Dare County Bombing Range. The net site was positioned on the dirt portion of West Widgeon Road where it intersects with Cedar Road. Water channels run parallel to either side of both roads. NLEB were captured at this site during previous studies. The forest surrounding this site most closely resembled a Peatland Atlantic White Cedar Forest with dominant species including *Chamaecyparis thyoides*, *Persea palustris*, and *Pinus taeda*. The forest was mature with 40-75% canopy cover. Four NLEBs were caught on three different nights: on 10 July 2019, two adult males (CC1306 and CC1307) were caught in net B; on 11 July 2019, one juvenile male (CC1303) was captured in net C; and on 12 July 2019, one adult male (CC1310) was captured in net B.

**ARNWR11** (35.83192, -75.90908) is in the north-central part of the refuge. The mist-net site was positioned on an overgrown portion of Sandy Ridge Road. A water channel runs parallel to the

north side of the road and forested wetlands were present on both sides of the road. It is situated farther back on Sandy Ridge Road past ARNWR6 where it ends at a canal. NLEB were captured at this site during previous studies. The forest surrounding this site most closely resembled a Blackwater Bottomland Hardwoods (High Subtype) Forest transitioning into a Cypress-Gum Swamp (Blackwater Subtype) with dominant species including *Acer rubrum*, *Ilex* spp., *Liquidambar styraciflua*, *Lyonia lucidula*, *Morella cerifera*, *Nyssa* spp., *Persea palustris*, *Pinus* spp., *Quercus* spp., and *Taxodium distichum*. The forest was mature with 40-75% canopy cover. Five NLEBs were caught on four different nights: on 25 April 2019, one non-reproductive adult female (CC0092) was caught in net D; on 23 June 2019, one juvenile female (not banded due to small size) was caught in net A; on 24 June 2019, one juvenile female (not banded due to small size) was caught in net D; and on 15 July 2019, one post-lactating female (CC1312) and one juvenile female (CC1313) were captured in net C.

**ARNWR17** (35.76099, -75.95855) is in the east-central part of the refuge. The mist-net site was positioned at the four-way intersection of Alligator Road. and Poplar Ridge Road. This site was the only new net site on ARNWR where NLEB were captured. Water channels run parallel to both roads and forested wetlands were present on all sides of the intersection. The forest surrounding this site most closely resembled a most closely resembled a Blackwater Bottomland Hardwoods (High Subtype) Forest with dominant species including *Acer rubrum*, *Magnolia virginiana*, *Pinus taeda*, and *Quercus nigra*. The forest was mature with 40-75% canopy cover. Three NLEBs were caught on three different nights: one 10 July 2019, one adult male (CC2059) was caught in net D; on 13 July 2019, one juvenile female (CC2089) was caught in net C; and on 15 July 2019, one adult male (CC0147) was caught in net A.

### **Biological Sampling**

Twelve tissue samples and 17 hair samples were submitted to Dr. Mark Ford on 10 September 2019 to be used in Virginia Tech University research.

## **CONCLUSIONS**

The 2019 NLEB Research Study successfully achieved its two goals to capture pregnant/lactating female NLEB and to conduct radio-telemetry to characterize roost habitat and to clarify the timing of reproduction of female NLEB in the Coastal Plain. The capture and tracking of reproductive female NLEB during the project contribute to knowledge on the reproductive timing of NLEB on the Coastal Plain of North Carolina. The data gathered during this study also add to our knowledge of NLEB habitat preferences and roosting patterns at ARNWR.

Based on captures of reproductive female NLEB during the study, NLEB are reproductive (visibly pregnant or lactating) from mid-May through June. Juveniles were first captured on 22 June. After 22 June, juveniles made up 59% of NLEB captures and two post-lactating females were captured on 15 July.

Total bat captures decreased in June which coincide with female lactation, suggesting female bats could be foraging less or foraging closer to roost trees during this stage of reproduction.

Unlike winter roost use by NLEBs previously documented at ARNWR by Copperhead (2018), dead trees with exfoliating bark were preferred by reproductive females over live and live damaged trees with cavities. In this study, dead *Pinus palustris* and *P. taeda* were the most common roost species used by NLEB.

Additional mist-netting and tracking of NLEB will continue to provide information that will further the understanding of the distribution, density, reproductive timing, and habitat preferences of NLEB in the Coastal Plain.

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# Appendix A

## Additional Report Tables

Mist-net capture summary for the NCDOT 2019 Northern Long-eared Bat Research Project – Phase VII, Dare County, North Carolina (follows NCDOT 2016).

<u>ARNWR</u> <u>Site No.</u>	<u>Lat, Long</u>	<u>Clutter</u>	<u>Community types</u>	<u>Night</u>	<u>Date</u>	<u>CORRAF</u>	<u>EPTIFUS</u>	<u>LASBOR</u>	<u>LASSEM</u>	<u>MYOSEP</u>	<u>NYCHUM</u>	<u>PERSUB</u>	<u>Total</u>	<u>Notes</u>	
1	35.82789, -75.90300	3	Blackwater Bottomland Hardwoods (High Subtype) Forest	1	23-Apr-19	-	4	2	-	-	10	-	16		
				2	24-Apr-19	1	1	2	-	1	4	-	9	Adult male MYOSEP band CC0254	
				3	9-May-19	-	5	1	-	-	14	-	20		
				4	10-May-19	-	3	1	1	-	11	3	19		
				5	11-May-19	-	3	3	1	1	7	-	15	Pregnant female MYOSEP band CC1453, not tagged due to band injury from band applied in 2017	
				6	14-May-19	-	2	1	-	-	-	-	3		
				7	3-Jun-19	-	1	-	-	-	2	-	3		
				8	4-Jun-19	-	-	-	-	-	3	-	3		
				9	9-Jun-19	-	-	-	-	-	1	-	1		
				10	10-Jun-19	-	1	-	-	-	-	-	1		
				11	21-Jun-19	-	2	-	-	-	-	-	2		
				12	22-Jun-19	1	-	1	-	-	6	-	-	8	Five juvenile MYOSEP (3 male, 2 female) not banded. Lactating female MYOSEP band CC1908 tagged 172.932
				13	7-Jul-19	-	-	-	-	-	1	-	-	1	Juvenile male MYOSEP not banded due to small size. Survey cancelled due to precipitation at 2200
				14	8-Jul-19	-	-	-	-	-	-	-	-	0	No bats captured
				15	9-Jul-19	-	1	-	-	-	-	1	-	2	
				16	14-Jul-19	-	3	1	-	-	-	12	1	17	
				17	15-Jul-19	-	-	-	-	1	2	4	-	7	2 Post-lactating female MYOSEP banded CC2355 and CC2356
5	35.80357, -75.88571	3	Blackwater Bottomland Hardwoods (High Subtype) Forest	1	28-Apr-19	-	-	-	-	-	2	-	2		
				2	12-May-19	-	-	-	1	-	1	-	2		
				3	13-May-19	-	-	-	-	-	-	-	0	No bats captured	
				4	1-Jun-19	-	1	1	-	-	-	-	2		
				5	2-Jun-19	-	-	-	-	-	-	-	0	No bats captured	
				6	18-Jun-19	-	-	-	-	-	1	-	1		
				7	8-Jul-19	-	-	-	-	-	-	-	0	No bats captured	
				8	9-Jul-19	-	-	-	-	-	-	-	0	No bats captured	

ARNWR Site No.	Lat, Long	Clutter	Community types	Night	Date	CORRAF	EPTFUS	LASBOR	LASSEM	MYOSEP	NYCHUM	PERSUB	Total	Notes		
6	35.83141, -75.90401	3	Blackwater Bottomland Hardwoods (High Subtype) Forest transitioning into a mix of a Cypress-Gum Swamp (Blackwater Subtype)	1	9-May-19	-	-	-	-	-	-	-	0	No bats captured		
				2	10-May-19	-	1	-	-	-	-	1	-	2		
				3	3-Jun-19	-	-	-	-	1	-	-	-	1	Lactating female MYOSEP band CC1047 tagged 172.333	
				4	4-Jun-19	-	-	-	-	-	-	1	-	1		
				5	13-Jun-19	-	-	-	-	-	-	-	-	0	No bats captured	
				6	14-Jun-19	-	-	-	-	-	-	-	-	0	No bats captured	
				7	21-Jun-19	-	-	1	-	-	-	-	-	1		
				8	22-Jun-19	-	-	-	-	-	-	1	-	1	Juvenile male MYOSEP not banded due to small size.	
				9	7-Jul-19	-	-	-	-	-	-	-	-	0	Survey cancelled due to precipitation at 2200 - no datasheet included	
				10	8-Jul-19	-	-	-	-	-	-	-	1	-	1	
				11	9-Jul-19	-	-	-	-	-	-	1	2	-	3	Adult male MYOSEP band CC0105
				12	13-Jul-19	-	-	-	-	-	-	-	1	-	1	
				13	14-Jul-19	1	1	1	-	-	-	-	3	-	6	
9	35.79123, -75.87230	3	Peatland Atlantic White Cedar Forest	1	7-May-19	1	-	2	1	-	-	-	4			
				2	8-May-19	-	-	-	-	-	-	-	-	0	No bats captured	
				3	1-Jun-19	-	-	-	-	-	-	-	1	1		
				4	2-Jun-19	-	-	1	-	-	-	-	1	2		
				5	11-Jun-19	1	-	-	-	-	-	-	-	1		
				6	12-Jun-19	-	-	-	-	-	-	-	-	0	No bats captured	
				7	18-Jun-19	-	-	-	-	-	-	-	-	0	No bats captured	
				8	10-Jul-19	1	-	-	-	-	2	1	-	4	Two adult male MYOSEP bands CC1306 and CC1307	
				9	11-Jul-19	-	-	-	-	-	1	1	-	2	Adult male MYOSEP band CC1303. Survey cancelled due to precipitation at 2345	
				10	12-Jul-19	-	-	-	-	-	-	1	-	1	Adult male MYOSEP band CC1310	
				11	13-Jul-19	1	-	-	-	-	-	-	-	1		
10	35.79755, -75.85710			1	1-Jun-19	-	-	-	-	-	-	-	0	No bats captured		
				2	2-Jun-19	-	-	-	-	-	-	-	0	No bats captured		
				3	18-Jun-19	-	-	-	-	-	-	-	0	No bats captured		
				4	19-Jun-19	-	-	-	-	-	-	-	0	Survey cancelled due to precipitation at 2100 - no datasheet included		

ARNWR Site No.	Lat, Long	Clutter	Community types	Night	Date	CORRAF	EPTFUS	LASBOR	LASSEM	MYOSEP	NYCHUM	PERSUB	Total	Notes		
11	35.83192, -75.90908	3	Blackwater Bottomland Hardwoods (High Subtype) Forest transitioning into a Cypress-Gum Swamp (Blackwater Subtype)	1	25-Apr-19	2	1	-	-	1	-	-	4	Non-reproductive Female MYOSEP band CC0092		
				2	26-Apr-19	1	-	1	-	-	-	-	-	2		
				3	23-Jun-19	-	-	-	-	-	1	-	-	-	1	Juvenile female MYOSEP not banded due to small size.
				4	24-Jun-19	-	-	-	-	-	1	1	-	-	2	Juvenile female MYOSEP not banded due to small size. Survey cancelled due to aggressive bear activity at net site.
				5	14-Jul-19	-	-	-	-	-	-	-	-	-	0	No bats captured
				6	15-Jul-19	1	-	-	-	-	2	-	-	-	3	Post-lactating female MYOSEP band CC1312 and juvenile female MYOSEP band CC1313
12	35.80268, -75.93410			1	12-May-19	-	2	1	-	-	2	-	5			
				2	13-May-19	-	-	1	-	-	-	1	-	2		
				3	10-Jul-19	-	-	1	-	-	-	1	-	2		
				4	11-Jul-19	-	-	-	-	-	-	-	3	-	3	Survey cancelled due to precipitation at 2340
				5	12-Jul-19	-	-	-	-	-	-	-	-	-	0	No bats captured
14	35.78298, -75.83842			1	7-May-19	1	-	1	-	-	-	-	2			
				2	8-May-19	-	-	-	-	-	-	-	-	-	0	No bats captured
15	35.77729, -75.82860			1	5-Jun-19	-	-	-	-	-	-	-	0	No bats captured		
				2	6-Jun-19	-	-	-	-	-	-	-	-	0	No bats captured	
16	35.77787, -75.82022			1	5-Jun-19	-	-	-	-	-	-	-	0	No bats captured		
				2	6-Jun-19	-	-	-	-	-	-	-	-	0	No bats captured	
17	35.76099, -75.95855	4	Blackwater Bottomland Hardwoods (High Subtype) Forest	1	7-Jun-19	-	-	-	-	-	-	-	-	0	Survey cancelled due to precipitation at 2115	
				2	8-Jun-19	-	1	-	-	-	-	-	1	-	2	
				3	25-Jun-19	-	-	-	-	-	-	-	1	-	1	
				4	10-Jul-19	4	-	-	-	-	1	7	-	-	12	Adult male MYOSEP band CC2059
				5	11-Jul-19	2	1	-	-	-	-	3	-	-	6	Survey cancelled due to precipitation at 0010
				6	12-Jul-19	2	-	1	-	-	-	9	-	-	12	
				7	13-Jul-19	2	-	-	-	-	1	2	-	-	5	Juvenile female MYOSEP band CC2089
				8	15-Jul-19	-	1	-	-	-	1	1	-	-	3	Adult male MYOSEP band CC0147
18	35.75837, -75.95871			1	7-Jun-19	-	-	-	-	-	-	-	0	Survey cancelled at 2105 due to precipitation.		
				2	8-Jun-19	-	-	-	-	-	-	2	-	2		
					<b>GRAND TOTAL</b>	<b>22</b>	<b>35</b>	<b>24</b>	<b>5</b>	<b>26</b>	<b>118</b>	<b>6</b>	<b>236</b>			

CORRAF = *Corynorhinus rafinesquii*, Rafinesque's Big-eared Bat; EPTFUS = *Eptesicus fuscus*, Big Brown Bat; LASBOR = *Lasiurus borealis*, Red Bat; LASSEM = *Lasiurus seminolus*, Seminole Bat; MYOSEP = *Myotis septentrionalis*, Northern Long-eared Bat; NYCHUM = *Nycticeius humeralis*, Evening Bat; PERSUB = *Perimyotis subflavus*, Tri-colored Bat

indicates MYOSEP capture
indicates survey cancellation

Clutter visually evaluated for surrounding forest: 1 = <10% cover, 2 = 10-39% cover, 3 = 40-75% cover, 4 = >75% cover; Grand Total = Total captures between all sites

Summary of radio-tracking efforts and emergence counts conducted during the NCDOT 2019 Northern Long-eared Bat Research Project – Phase VII, Dare County, North Carolina (follows NCDOT 2016).

<u>NLEB Sex</u>	<u>Frequency</u>	<u>Band No.</u>	<u>Dates Tracked</u>	<u>Habitat Classification</u>	<u>Tree species</u>	<u>Roost No.</u>	<u>Lat, Long</u>	<u>Roost Dates</u>	<u>Emergence Surveys</u>		<u>Number of Bats Emerged</u>
									<u>Date</u>	<u>Observed Emerging</u>	
Female	172.333	CC1047	4 June 2019 - 7 June 2019	CYPRESS--GUM SWAMP (BLACKWATER SUBTYPE) with small presence of POND PINE WOODLAND (NORTHERN SUBTYPE)	<i>Pinus palustris</i>	RT57	35.83146, -75.90295	4-5 Jun-19	4-Jun-19	Yes	1
									5-Jun-19	Yes	1
				CYPRESS--GUM SWAMP (BLACKWATER SUBTYPE) with small presence of POND PINE WOODLAND (NORTHERN SUBTYPE)	<i>Pinus palustris</i>	RT58	35.83260, -75.90315	6-Jun-19	6-Jun-19	Yes	4
				CYPRESS--GUM SWAMP (BLACKWATER SUBTYPE) with small presence of POND PINE WOODLAND (NORTHERN SUBTYPE)	<i>Pinus taeda</i>	RT489	35.83422, -75.90361	7-Jun-19	7-Jun-19	No	8
Female	172.932	CC1908	23 June 2019- 26 June 2019	CYPRESS--GUM SWAMP (BLACKWATER SUBTYPE) with small presence of POND PINE WOODLAND (NORTHERN SUBTYPE)	<i>Nyssa biflora</i>	RT442	35.82034, -75.90412	23-Jun-19	23-Jun-19	Yes	1
				BLACKWATER BOTTOMLAND HARDWOODS (HIGH SUBTYPE)	<i>Persea palustris</i>	RT992	35.82804, -75.90167	24-Jun-19	24-Jun-19	Yes	4
				BLACKWATER BOTTOMLAND HARDWOODS (HIGH SUBTYPE)	<i>Persea palustris</i>	RT993	35.82738, -75.90174	25-Jun-19	25-Jun-19	Yes	1
				CYPRESS--GUM SWAMP (BLACKWATER SUBTYPE) with small presence of POND PINE WOODLAND (NORTHERN SUBTYPE)	<i>Pinus taeda</i>	RT994	35.828089, -75.905029	26-Jun-19	26-Jun-19	Yes	1

# **Appendix B**

## **Completed Mist-Netting Datasheets**

# NCDOT Mist-Netting Data Form

Project:	799 E. NC MYSE '19		County:	Dare		Site#:	1	Night#:	1	Site Name:	ARNWR2019-01		Date:	23 APR '19						
Latitude:	35.827897					Longitude:	-75.903003					Datum:	NAD 83		Elevation:	4		ID By:	R. Eaton	
Observers:	Jeremy Plueger								Start Time:	19:40			End Time:	00:45						
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds				
	19:40	68°F	2	none	22:10	66°F	2	none	00:40	63°F	2	none								
Moon Effect:	Waning gibbous (80%)		Start:	-		Land Use:	Urban / Agriculture / Forest / Water / Wetland / Barren (describe): L3 mixed													
			Stop:	10:20 (24 APR)																
NETS/TRAPS:	A: 1x ZH-6m		B: 1x ZH-9m		C: 1x ZH-12m		D: 1x ZH-6m		E: -		F: -									
Pool size WxL	N/A																			
Swoop WxL	N/A																			
Photo? or #	01 Net A		01 Net B		01 Net C		01 Net D													
Site Description, other than Habitat Info covered on pg 3:	<p>Sandy Ridge Rd leading to wolf pens. <i>Pinus taeda</i> <i>Liquidambar styraciflua</i> <i>Quercus nigra</i></p>																			
	<p>Site sketch (label to match Nets/Traps above)</p>																			

\*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 mist net sites, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).





# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Dare	Site#:	1	Night#:	3	Site Name:	ARNWR1	Date:	9-May-2019	
Latitude:	35.827897			Longitude:	-75.903003			Datum:	NAD 83	Elevation:	44	ID By:	G. Janos
Observers:	G. Janos, D. Batie							Start Time:	1956		End Time:	0056	
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	1956	72	0	Partly cloudy	2226	67	0	clear	0056	63	0	0	
Moon Effect:	Start: 1756			Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe):									
	Stop: 0056			43 Mixed									
NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-12m	C: 1x2H-4m	D: 1x2H-6m	E:	F:							
Pool size WxL	N/A	N/A	N/A	N/A									
Swoop WxL	N/A	N/A	N/A	N/A									
Photo? or #	on tablet	on tablet	on tablet	on tablet									
Site Description, other than Habitat Info covered on pg 3:	<p>Mixed forest with sand roads leading to wolf pens. Narrow fresh water ponds open to bats for Net B.</p> <p><i>L. styraeiflua</i>, <i>P. taeda</i>, <i>Q. nigra</i>, <i>M. cerifera</i></p> <p><i>M. virginiana</i>, <i>S. tinctoria</i></p>												
	<p>Site sketch (label to match Nets/Traps above)</p>												

\*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 **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: <u>NCDOT MYSE 2019</u> County: <u>DARE</u>					Site #: <u>1</u> Night# <u>3</u> Site Name: <u>ARNWR1</u>			Date: <u>9-MAY-2019</u>					
	TIME	SPECIES	Sex	Age	P/L/PL/NR	mm FA	Bag WT	g WT	Net #	m Height	Band / WS	Temp (F)	Wing score / Comment / Photo #
1	2025	LASBOR	F	A	P	42	0	15.0	D	1.0	CC0312	70	0
2	2030	NYCHUM	M	A	NR	39.5	0	9.25	D	2.5	CC0310	68	OP (left)
3	2030	NYCHUM	M	A	NR	38.0	0	10.0	A	4.0	CC0086	68	0 Prev. Banded
4	2030	NYCHUM	M	A	NR	36.0	0	8.25	A	4.5	CC0309	68	0
5	2050	NYCHUM	M	A	NR	36.5	0	8.25	B	4.0	CC0084	68	Right wing some damage. Prev Banded
6	2055	NYCHUM	M	A	NR	37.0	0	9.25	B	4.0	CC0308	68	OP (right)
7	2030	NYCHUM	M	A	NR	37.0	0	8.75	A	0.5	CC0307	68	OP (left) - some scuffing
8	2055	NYCHUM	M	A	NR	35	0	9.0	B	3.5	CC0306	69	0
9	2100	NYCHUM	M	A	NR	35	0	9.5	B	0	CC0305	69	0
10	2105	NYCHUM	M	A	NR	38	0	7.5	D	2.0	CC0304	69	0
11	2100	NYCHUM	M	A	NR	37	0	8.75	B	4.5	CC0303	69	OP (small puncture left wing)
12	2105	NYCHUM	M	A	NR	35	0	9.25	D	3.0	CC0302	69	0
13	2125	NYCHUM	M	A	NR	35	0	8.75	B	2.5	CC0301	68	0
14	2125	EPTFUS	F	A	P	47	0	20.25	B	2.0	CC 1010	68	0
15	2130	NYCHUM	F	A	P	37	0	11.25	D	3.5	————	68	0
16	2208	NYCHUM	F	A	P	36.5	0	13.25	B	4.5	CC1011	67	0
17	2210	EPTFUS	F	A	P	48.5	0	17.0	A	4.5	CC1012	67	0
18	2240	EPTFUS	F	A	P	46.5	0	20.5	A	4.5	CC1013	65	0
19	2310	NYCHUM	M	A	NR	35.5	0	8.25	B	4.5	CC1014	64	0
20	2325	EPTFUS	M	A	NR	44	0	14.25	D	4.0	CC0311	64	0

# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Dare	Site#:	1	Night#:	4	Site Name:	ARMWR1	Date:	10-May-2019		
Latitude:	35.827897				Longitude:	-75.903003			Datum:	NAD 83	Elevation:	4 ft	ID By:	G. Janos
Observers:	G. Janos, D. Batie, C. Birdsall							Start Time:	1956		End Time:	0056		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds		
	1956	73	2	Partly Cloudy	2226	68	1	0	0056	68	1	0		
Moon Effect:	Start: 1956		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe):											
	Stop: 0056		43 Mixed											
NETS/TRAPS:	A: 1x2H-9m		B: 1x2H-12m		C: 1x2H-4m		D: 1x2H-6m		E:		F:			
Pool size WxL	N/A		N/A		N/A		N/A							
Swoop WxL	N/A		N/A		N/A		N/A							
Photo? or #	tablet		tablet		tablet		tablet							
Site Description, other than Habitat Info covered on pg 3:					<p style="text-align: center;">See data sheet from 10-May</p> <p style="text-align: right;">Site sketch (label to match Nets/Traps above)</p>									
See datasheet from 9-May														

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MVSE 2019		County:	Dave	Site#:	1	Night#:	5	Site Name:	ARNWR01	Date:	11-May-2019		
Latitude:	35.827897				Longitude:	-75.903003			Datum:	NA083	Elevation:	4	ID By:	T. Wetzel G. Janos
Observers:	C. Birdsall, D. Batie							Start Time:	1957		End Time:	0057		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds		
	1957	73	0	75%	2227	73	1	100	0057	72	1	50%		
Moon Effect:	1st Quarter				Start:	1957		Stop:	2200				Land Use:	Urban / Agriculture / Forest / Water / Wetland / Barren (describe):
NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-12m	C: 1x2H-4m	D: 1x2H-6m	E: 1x3H-9m	F: 1x2H-9m	G: 1x2H-6m							
Pool size WxL	N/A		N/A		N/A		N/A							
Swoop WxL	N/A		N/A		N/A		N/A							
Photo? or #	tablet		tablet		tablet		tablet							
Site Description, other than Habitat Info covered on pg 3:	See datasheet from 9-May													
<p>Site sketch (label to match Nets/Traps above)</p>														

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Dare	Site#:	1	Night#:	6	Site Name:	ARNWR1	Date:	14-May-2019		
Latitude:	35.82789				Longitude:	-75.903003			Datum:	NAD 83	Elevation:	4ft	ID By:	G. James T. Wetzel
Observers:	D. Betie, C. Birdsell							Start Time:	2000		End Time:	0100		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds		
	2000	63	0	25	2230	56	0	25%	0100	55	1	25%		
Moon Effect:	Start: 2120				Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe):									
Wax Gib	Stop: 0100													
NETS/TRAPS:	A: 1x24-9m	B: 1x24-12m	C: 1x24-4m	D: 1x24-6m	E: 1x3H-9m	F: 1x24-9m	G: 1x24-6m							
Pool size WxL	N/A	N/A	N/A	N/A										
Swoop WxL	N/A	N/A	N/A	N/A										
Photo? or #	tablet	tablet	tablet	tablet										
Site Description, other than Habitat Info covered on pg 3:					<p>See data sheet from 9-May</p> <p>See data sheet from 11-May-2019</p> <p>Site sketch (label to match Nets/Traps above)</p>									

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799.7	County:	Dare	Site#:	L	Night#:	7	Site Name:	ARNWR01	Date:	3 June 2019	
Latitude:	35.827897	Longitude:	-75.903003	Datum:	NAD 83	Elevation:	4	ID By:	W. Seiter, N. Davis			
Observers:	C. Murray, C. Birdsell						Start Time:	2015	End Time:	0115		
Conditions:	Time 2015	Temp 68°F	Wind 0	Clouds 0%	Time 2245	Temp 63°F	Wind 0	Clouds 0	Time 0115	Temp 61°F	Wind 0	Clouds 0
Moon Effect:	New Moon (0%)			Start:	_____	Stop:	_____	Land Use:	Urban / Agriculture (Forest) / Water / Wetland / Barren (describe):			
NETS/TRAPS:	A: 1x3H-6	B: 1x <sup>2</sup> H-6	C: 1x2H-4	D: 1x2H-12	E: 1x2H-9	F: 1x2H-9	G: 1x3H-9					
Pool size WxL												
Swoop WxL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Photo? or #	Tablet	Tablet	Tablet	Tablet	Tablet	Tablet	Tablet	Tablet	Tablet	Tablet	Tablet	Tablet
Site Description, other than Habitat Info covered on pg 3:	<p>Mixed forest with sand roads leading to wolf pens, narrow fresh water ponds open to bats for Net B.</p> <p>L. styraciflua, P. taeda, Q. nigra, M. Cerifera, M. Virginia, S. tectoria</p>											
	<p>Site sketch (label to match Nets/Traps above)</p>											

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

<b>Project:</b> 799.04 NC DOT MYSE 2019	<b>County:</b> Dare	<b>Site#:</b> 1	<b>Night#:</b> 8	<b>Site Name:</b> ARNW01	<b>Date:</b> 4 June 2019							
<b>Latitude:</b> 35.827897		<b>Longitude:</b> -75.903003		<b>Datum:</b> NAD 83	<b>Elevation:</b>							
<b>Observers:</b> C. Bindsall				<b>Start Time:</b> 2015	<b>End Time:</b>							
<b>Conditions:</b>	<b>Time</b> 2015	<b>Temp</b> 74°F	<b>Wind</b> 0	<b>Clouds</b> 0%	<b>Time</b> 2245	<b>Temp</b> 61	<b>Wind</b> 0	<b>Clouds</b> 0	<b>Time</b> 0115	<b>Temp</b>	<b>Wind</b>	<b>Clouds</b>
<b>Moon Effect:</b> Waxing crescent (2%)		<b>Start:</b> _____ <b>Stop:</b> _____		<b>Land Use:</b> Urban / Agriculture / <u>Forest</u> / Water / Wetland / Barren (describe):								
<b>NETS/TRAPS:</b>	<b>A:</b> 1x3H-6	<b>B:</b> 1-2H-6	<b>C:</b> 1x2H-4	<b>D:</b> 1x2H-12	<b>E:</b> 1x2H-9	<b>F:</b> 1-2H-9	<b>G:</b> 1x3H-9					
<b>Pool size WxL</b>												
<b>Swoop WxL</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A					
<b>Photo? or #</b>	Tablet	Tablet	Tablet	Tablet	Tablet	Tablet	Tablet					
<b>Site Description, other than Habitat Info covered on pg 3:</b>												
See night 1 on 3 June 2019												
See Day 1 on 3 June 2019												
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799.7	County:	Dare	Site#:	1	Night#:	9	Site Name:	ARNWR01	Date:	9 June 19		
Latitude:	35.827897			Longitude:	-75.903003			Datum:	NAD83	Elevation:	4	ID By:	W. Seter
Observers:	C. memory						Start Time:	2018	End Time:	0118			
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2018	78	0	100%	2248	74	0	20%	0118				
Moon Effect:	Start: 2045		Land Use: Urban / Agriculture / <u>Forest</u> / Water / Wetland / Barren (describe):										
Waxing Crescent	Stop: 0007												
NETS/TRAPS:	A: 1x2 H-6	B: 1x2 H-6	C: -	D: 1x2 H-12	E: 1x2 H-9	F: -							
Pool size WxL													
Swoop WxL	NA	NA		NA	NA								
Photo? or #													
<b>Site Description, other than Habitat Info covered on pg 3:</b> See night 1 - 3 June 19  See day 1 - 3 June 19  <div style="text-align: right;">Site sketch (label to match Nets/Traps above)</div>													

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799.7	County:	Dare	Site#:	1	Night#:	10	Site Name:	ARNWR01	Date:	10 June 19	
Latitude:	35.627897	Longitude:	-75.903003	Datum:	NAD83	Elevation:	4	ID By:	W Seiter			
Observers:	C. Memory						Start Time:	2019	End Time:			
Conditions:	Time 2019	Temp 79	Wind 0	Clouds 90%	Time 2249	Temp 75	Wind 2	Clouds 70%	Time 0119	Temp 76	Wind 1	Clouds 90%
Moon Effect:	1st Quarter		Start:	2148	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe):							
			Stop:									
NETS/TRAPS:	A: 1x2 H-6	B: 1x2 H-6	C: -	D: 1x2 H-21	E: 1x2 H-9	F: -						
Pool size WxL												
Swoop WxL	NA	NA		NA	NA							
Photo? or #												
Site Description, other than Habitat Info covered on pg 3:				See night 1 3 June 19								
See night 1 3 June 19												
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project: 799	County: Dare	Site#: 1	Night#: 11	Site Name: ARNWR 1	Date: 6/21/19							
Latitude: 35.827897	Longitude: -75.903003	Datum: NAD 83	Elevation: 4 Ft	ID By: Eaton, Bruce								
Observers: R. Eaton, Z. Eaton, G. M. Pearson, K. Staudter	Start Time: 2021	End Time: 0121										
Conditions:	Time: 2021	Temp: 75	Wind: 0	Clouds: 75%	Time: 2321	Temp: 71	Wind: 0	Clouds: 75%	Time: 0121	Temp: 69	Wind: 0	Clouds: 5%
Moon Effect: Wan Gibbons	Start: N/A	Stop: N/A	Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren (describe): 43 forest									
NETS/TRAPS:	A: 1x2H-6m	B: 1x2H-12m	C: 1x2H-9m	D: 1x2H-9m	E:	F:						
Pool size WxL	N/A	N/A	N/A	N/A								
Swoop WxL	N/A	N/A	N/A	N/A								
Photo? or #	Zack's Tablet	Zack's Tablet	Zack's Tablet	Zack's Tablet								
Site Description, other than Habitat Info covered on pg 3:			<p>Site sketch (label to match Nets/Traps above)</p>									
<p>Net E: 1x2H-6m</p> <p>Net F: 1x3H-9m</p> <p>Net G: 1x2H-9m</p> <p>Net H: 1x2H-6m</p> <p>See previous data sheet for ARNWR1 for site Description &amp; Dominant plant species</p>												

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project: 799	County: Dare	Site#: 1	Night#: 12	Site Name: ARNWR1	Date: 6/22/19							
Latitude: 35.827899		Longitude: -75.903003		Datum: NAD 83	Elevation: 45+							
Observers: R. Eaton, Z. Bauer, C. Stauffer, M. Pacion				Start Time: 2023	End Time: 0123							
Conditions:	Time: 2023	Temp: 71	Wind: 0	Clouds: 100%	Time: 2323	Temp: 67	Wind: 0	Clouds: 50%	Time: 0123	Temp: 65	Wind: 0	Clouds: 0%
Moon Effect: Waning Gibbous	Start: N/A	Stop: N/A	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): 43 Forest									
NETS/TRAPS:	A: 1xZH-6m	B: 1xZH-12m	C: 1xZH-9m	D: 1xZH-9m	E:	F:						
Pool size WxL	N/A	N/A	N/A	N/A								
Swoop WxL	N/A	N/A	N/A	N/A								
Photo? or #	Zack's Tablet	Zack's Tablet	Zack's Tablet	Zack's Tablet								
Site Description, other than Habitat Info covered on pg 3:			<p>Site sketch (label to match Nets/Traps above)</p>									
Net E: 1xZH-6m												
Net F: 1xZH-9m												
Net G: 1xZH-9												
Net H: 1xZH-6												
See previous data sheet for ARNWR1 For site description and dominant plant species												

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799		County:	Dare		Site#:	1		Night#:	13		Site Name:	ARNWR1		Date:	07/07/19		
Latitude:	35.827897				Longitude:	-75.903003				Datum:	NA083		Elevation:	4ft		ID By:	W. Seiter	
Observers:	W. Seiter, K. Palumbo								Start Time:	20:22			End Time:	2200				
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds		
	20:15	79°	1	100%	-	-	-	-	-	-	-	-	-	-	-	-		
Moon Effect:	N/A		Start:	-		Land Use:	Urban / Agriculture / Forest / Water / Wetland / Barren (describe): forested wetland (6) Mixed 43											
			Stop:	-														
NETS/TRAPS:	A: 1x2-6m		B: 1x2-9m		C: 1x2-6m		D: 1x2-6m		E:			F:						
Pool size WxL	-		-		-		-											
Swoop WxL	-		-		-		-											
Photo? or #	Will's Ptnc		Will's Ptnc		Will's Ptnc		Will's Ptnc											
<b>Site Description, other than Habitat Info covered on pg 3:</b> See datasheet from 9 May 19  Run at         																		
Site sketch (label to match Nets/Traps 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 **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: 799		County: Dare			Site #: 1		Night# 13		Site Name: ARNWR01			Date: 07/07/19		
	TIME	SPECIES	Sex	Age	P/L/PL/ NR	FA	Bag WT	WT	Net #	Height	Band / WS	Temp (F)	Comment / Photo #	
1	2105	MV0SEP	M	J	NR	36.5	0	6.25	A	0	-	79	Tan small To Band	
2													(5. James captured wing punch	
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														

Rain out @ 2200

# NCDOT Mist-Netting Data Form

Project:	799	County:	Dare	Site#:	1	Night#:	14	Site Name:	ARNWR1	Date:	07/08/19	
Latitude:	35.827897	Longitude:	-75.903003	Datum:	NA083	Elevation:	4ft	ID By:	W. Seiter			
Observers:	K. Palumbo						Start Time:	20:22	End Time:	01:22		
Conditions:	Time 20:22	Temp 76°	Wind 0	Clouds 70%	Time 22:52	Temp 76°	Wind 0	Clouds 70%	Time 01:22	Temp 75	Wind 1	Clouds 50%
Moon Effect:	Waxing Crescent		Start:	-		Land Use: Urban / Agriculture / <u>Forest</u> / Water / Wetland / Barren (describe): Mixed 43						
NETS/TRAPS:	A: 1x2-6m	B: 1x2-9m	C: 1x2-6m	D: 1x2-6m	E:	F:						
Pool size WxL	-		-		-							
Swoop WxL	-		-		-							
Photo? or #	Will's Phone	Will's Phone	Will's Phone	Will's Phone								
Site Description, other than Habitat Info covered on pg 3:				see datasheet from 9 May 19								
See datasheet from 9 May 19												

Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799	County:	Dare	Site#:	1	Night#:	15	Site Name:	ARNWR 1	Date:	07/09/19	
Latitude:	35.827897	Longitude:	-75.903003	Datum:	NAD83	Elevation:	4 ft.	ID By:	W. Seiter			
Observers:	K. Palumbo						Start Time:	20:22	End Time:	01:22		
Conditions:	Time 20:22	Temp 76°	Wind Ø	Clouds Ø%	Time 22:52	Temp 79	Wind Ø	Clouds Ø	Time 01:22	Temp 70	Wind Ø	Clouds Ø
Moon Effect:	1 <sup>st</sup> quarter	Start:	20:22	Land Use: Urban / Agriculture / <u>Forest</u> / Water / Wetland / Barren (describe): Mixed 45								
		Stop:	01:24									
NETS/TRAPS:	A: 1x2-6m	B: 1x2-9m	C: 1x2-6m	D: 1x2-6m	E:	F:						
Pool size WxL	—	—	—	—	—	—						
Swoop WxL	—	—	—	—	—	—						
Photo? or #	Will's Phone	Will's Phone	Will's Phone	Will's Phone								
Site Description, other than Habitat Info covered on pg 3:	see datasheet from 9 May 19											

Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MISE 20 <sup>th</sup>		County:	Dare	Site#:	1	Night#:	16	Site Name:	ARNWR1	Date:	14 July 2019	
Latitude:	35.827897			Longitude:	-75.903003			Datum:	NAD83	Elevation:	4ft	ID By:	T. Wetzel
Observers:	M. Partin							Start Time:	2020	End Time:	0120		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2020	82	0	45%	22:50	81	0	35					
Moon Effect:	Wax Gib		Start:	—	Land Use:	Urban / Agriculture / Forest / Water / <del>Wetland</del> / Barren (describe): 43 Forested wetland							
NETS/TRAPS:	A: 1x2H-12m	B: 1x2H-9m	C: 1x2H-6m	D: 1x3H-9m	E: —	F: —							
Pool size WxL	4x100m	—	1.5x1m	—	—	—	—	—	—	—	—	—	
Swoop WxL	unlimited	—	unlimited	—	—	—	—	—	—	—	—	—	
Photo? or #	—	—	—	—	—	—	—	—	—	—	—	—	
Site Description, other than Habitat Info covered on pg 3:				<p>Site sketch (label to match Nets/Traps above)</p>									
refer to previous data sheet from —													

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



Project: NCDOT MYSE 2019 County: Dare Site#: 1 Night#: 17 Site Name: ARNWR1  
Latitude: Longitude: Datum: NAD-83 Elevation: Date: 15 July 2019

Observers: Melonie Partin ID By: Theresa Wetzel Start Time: 20:20 End Time: 01:20

Conditions:

Time: 2020	Temp: 83	Wind: 0	Clouds: 0	Time: 2250	Temp: 79	Wind: 0	Clouds: 0
Time: 0120	Temp: 79	Wind: 0	Clouds: 0				

Land Use: Forested Wetland

Moon Effect: start: N/A

Wax Gibb 99% stop: N/A

Nets/Traps: A: 1x 2H-12m

Pool size (WxD): 4x100m

Swoop WxL: unlimited

Photo? or #: —

B: 1x 2H-9m  
1.5m x 1m

unlimited

—

C: 1x 2H-6m

—

—

—

D: 1x 3H-9m

—

—

—

Site Description: refer to previous data sheet from —.

Dominant Tree species:

Site sketch: refer to previous data sheet from 14 July 2019.



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 Data Form

Project:	E.NC.MYSE 2019		County:	DARE		Site#:	5	Night#:	1	Site Name:	ARNWR2019-5		Date:	28 APRIL 2019		
Latitude:	35.803570				Longitude:	-75.88571				Datum:	WGS84		Elevation:	-		
Observers:	Jeremy Plauger								Start Time:	19:40		End Time:	00:45			
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds				
	19:40	74	1	0	22:20	68	0	0	00:45	60	0	0				
Moon Effect:	Start: -		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe):													
	Stop: -		43 mixed													
NETS/TRAPS:	A: 1x24x9	B: 1x24x9	C: 1x34x9	D: 1x24x12	E:	F:										
Pool size WxL	-	-	-	-	-	-										
Swoop WxL	-	-	-	-	-	-										
Photo? or #	-	-	-	-	-	-										
Site Description, other than Habitat Info covered on pg 3:	<p>The sketch shows a site layout with a 'canal' at the top, 'Milltail Road' below it, another 'canal' below the road, and a 'Pond' on the right. A large area on the left is labeled 'FORESTED WETLAND'.</p>															
	Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Dare	Site#:	5	Night#:	2	Site Name:	ARNWRO5	Date:	12 May 19	
Latitude:	35.80357			Longitude:	-75.88571			Datum:	NAD83	Elevation:	3	ID By:	T. Netzel
Observers:	T. Netzel, C. Birdsall						Start Time:	2002		End Time:	0102		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2000	73	1	75%	2230	73	0	100%	0100	71	0	100%	
Moon Effect:	Start:		Land Use: Urban / Agriculture / <u>Forest</u> / Water / <u>Wetland</u> / Barren (describe):										
First Quarter	Stop:		Forested 61										
NETS/TRAPS:	A: 1x3H-9m	B: 1x2H-6m	C: 1x2H-12m	D: 1x2H-12m	E:	F:							
Pool size WxL	—		2x4		—		—		—		—		
Swoop WxL	—		unlim		—		—		—		—		
Photo? or #	CB Phone		CB Phone		CB Phone		CB Phone		—		—		
Site Description, other than Habitat Info covered on pg 3:				<p>Site sketch (label to match Nets/Traps above)</p>									
Acer rubrum, Liquidambar													
Syracilla, Pinus taeda													

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Military Rd

<b>Project:</b> NCDOTMISE	<b>County:</b> Dare	<b>Site#:</b> 5	<b>Night#:</b> 3	<b>Site Name:</b> ARNWRO5	<b>Date:</b> 13 May 19							
<b>Latitude:</b> 35.80357		<b>Longitude:</b> -75.88571		<b>Datum:</b> NAD 83	<b>Elevation:</b> 3							
<b>Observers:</b> T. Wetzel C. Birdsall				<b>Start Time:</b> 2002	<b>End Time:</b> 0102							
<b>Conditions:</b>	<b>Time</b> 2000	<b>Temp</b> 66	<b>Wind</b> 0	<b>Clouds</b> 100%	<b>Time</b> 22:30	<b>Temp</b> 62	<b>Wind</b> 2	<b>Clouds</b> 100%	<b>Time</b> 0100	<b>Temp</b> 58	<b>Wind</b> 1	<b>Clouds</b> 25%
<b>Moon Effect:</b> WAX Gib	<b>Start:</b> —	<b>Land Use:</b> Urban / Agriculture / <u>Forest</u> / Water / <u>Wetland</u> / Barren (describe): Forested 61										
<b>NETS/TRAPS:</b>	<b>A:</b> 1x3H-9m	<b>B:</b> 1x2H-6m	<b>C:</b> 1x2H-12m	<b>D:</b> 1x2H-12m	<b>E:</b> —	<b>F:</b> —						
<b>Pool size WxL</b>	—	2x4	—	—	—	—						
<b>Swoop WxL</b>	—	unim	—	—	—	—						
<b>Photo? or #</b>	CB Phone	CB Phone	CB Phone	CB Phone	—	—						
<b>Site Description, other than Habitat Info covered on pg 3:</b>												
Acer rubrum, Liquidambar												
Styraciflra, Pinus taeda												
See night 1 on 12 May 2019												
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

*Mittail Rd*

Project: <i>NCDOT MYSEADP</i>		County: <i>DARE</i>		Site#: <i>5</i>	Night#: <i>4</i>	Site Name: <i>ARNWR05</i>		Date: <i>2 June 19</i>				
Latitude: <i>35.80357</i>			Longitude: <i>-75.88571</i>			Datum: <i>NAD83</i>	Elevation: <i>3</i>	ID By: <i>Nikki Paves</i>				
Observers: <i>C. Birdsall</i>						Start Time: <i>2014</i>		End Time: <i>0114</i>				
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	<i>2015</i>	<i>71</i>	<i>0</i>	<i>01</i>	<i>2215</i>	<i>64</i>	<i>0</i>	<i>01</i>	<i>0015</i>	<i>61</i>	<i>0</i>	<i>01</i>
Moon Effect: <i>Waxing Crescent</i>		Start: <i>N/A</i>		Land Use: <i>Urban / Agriculture / Forest / Water / Wetland / Barren (describe):</i>								
		Stop: <i>N/A</i>		<i>Forested</i>								
NETS/TRAPS:		A: <i>1x3Hx18m</i>		B: <i>1x2Hx6m</i>		C: <i>1x3Hx6m</i>		D: <i>1x2Hx12m</i>		E:		F:
Pool size WxL		<i>—</i>		<i>—</i>		<i>2x4</i>		<i>—</i>				
Swoop WxL		<i>—</i>		<i>—</i>		<i>Unlim</i>		<i>—</i>				
Photo? or #		<i>Tablet</i>		<i>Tablet</i>		<i>Tablet</i>		<i>Tablet</i>				
Site Description, other than Habitat Info covered on pg 3:				<p style="text-align: center;">Site sketch (label to match Nets/Traps above)</p>								
<i>Acer rubrum, Liquidambar</i>												
<i>Styraciflua, Pinus taeda</i>												

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

<b>Project:</b> NCDOT MISE 2019	<b>County:</b> Dare	<b>Site#:</b> 5	<b>Night#:</b> 5	<b>Site Name:</b> ARNWRO5	<b>Date:</b> 2 June 19
<b>Latitude:</b> 35.80357	<b>Longitude:</b> -75.88571			<b>Datum:</b> NAD 83	<b>Elevation:</b> 3
<b>Observers:</b> Crystal Birdsell				<b>Start Time:</b> 2015	<b>End Time:</b> 01:15
<b>Conditions:</b>	<b>Time:</b> 2015	<b>Temp:</b> 78	<b>Wind:</b> 1	<b>Clouds:</b> 100%	
<b>Moon Effect:</b> Waning Crescent	<b>Start:</b> N/A	<b>Stop:</b> N/A	<b>Land Use:</b> Urban / Agriculture / <u>Forest</u> / Water / <u>Wetland</u> / Barren (describe): Forested 61		
<b>NETS/TRAPS:</b>	<b>A:</b> 1x24x18m	<b>B:</b> 1x24x16m	<b>C:</b> 1x34x16m	<b>D:</b> 1x24x12m	<b>E:</b>
<b>Pool size WxL</b>	_____	_____	_____	_____	
<b>Swoop WxL</b>	_____	_____	_____	_____	
<b>Photo? or #</b>	Tablet	Tablet	Tablet	Tablet	
<b>Site Description, other than Habitat Info covered on pg 3:</b>			<p style="text-align: center;">Same as Night 1 on June 1, 2019</p> <p style="text-align: right;">Site sketch (label to match Nets/Traps above)</p>		
Acer rubrum, Liquidambar styraciflua					
Pinus taeda					

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	E. N.C. MYSE 2019		County:	DARE		Site#:	5	Night#:	6	Site Name:	ARNWR5		Date:	18 June 2019	
Latitude:	35.80357				Longitude:	-75.88571				Datum:	NAD 83		Elevation:	-	
Observers:	D. Batie								Start Time:	22:15			End Time:	1:20	
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds			
	20:20	80	0	0	22:50	77	0	0	1:20	72	0	0			
Moon Effect:	waxing gibbous 80%		Start:												
			Stop:												
Land Use:	Urban / Agriculture / Forest / Water / Wetland / Barren (describe): Forested 61														
NETS/TRAPS:	A: 1x2Hx9m		B: 1x2Hx9m		C: 1x3Hx9m		D: 1x2Hx12m		E:			F:			
Pool size WxL															
Swoop WxL															
Photo? or #															
Site Description, other than Habitat Info covered on pg 3:	<p>Site sketch (label to match Nets/Traps above)</p>														

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Dare		Site#:	5	Night#:	7	Site Name:	ARNWR5		Date:	8 July 2019		
Latitude:	35.80357				Longitude:	-75.88.571				Datum:	NAD83		Elevation:	3		
Observers:	M. Partin								Start Time:	2022		End Time:	0122			
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds				
	2022	79	0	4	2252	77	0	4	0122	76	0	3				
Moon Effect:	1st quarter			Start:	1222		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe):									
				Stop:	0051		Forested Wetland									
NETS/TRAPS:	A: 1x 3H-9m		B: 1x 2H-6m		C: 1x 2H-12m		D: 1x 2H-12m		E: —		F: —					
Pool size WxL	—		2x4m		—		—		—		—					
Swoop WxL	—		unlim.		—		—		—		—					
Photo? or #	—		—		—		—		—		—					
Site Description, other than Habitat Info covered on pg 3:					<p style="text-align: center; font-size: 2em;">Same as 12 May 19</p> <p style="text-align: center; font-size: 0.8em;">Site sketch (label to match Nets/Traps above)</p>											

\*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 **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 MSE 2019 County: Dare Site #: 5 Night# 7 Site Name: ARNWR5 Date: July 8, 2019

	TIME	SPECIES	Sex	Age	P/L/PL/ NR	FA	Bag WT	WT	Net #	Height	Band / WS	Temp (F)	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

# NCDOT Mist-Netting Data Form

Project:	NC-DOT MYSE 2019		County:	Dare	Site#:	5	Night#:	8	Site Name:	ARNWR5	Date:	July 9, 2019						
Latitude:	35.80357			Longitude:	-75.88571			Datum:	NAD-83	Elevation:	3	ID By:	Theresa Wetzel					
Observers:	Melanie Partin							Start Time:	2022		End Time:	0122						
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds						
	2022	74	0	0	2252	71	0	0	0122	71	0	0						
Moon Effect:	1st Quarter			Start:	2100			Land Use:	Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe):									
				Stop:	—													
NETS/TRAPS:	A:	1x3-9m		B:	1x2-6m		C:	1x2-12m		D:	1x2-12m		E:	—		F:	—	
Pool size WxL	N/A		2x4m		N/A		N/A		N/A		N/A		—		—		—	
Swoop WxL	N/A		Unlimited		N/A		N/A		N/A		N/A		—		—		—	
Photo? or #	—		—		—		—		—		—		—		—		—	
Site Description, other than Habitat Info covered on pg 3:													<p>see previous data sheet from July 8, 2019</p> <p>see previous data sheet from July 8, 2019</p>					
see previous data sheet from July 8, 2019																		
													Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Dare	Site#:	0	Night#:	1	Site Name:	ARNWR00	Date:	9-May-2019	
Latitude:	35.831415			Longitude:	-75.904015			Datum:	NAD83	Elevation:	5	ID By:	T. Wetzel
Observers:	C. Birdsall							Start Time:	1959	End Time:	0059		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	1959	73	0	50%	2230	66	1	0	0059	63	0	0	
Moon Effect:	None		Start:	—		Stop:	—		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): Forested Wetland 61				
NETS/TRAPS:	A: 1x2H; 12m	B: 1x2H; 4m	C: 1x2H; 6m	D: 1x2H; 6m	E: —	F: —							
Pool size WxL	—		—		—		—		—		—		
Swoop WxL	—		—		—		—		—		—		
Photo? or #	CB Phone		CB Phone		CB Phone		CB Phone		—		—		
Site Description, other than Habitat Info covered on pg 3:				<p>Site sketch (label to match Nets/Traps above)</p>									
Site is along an old portion of Sandy Ridge Road that is no longer maintained. Forested wetland on both sides of road. Roost trees identified south of road in swamp.													

\*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 mist net sites, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	DARE	Site#:	10	Night#:	2	Site Name:	ARNWR06	Date:	10 May 2019	
Latitude:	35.8314			Longitude:	-75.9040			Datum:	NAD83	Elevation:	5	ID By:	T. Wetzel
Observers:	C. Birdsall							Start Time:	2000		End Time:	0100	
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2000	73	1	50%	2230	73	0	50%	0100	70	0	0%	
Moon Effect:	WAX CRESC		Start:	—	Land Use: Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe): Forested Wetland 6/								
NETS/TRAPS:	A: —	B: 1x2H; 4m		C: —	D: 1x2H; 6m		E: 7x3H; 12m		F: 1x2H; 9m				
Pool size WxL	—	—		—	—		12m x 20m		6m x 20m				
Swoop WxL	—	—		—	—		9m x 15m		4m x 6m				
Photo? or #	—	—		—	—		CB phone		CB phone				
Site Description, other than Habitat Info covered on pg 3:				<p>Site sketch (label to match Nets/Traps above)</p>									
Site is along an old portion of Sandy Ridge rd that is no longer maintained. Forested wetland on both sides of road. Roost trees identified south of road in swamp.													

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

<b>Project:</b> NCDOT MYSE 2019	<b>County:</b> Dare	<b>Site#:</b> 6	<b>Night#:</b> 3	<b>Site Name:</b> ARNWR 6	<b>Date:</b> 3 June 2019							
<b>Latitude:</b> 35.8314	<b>Longitude:</b> -75.9040		<b>Datum:</b> NAD 83	<b>Elevation:</b> 5ft	<b>ID By:</b> G. Janos							
<b>Observers:</b> G. Janos, I. Burns			<b>Start Time:</b> 2015		<b>End Time:</b> 0115							
<b>Conditions:</b>	<b>Time</b> 2015	<b>Temp</b> 65	<b>Wind</b> 0	<b>Clouds</b> 0	<b>Time</b> 2245	<b>Temp</b> 60	<b>Wind</b> 0	<b>Clouds</b> 0	<b>Time</b> 0115	<b>Temp</b> 59	<b>Wind</b> 0	<b>Clouds</b> 0
<b>Moon Effect:</b> New	<b>Start:</b> N/A	<b>Land Use:</b> Urban / Agriculture / Forest / Water / Wetland / Barren (describe): Forested wetland 61										
<b>NETS/TRAPS:</b>	<b>A:</b> N/A	<b>B:</b> 1x2H-4m	<b>C:</b> N/A	<b>D:</b> 1x2H-6m	<b>E:</b> 1x3H-12m	<b>F:</b> 1x2H-9m						
Pool size WxL	N/A	N/A	N/A	N/A	12m x 20m	6m x 20m						
Swoop WxL	N/A	N/A	N/A	N/A	9m x 15m	4m x 6m						
Photo? or #		tablet										
<b>Site Description, other than Habitat Info covered on pg 3:</b>												
Same as 10 May 2019 Data sheet												
Same as 10 May 2019 data sheet												
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).







# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 19		County:	Dare	Site#:	6	Night#:	5	Site Name:	ARNWRO6	Date:	13 June 19		
Latitude:	35.8314				Longitude:	-75.9090			Datum:	NAD 83	Elevation:	5ft	ID By:	WA Souter
Observers:	C. Mcmurry							Start Time:	2020		End Time:			
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds		
	2020	75°F	1	40%	2250	72	2	40%	0120	71	1	50%		
Moon Effect:	Waxing Gibbous				Start:	2020			Land Use: Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe): Forested 61					
NETS/TRAPS:	A: 1x2H 12m		B: 1x2H 9m		C: 1x2H 6m		D: 1x2H 4m		E:	F:				
Pool size WxL	NA		NA		NA		NA							
Swoop WxL	NA		NA		NA		NA							
Photo? or #	Catching Phone →		→		→		→							
Site Description, other than Habitat Info covered on pg 3:					<p>Site sketch (label to match Nets/Traps above)</p>									
Same as 10 May 2019														

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MUSE 19		County:	Dare	Site#:	6	Night#:	6	Site Name:	ARNWROG	Date:	14 June 11
Latitude:	35.8314		Longitude:	-75.9040		Datum:	NA83	Elevation:	5ft	ID By:	W. Scito	
Observers:	C. Memurry						Start Time:	2020		End Time:		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2020				2250				0120			
Moon Effect:	Waxing Gibbous		Start:	2020		Land Use: Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe):						
			Stop:			Forested Wetland 61						
NETS/TRAPS:	A: 1x2H 12m	B: 1x2H 9m	C: 1x2H 6m	D: 1x2H 4m	E:	F:						
Pool size WxL	NA		NA		NA		NA					
Swoop WxL	NA		NA		NA		NA					
Photo? or #												
Site Description, other than Habitat Info covered on pg 3:					<p>Same as 13 June 19</p> <p style="text-align: right;">Site sketch (label to match Nets/Traps above)</p>							
Same as 10 May 19												

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project: Eastern NCMISE	County: Davie	Site#: 6	Night#: 7	Site Name: ARNWR6	Date: 21 JUN 2019							
Latitude: 35.831915	Longitude: -75.904015	Datum: NAD83	Elevation: 5	ID By: S Patterson								
Observers: D. Batile	Start Time: 2022	End Time: 0122										
Conditions:	Time: 2022	Temp: 79	Wind: 0	Clouds: 0	Time: 2300	Temp: 73	Wind: 1	Clouds: 1	Time: 0122	Temp: 73	Wind: 1	Clouds: 1
Moon Effect:	Start: N/A	Stop: N/A	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): forested - 6									
NETS/TRAPS:	A: 1x3Hx12m	B: 1x2Hx6m	C: 1x2Hx6m	D: 1x2Hx6m	E:	F:						
Pool size WxL												
Swoop WxL												
Photo? or #												
Site Description, other than Habitat Info covered on pg 3:	<p>see data sheet from</p> <p>Site sketch (label to match Nets/Traps above)</p>											

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	Eastern meadowlark		County:	Dauphin	Site#:	6	Night#:	8	Site Name:	ARNWFL0	Date:	22 JUN 2019	
Latitude:	35.831415			Longitude:	-75.909015			Datum:	NAD83	Elevation:	5	ID By:	S. PATTERSON
Observers:	D. Batie							Start Time:	2022		End Time:	0122	
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2022	72	0	2	2330	68	0	0	0122	64	0	0	
Moon Effect:	WAXING GIB		Start:	MA		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): Forested Co							
NETS/TRAPS:	A: 1x3Hx12m		B: 1x2Hx6m		C: 1x2Hx6m		D: 1x2Hx6m		E:		F:		
Pool size WxL													
Swoop WxL													
Photo? or #													
Site Description, other than Habitat Info covered on pg 3:					<p style="text-align: center; font-size: 2em;">See data sheet from 21 JUNE 2019</p> <p style="text-align: right; font-size: 0.8em;">Site sketch (label to match Nets/Traps above)</p>								

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



**(Night 9)** Netted 7/7/19, Rain out, @26  
 NO captures, no datasheet  
 net placement same as 7/8/

**NCDOT Mist-Netting Data Form**

<b>Project:</b> NCDOT MYSE 2019	<b>County:</b> Dare	<b>Site#:</b> 6	<b>Night#:</b> 10	<b>Site Name:</b> ARNWR6	<b>Date:</b> 8 July 2019							
Latitude: 35.8314		Longitude: -75.9040		Datum: NAD 83	Elevation: 577							
Observers: G. Janos, G. Stauffer				Start Time: 2022	End Time: 0100							
<b>Conditions:</b>	Time: 2022	Temp: 75	Wind: 0	Clouds: 100%	Time: 2052	Temp: 76	Wind: 0	Clouds: 100	Time: 0122	Temp: 75	Wind: 0	Clouds: 0
Moon Effect: 1 <sup>st</sup> quarter		Start: N/A	Stop: N/A	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): Forested wetland 61								
<b>NETS/TRAPS:</b>	A: 1x3H-9m	B: 1x2H-9m	C: 1x2H-6m	D: 1x2H-12m	E:	F:						
Pool size WxL	N/A	N/A	N/A	12m x 20m								
Swoop WxL	N/A	N/A	N/A	9m x 15m								
Photo? or #												
<b>Site Description, other than Habitat Info covered on pg 3:</b>				<p>Site sketch (label to match Nets/Traps above)</p>								
Same as 10 May 2019												
data sheet												

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

<b>Project:</b> NCDOTM <sup>2019</sup> 55E	<b>County:</b> Davie	<b>Site#:</b> 6	<b>Night#:</b> 11	<b>Site Name:</b> ARNWR6	<b>Date:</b> 9 July 2017			
Latitude: 35.8314		Longitude: -75.9040		Datum: NAD83	Elevation: 5 FT			
Observers: G. Jones, G. Skuffler				Start Time: 2022	End Time: 0132			
<b>Conditions:</b>	Time: 2022	Temp: 73	Wind: 0	Clouds: 0	Time: 0122	Temp: 69	Wind: 0	Clouds: 0
<b>Moon Effect:</b> 1 <sup>st</sup> quarter	Start: 2022	Stop: 0000	<b>Land Use:</b> Urban / Agriculture / Forest / Water / Wetland / Barren (describe): Forested area					
<b>NETS/TRAPS:</b>	<b>A:</b> 1x30-9m	<b>B:</b> 1x20-4m	<b>C:</b> 1x20-3m	<b>D:</b> 1x20-12	<b>E:</b>	<b>F:</b>		
Pool size WxL				12m x 20m				
Swoop WxL	N/A	N/A	N/A	9m x 15m				
Photo? or #								
<b>Site Description, other than Habitat Info covered on pg 3:</b>			Same as data sheet for 10 May 2017 and 8 July 2017					
Same as 10 May 2017								
8 July 2017								
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).











# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Dare	Site#:	9	Night#:	1	Site Name:	ARNWR 9	Date:	7-May-2019	
Latitude:	35.7912			Longitude:	-75.8723			Datum:	NAD 83	Elevation:	-7ft	ID By:	Gregg Janos
Observers:	Gregg Janos, Daniel Batie							Start Time:	1954	End Time:	0054		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	1954	21	0	Clear	2224	53	0	Clear	0054	51	0	Clear	
Moon Effect:	wax crescent			Start:	1954	Stop:	2230	Land Use: Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe):					
								61 Forested					
NETS/TRAPS:	A: 1x2H-12m	B: 1x2H-4m	C: 1x2H-4m	D: 1x2H-12m	E:	F:							
Pool size WxL	N/A	N/A	2.0m x 9.0m	N/A									
Swoop WxL	N/A	N/A	4m x Unlim	N/A									
Photo? or #	On tablet	On tablet	On tablet	On tablet									
Site Description, other than Habitat Info covered on pg 3:				<p>Site sketch (label to match Nets/Traps above)</p>									
Fairly cluttered Pine/Hardwood													
bottomland forest. Moderate amount													
of water resources available in the													
form of road cuts and canals. No													
good roost-habitat observed. Land													
cover is all natural with no development.													

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



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 small road-cuts with water on trail

# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Dare	Site#:	9	Night#:	2	Site Name:		Date:	8-May-2019
Latitude:	35.7912			Longitude:	-75.8723			Datum:	NAD 83	Elevation:	-7ft	
Observers:	Gregg Jones, Daniel Batic							Start Time:	1955		End Time:	0055
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1955	69	0	Clear	2225	57	0	Clear	0055	54	0	Clear
Moon Effect:	Start: 1955		Land Use: Urban / Agriculture / Forest / Water (Wetland) / Barren (describe):									
wax cres	Stop: 2345		61 Forested									
NETS/TRAPS:	A: 1x2H-12m	B: 1x2H-4m	C: 1x2H-4m	D: 1-2H-12m	E:	F:						
Pool size WxL			2.0m x 5.0m									
Swoop WxL	N/A	N/A	4.0m x Unk.m	N/A								
Photo? or #	tablet	tablet	tablet	tablet								
Site Description, other than Habitat Info covered on pg 3:				<p>See Night 1 data sheet</p> <p>See Night 1 data sheet</p> <p>Site sketch (label to match Nets/Traps above)</p>								
See Night 1 data sheet												

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Dare	Site#:	9	Night#:	3	Site Name:	ARNWR 9	Date:	1 June 2019		
Latitude:	35.7912				Longitude:	-75.8723			Datum:	NAD 83	Elevation:	-7ft	ID By:	G. Janos
Observers:	G. Janos, I. Burns							Start Time:	2014		End Time:	0114		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds		
	2014	67	0	0	2244	59	0	0	0114	57	0	0		
Moon Effect:	Wan Cres				Start:	N/A			Land Use:	Urban / Agriculture / Forest / Water / Wetland / Barren (describe):				
					Stop:	N/A				61 Forested				
NETS/TRAPS:	A: 1x2H-12m		B: 1x2H-4m		C: 1x2H-4m		D: 1x2H-12m		E:		F:			
Pool size WxL					2.0m x 5.0m									
Swoop WxL	N/A		N/A		4.0m x unlim		N/A							
Photo? or #					N/A									
Site Description, other than Habitat Info covered on pg 3:					<p>See data sheet from 5/7/2019</p> <p>See data sheet from 5/7/2019</p> <p>Site sketch (label to match Nets/Traps above)</p>									
See data sheet from 5/7/2019														

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Dare	Site#:	9	Night#:	4	Site Name:	ARNWR9	Date:	2 June 2019		
Latitude:	35.7912				Longitude:	-75.8723			Datum:	NAD 83	Elevation:	-7ft	ID By:	G. Janos
Observers:	G. Janos							Start Time:	2015		End Time:	0115		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds		
	2015	70	0	100%	2215	66	0	0%	0115	66	0	0%		
Moon Effect:	New		Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe):										
			Stop:	61 Forested										
NETS/TRAPS:	A: 1x2H-12m	B: 1x2H-4m	C: 1x2H-4m	D: 1x2H-12m	E:	F:								
Pool size WxL			2.0m x 5.0m											
Swoop WxL	N/A	N/A	4.0m x unlimited	N/A										
Photo? or #			N/A											
Site Description, other than Habitat Info covered on pg 3:				<p>See data sheet from 5/7/2019</p> <p>See data sheet from 5/7/2019</p> <p>Site sketch (label to match Nets/Traps above)</p>										
See datasheet from 5/7/2019														

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 19		County:	Dare	Site#:	9	Night#:	5	Site Name:	ARNWR09	Date:	11 June 19		
Latitude:	35.79123				Longitude:	-75.87230			Datum:	NAD83	Elevation:	-7ft	ID By:	W. Seifer
Observers:	C. Memory							Start Time:	2019		End Time:	0119		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds		
	2019	67	2	10%	2249	59	0	10%	0119	56	0	0		
Moon Effect:	Waxing Gibbous				Start:	2019			Land Use:	Urban / Agriculture / Forest / Water / Wetland / Barren (describe): Forest 61				
					Stop:	0119								
NETS/TRAPS:	A: 1x2H-9m		B: 1x2Hx6m		C: 1x2H-6m		D: 1x2H-4m		E:		F:			
Pool size WxL	NA		NA		4x7		1x4							
Swoop WxL	NA		NA		Unlimited		Unlimited							
Photo? or #	-		-		-		-							
Site Description, other than Habitat Info covered on pg 3:					<p style="text-align: center;">See night 1 - 1 June 2019</p> <p style="text-align: center;">Site sketch (label to match Nets/Traps above)</p>									
See night 1 - 1 June 2019														

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 19		County:	Dare		Site#:	09	Night#:	6	Site Name:	ARNWR09		Date:	12-June 19			
Latitude:	35.79123					Longitude:	-75.87230					Datum:	NAD83		Elevation:	ID By: W. Seiter	
Observers:	C. Memory								Start Time:	2020			End Time:				
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds					
	2020	71	0	100%	2250	70	0	100%	0120	72	0	90%					
Moon Effect:	Waxing Gibbous				Start:												
					Stop:												
													Land Use: Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe):				
													Forest 61				
NETS/TRAPS:	A: 1x2H 9m		B: 1x2H 6m		C: 1x2H 6m		D: 1x2H 4m		E:		F:						
Pool size WxL	NA		NA		4x7		1x4										
Swoop WxL	NA		NA														
Photo? or #																	
Site Description, other than Habitat Info covered on pg 3:													<p>See MINS 1 5/7/19</p> <p>See MINS 1 5/7/19</p>				
See MINS 1 5/7/19																	

Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	Eastern NC MYSE		County:	DARE		Site#:	9		Night#:	7		Site Name:	AR NWR 9		Date:	18-June 2019		
Latitude:	35.79123				Longitude:	-75.87230				Datum:	NAD-83		Elevation:	-7 FT		ID By:	Zack Baer	
Observers:	Melanice Portia, Zack Baer								Start Time:	20:22				End Time:	1:22			
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds		
	20:22	79	1	25%	22:52	76	0	25%	0122	74	0	100%						
Moon Effect:	98%		Start:	N/A		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe):												
	Max GIB		Stop:	NA		61- forested												
NETS/TRAPS:	A: 1x2Hx6m		B: 1x2Hx6m		C: 1x2Hx6m		D: 1x2Hx12m		E:				F:					
Pool size WxL	N/A		0.25m x 4.5m		N/A		N/A											
Swoop WxL	N/A		unlimited		N/A		N/A											
Photo? or #	Zack's tablet		Zack's tablet		Zack's tablet		Zack's tablet											
Site Description, other than Habitat Info covered on pg 3:					<p>SWAMP Forest</p> <p>SWAMP FOREST</p> <p>↑ N</p> <p>Cedar Rd.</p> <p>rut</p> <p>West Widgeon</p> <p>A B C D</p>													
Side road branching off the																		
Gravel road is unmaintained																		
deadending in a mixed forest.																		
there's one small remaining road																		
rut. surrounding forest is																		
wetland. Pinus taeda,																		
Persca, palustris, Chamaecyperis																		
thyoides																		

Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799	County:	Dare	Site#:	9	Night#:	8	Site Name:	ARNWR9	Date:	07/10/19		
Latitude:	35.79123			Longitude:	-75.87230			Datum:	NAD83	Elevation:	-7ft.	ID By:	W. Seiter
Observers:	K. Palumbo						Start Time:	2021		End Time:	0121		
Conditions:	Time 2021	Temp 84°	Wind Ø	Clouds 50%	Time 2251	Temp 83°	Wind Ø	Clouds 50%	Time 0121	Temp 83°	Wind Ø	Clouds 50%	
Moon Effect:	Waxing Gibbous		Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): Forested (61)									
NETS/TRAPS:	A: 1x2H-9m	B: 1x2H-6m	C: 1x2H-6m	D: 1x2H-4m	E:	F:							
Pool size WxL	—	—	2.0m x 5.0m	1.0m x 4.0m									
Swoop WxL	—	—	4.0m x Unlimited	4.0m x Unlimited									
Photo? or #	—	—	—	—									
Site Description, other than Habitat Info covered on pg 3:	Same as 11 June 19												
	Same as data from 11 June 19												

Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).







# NCDOT Mist-Netting Data Form

Project:	797		County:	Pine		Site#:	9	Night#:	10	Site Name:	ARNWR7		Date:	12 July 19		
Latitude:	35 59 12.3				Longitude:	-78 07 23.0				Datum:	NAD83		Elevation:	-115		
Observers:	M. P. [unclear]								Start Time:	20:21		End Time:	01:21			
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds				
	2015	83°	0	80%	2245	83°	0	90%	0115	83	0	20%				
Moon Effect:	Waxing				Start:	20:21		Land Use: Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe):								
					Stop:	01:21		Forest (A)								
NETS/TRAPS:	A: 1x2H - 4m		B: 1x2H - 5m		C: 2x2H - 6m		D: 1x2H - 4m		E:		F:					
Pool size WxL					2.0 x 5.0 m		1.2 x 4.0 m									
Swoop WxL					4.0 m x 1.0 m		4.0 m x 1.0 m									
Photo? or #																
Site Description, other than Habitat Info covered on pg 3:					<p style="text-align: center;">Sketch of site 11 June 19</p>											
Sketch of site 11 June 19																

Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

<b>Project:</b> 799 NCDOT MYSE 2019	<b>County:</b> Dare	<b>Site#:</b> 9	<b>Night#:</b> 11	<b>Site Name:</b> ARNWR 9	<b>Date:</b> 13 July, 2019							
<b>Latitude:</b> 35.79123	<b>Longitude:</b> -75.87230		<b>Datum:</b> NAD-83	<b>Elevation:</b> -7ft	<b>ID By:</b> Will Seiter							
<b>Observers:</b> Melanie Partin				<b>Start Time:</b> 20:20	<b>End Time:</b> 01:20							
<b>Conditions:</b>	<b>Time</b> 20:20	<b>Temp</b> 76	<b>Wind</b> 0	<b>Clouds</b> 40%	<b>Time</b> 22:50	<b>Temp</b> 78	<b>Wind</b> 0	<b>Clouds</b> 50%	<b>Time</b> 01:20	<b>Temp</b>	<b>Wind</b> 0	<b>Clouds</b> 30%
<b>Moon Effect:</b> Wax Gib	<b>Start:</b> 20:20	<b>Stop:</b> 01:20	<b>Land Use:</b> Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe): Forested 61									
<b>NETS/TRAPS:</b>	<b>A:</b> 1x2H-9m	<b>B:</b> 1x2H-6m	<b>C:</b> 1x2H-6m	<b>D:</b> 1x2H-4m	<b>E:</b>	<b>F:</b>						
Pool size WxL	—	—	2.0x5.0m	1.2mx4.0m								
Swoop WxL	—	—	4.0x unlimited	4.0mx unlimited								
Photo? or #	—	—	—	—								
<b>Site Description, other than Habitat Info covered on pg 3:</b>			<p>Same as previous data sheet on 11 June 19</p> <p>Site sketch (label to match Nets/Traps above)</p>									
Same as previous data sheet on 11 June 19												

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799.70	County:	Dare	Site#:	10 <del>ARWWR10</del>	Night#:	1	Site Name:	ARWWR10	Date:	June 12 2019	
Latitude:	35.79755	Longitude:	75.85710	Datum:	NAD83	Elevation:	5M	ID By:	W. Seiter			
Observers:	C. McMurry						Start Time:	2000	End Time:	0115		
Conditions:	Time 2000	Temp 69°F	Wind 0	Clouds 0%	Time 2230	Temp 63°F	Wind 0%	Clouds 0%	Time 0115	Temp 60	Wind 0	Clouds 0%
Moon Effect: Waning Crescent	Start: _____	Stop: _____	Land Use: Urban / Agriculture / Forest / Water (Wetland) Barren (describe): Forested 61									
NETS/TRAPS:	A: 1x2 H-6M	B: 1x2 H-6M	C: 1x2 H-4M	D: 1x3 H-6M	E:	F:						
Pool size WxL	1x N/A	1x N/A	1x N/A	1x N/A								
Swoop WxL	N/A	N/A	N/A	N/A								
Photo? or #												
Site Description, other than Habitat Info covered on pg 3:	<p>Gravel road that traverses forested wetlands</p> <p>Dom. Veg.: <i>Acce rubrum</i>, <i>Liquidambar styraciflua</i></p> <p><i>Pinus taeda</i>, <i>Chamaecyparis thyoides</i></p> <p><i>Persea palustris</i>, <i>Morella sericea</i>, <i>Clethra spp.</i></p> <p><i>Ligonia ligustrina</i>, <i>Gordonia lasiantha</i></p>											
	<p>Site sketch (label to match Nets/Traps above)</p>											

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799.7	County:	Dare	Site#:	10	Night#:	2	Site Name:	ARNWR 10	Date:	2 June 2019	
Latitude:	35.79755	Longitude:	75.85710	Datum:	NAD83	Elevation:	5M	ID By:	W. Sitter			
Observers:	C. McMurray						Start Time:	2010	End Time:			
Conditions:	Time 2010	Temp 72°F	Wind 1	Clouds 90%	Time 2240	Temp 67°F	Wind 0	Clouds 0%	Time 0115	Temp 63	Wind 0	Clouds 0%
Moon Effect: Waning Crescent	Start: _____	Stop: _____	Land Use: Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe): Forested 61									
NETS/TRAPS:	A: 1x2 H-6M	B: 1x2 H-6M	C: 1x2 H-4M	D: 1x3 H-6M	E:	F:						
Pool size WxL	-	-	-	-	-	-						
Swoop WxL	-	-	-	-	-	-						
Photo? or #												
Site Description, other than Habitat Info covered on pg 3:				See 2 June 2019 Datasheet								
See 1 June 2019 Datasheet												
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

<b>Project:</b> NCDOT MySE	<b>County:</b> Dare	<b>Site#:</b> 10	<b>Night#:</b> 31	<b>Site Name:</b> ARMWR 10	<b>Date:</b> 6/18/19							
<b>Latitude:</b> 35.79755		<b>Longitude:</b> -75.85710		<b>Datum:</b> NAD83	<b>Elevation:</b> 5m							
<b>Observers:</b> S. Patterson, L. Stauffer				<b>Start Time:</b> 2021	<b>End Time:</b>							
<b>Conditions:</b>	<b>Time:</b> 2021	<b>Temp F:</b> 78	<b>Wind:</b> 0	<b>Clouds:</b> 0	<b>Time:</b> 2321	<b>Temp F:</b> 74	<b>Wind:</b> 1	<b>Clouds:</b> 1	<b>Time:</b> 0121	<b>Temp:</b> 73	<b>Wind:</b> 0	<b>Clouds:</b> 1
<b>Moon Effect:</b>		<b>Start:</b>	<b>Land Use:</b> Urban / Agriculture / Forest / Water / Wetland / Barren (describe):									
<b>NETS/TRAPS:</b>		<b>A:</b> 1x2H-9m	<b>B:</b> 1x2Hx6m	<b>C:</b> 1x2Hx6m	<b>D:</b> 1x2Hx6m	<b>E:</b>	<b>F:</b>					
Pool size WxL												
Swoop WxL												
Photo? or #												
<b>Site Description, other than Habitat Info covered on pg 3:</b>				<p>The sketch shows a road on the left, a large area labeled 'FOREST' in the center, and a 'Stream' on the right. A 'trail' is drawn near the stream. Three trap locations are marked with dots and labeled 'A', 'B', and 'C'.</p>								
Gravel road that traverses through forest												
Wetlands												
Dense veg - Acer rubra, pinus taeda												
Chamaecyparis, Liquidambar, Palmetto palustris												
Marella cyperus, Juncus sp., Lycopodium obscurum												

Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project: 799	County: Davie	Site#: ARNWR 2019-11	Night#: 1	Site Name: ARNWR 2019 site 11	Date: 25 APR '19							
Latitude: 35.83192	Longitude: -75.90908	Datum: NAD83	Elevation: 1m	ID By: Ray Eaton								
Observers: Jeremy Plueger	Start Time: 19:40	End Time: 00:50										
Conditions:	Time: 19:45	Temp: 74°F	Wind: 1	Clouds: 0	Time: 22:15	Temp: 72°F	Wind: 2	Clouds: 0	Time: 00:45	Temp: 68°F	Wind: 2	Clouds: 0
Moon Effect:	Start:	Stop:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): 43 mixed									
NETS/TRAPS:	A: 1xZH-6	B: 1xZH-6	C: 1xZH-6	D: 1xZH-6	E: -	F: -						
Pool size WxL	N/A	N/A	N/A	N/A								
Swoop WxL	N/A	N/A	N/A	N/A								
Photo? or #												
Site Description, other than Habitat Info covered on pg 3:						<p>Hand-drawn site sketch showing a canal, forested wetland, and trap locations A, B, C, D. Labels include Buffalo City, Sandy Ridge Gut, Sandy Ridge Rd, and Pond.</p>						
forested + soil with canal parallel,												
Pinus taeda, Liquidambar styraciflua, Nyssa spp.												
Quercus nigra.												
						Site sketch (label to match Nets/Traps 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 mist net sites, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799E.NC MYSE '19	County:	Dare	Site#:	11	Night#:	Z	Site Name:	ARNWR 2019-11	Date:	26 APR '19	
Latitude:	35.83192			Longitude:	-75.90908			Datum:	NAD83	Elevation:	3'	
Observers:	Jeremy Plauger						Start Time:	19:40	End Time:	00:45	ID By:	R. Eaton
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	19:40	79	1	0	22:15	72	2	0	00:45	66	2	0
Moon Effect:	Start:	Land Use: Urban / Agriculture / <del>Forest</del> / Water / <del>Wetland</del> / Barren (describe):										
	Stop:	43 mixed										
NETS/TRAPS:	A: 1x24-6	B: 1x24-6	C: 1x24-6	D: 1x24-6	E: -	F: -						
Pool size WxL	N/A	N/A	N/A	N/A								
Swoop WxL	N/A	N/A	N/A	N/A								
Photo? or #												
Site Description, other than Habitat Info covered on pg 3:												
see 25 APR '19												
data sheet ←												
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799 Eastern NC MYSE		County:	Dare	Site#:	11	Night#:	3	Site Name:	ARNWR 11	Date:	23 June 19	
Latitude:	35.83192			Longitude:	-75.90908			Datum:	NAD-83	Elevation:	5	ID By:	Zack Baer
Observers:	Melanie Partin							Start Time:	20:23	End Time:	01:23		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2023	72	0	0	2323	68	0	0	0123	66	0	0	
Moon Effect:	Wax Gibb 66%			Start:	N/A			Land Use:	Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe): Forested 6l				
				Stop:	N/A								
NETS/TRAPS:	A: 1x2Hx6m		B: 1x2Hx12m		C: 1x2Hx6m		D: 1x2Hx6m		E:		F:		
Pool size WxL	N/A		N/A		N/A		N/A						
Swoop WxL	N/A		N/A		N/A		N/A						
Photo? or #	ZB tablet		ZB tablet		ZB tablet		ZB tablet						
Site Description, other than Habitat Info covered on pg 3:				<p>Site sketch (label to match Nets/Traps above)</p>									
Site with canal on the Northern side, and a Wetland on the Southern side. Trail Corridor cluttered but usable by bats.													
Vegetation: Pinus serotina, Quercus imbricaria, Persia palustris, Magnolia virginiana, Morella cerifera, Ilex spp. Taxodium distichum, Lyonia Lucidula, Acer rubrum													

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799 Eastern NC MYSE		County:	Dare	Site#:	11	Night#:	4	Site Name:	ARNWR II	Date:	24 June 19	
Latitude:	35.83192			Longitude:	-75.90908			Datum:	NAD-83	Elevation:	5	ID By:	Zack Baer
Observers:	Melanie Partin							Start Time:	2023		End Time:	2345	
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2023	78	1	0	2253	75	0	0					
Moon Effect:	Wan Gibb 57%			Start:	N/A			Land Use:	Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe):				
				Stop:	N/A				Forested 61				
NETS/TRAPS:	A: 1x2Hx6m		B: 1x2Hx12m		C: 1x2Hx6m		D: 1x2Hx6m		E:		F:		
Pool size WxL	N/A		N/A		N/A		N/A						
Swoop WxL	N/A		N/A		N/A		N/A						
Photo? or #	ZB tablet		ZB tablet		ZB tablet		ZB tablet						
<b>Site Description, other than Habitat Info covered on pg 3:</b> Site with canal on the Northern side, and a Wetland on the Southern side. Trail Corridor cluttered but usable by bats. Vegetation: Pinus serotina, Quercus imbricaria, Persica palustris, Magnolia virginiana, Moralla cerifera, Ilex spp, Taxodium distichum, Lyonia Lucidula, Acer rubrum <div style="text-align: right;">see prior data sheet of ARNWR II on 23 June 19</div> <div style="text-align: right;">Site sketch (label to match Nets/Traps above)</div>													

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

<b>Project:</b> 799 NCDOT MUSE 2019	<b>County:</b> Dare	<b>Site#:</b> 11	<b>Night#:</b> 5	<b>Site Name:</b> ARNWR 11	<b>Date:</b> 07/14/19							
<b>Latitude:</b> 35.83192	<b>Longitude:</b> -75.94948		<b>Datum:</b> NAD83	<b>Elevation:</b> 5 ft	<b>ID By:</b> W. Senter							
<b>Observers:</b> K. Palumbo			<b>Start Time:</b> 20:20		<b>End Time:</b> 01:20							
<b>Conditions:</b>	<b>Time</b> 20:20	<b>Temp</b> 81	<b>Wind</b> Ø	<b>Clouds</b> 20%	<b>Time</b> 21:50	<b>Temp</b> 78	<b>Wind</b> Ø	<b>Clouds</b> Ø%	<b>Time</b> 01:20	<b>Temp</b> 76	<b>Wind</b> Ø	<b>Clouds</b> 15
<b>Moon Effect:</b> Waxing Gibbous	<b>Start:</b> 20:20	<b>Stop:</b> 01:20	<b>Land Use:</b> Urban / Agriculture / Forest / Water / Wetland / Barren (describe): Forested 61									
<b>NETS/TRAPS:</b>	<b>A:</b> 1x2H-6m	<b>B:</b> 1x2H-12m	<b>C:</b> 1x2H-6m	<b>D:</b> 1x2H-6m	<b>E:</b>	<b>F:</b>						
<b>Pool size WxL</b>	—											
<b>Swoop WxL</b>	—											
<b>Photo? or #</b>	—											
<b>Site Description, other than Habitat Info covered on pg 3:</b>			<p>See datasheet from 23 June 19</p> <p style="text-align: right;">Site sketch (label to match Nets/Traps above)</p>									

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).











# NCDOT Mist-Netting Data Form

<b>Project:</b> NCDOT MYSE 2018	<b>County:</b> Dare	<b>Site#:</b> 12	<b>Night#:</b> 2	<b>Site Name:</b> ARNWR 12	<b>Date:</b> 13-May-2019							
<b>Latitude:</b> 35.80268	<b>Longitude:</b> -75.93410		<b>Datum:</b> NAD 83	<b>Elevation:</b> -2	<b>ID By:</b> G. Janos							
<b>Observers:</b> D. Batie			<b>Start Time:</b> 1959		<b>End Time:</b> 0059							
<b>Conditions:</b>	<b>Time</b> 1959	<b>Temp</b> 65	<b>Wind</b> 1	<b>Clouds</b> 75	<b>Time</b> 2229	<b>Temp</b> 61	<b>Wind</b> 2	<b>Clouds</b> 25	<b>Time</b> 0059	<b>Temp</b> 56	<b>Wind</b> 0	<b>Clouds</b> 0
<b>Moon Effect:</b> 1 <sup>st</sup> Quarter	<b>Start:</b> 2045		<b>Land Use:</b> Urban / Agriculture / Forest / Water (Wetland) / Barren (describe): 61									
<b>NETS/TRAPS:</b>	<b>A:</b> 1x2H-4m	<b>B:</b> 1x2H-6m	<b>C:</b> 1-2H-12m	<b>D:</b> 1x2H-12m	<b>E:</b>	<b>F:</b>						
<b>Pool size WxL</b>	N/A		N/A		N/A							
<b>Swoop WxL</b>	N/A		N/A		N/A							
<b>Photo? or #</b>	tablet		tablet		tablet							
<b>Site Description, other than Habitat Info covered on pg 3:</b>			<p>See 12 May 2019 datasheet</p> <p>See 12 May 2019 datasheet</p> <p style="text-align: right;">Site sketch (label to match Nets/Traps above)</p>									
See 12-May-2019 datasheet												

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project: <sup>2019</sup> NCDOT MySE	County: Polk	Site#: 12	Night#: 3	Site Name: ARNWR12	Date: 10 July 2021			
Latitude: 35.85268	Longitude: -75.93410	Datum: NAD83	Elevation: -2ft	ID By: G. Janos				
Observers: G. Janos, G. Skuffer	Start Time: 2021	End Time: 0121						
Conditions:	Time: 2021	Temp: 78	Wind: 0	Clouds: 2	Time: 0121	Temp: 73	Wind: 0	Clouds: 1
Moon Effect: Waxing gibbous	Start: 2021	Stop:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): 61					
<b>NETS/TRAPS:</b>	A: 1x2H-4m	B: 1x2H-6m	C: 1x2H-9m	D: 1x2H-12m	E:	F:		
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		
<b>Site Description, other than Habitat Info covered on pg 3:</b>	Same as data sheet for May 12, 2019							
	Same as data sheet for 12 May 2019							
	Net							

Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

<b>Project:</b> NCDOT Myse <sup>2019</sup>	<b>County:</b> Dare	<b>Site#:</b> 12	<b>Night#:</b> 4	<b>Site Name:</b> AR New 12	<b>Date:</b> 11 July 2019							
<b>Latitude:</b> 35.80268	<b>Longitude:</b> 75.93410		<b>Datum:</b> NAD83	<b>Elevation:</b> -2ft	<b>ID By:</b> G. Janos							
<b>Observers:</b> G. Janos G. Staffer			<b>Start Time:</b> 2021	<b>End Time:</b> 2340								
<b>Conditions:</b>	<b>Time</b>	<b>Temp</b>	<b>Wind</b>	<b>Clouds</b>	<b>Time</b>	<b>Temp</b>	<b>Wind</b>	<b>Clouds</b>	<b>Time</b>	<b>Temp</b>	<b>Wind</b>	<b>Clouds</b>
	2021	74	0	1	2251	81	2	75				
<b>Moon Effect:</b>	<b>Start:</b> 2021		<b>Land Use:</b> Urban / Agriculture / Forest / Water / Wetland / Barren (describe):									
Waxing gibbous	<b>Stop:</b> 2300		61									
<b>NETS/TRAPS:</b>	<b>A:</b> 1x2H-4m	<b>B:</b> 1x2H-6m	<b>C:</b> 1x2H-12m	<b>D:</b> 1x2H-12	<b>E:</b>	<b>F:</b>						
<b>Pool size WxL</b>	N/A	N/A	N/A	N/A	N/A	N/A						
<b>Swoop WxL</b>	N/A	N/A	N/A	N/A	N/A	N/A						
<b>Photo? or #</b>	N/A	N/A	N/A	N/A	N/A	N/A						
<b>Site Description, other than Habitat Info covered on pg 3:</b>			Same as data sheet for 12 May 2019									
Same as data sheet for 12 May 2019												
Heavy rain @ 2340, calm wind												
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

<b>Project:</b> NCDOT MySE <sup>2011</sup>	<b>County:</b> Dare	<b>Site#:</b> 12	<b>Night#:</b> 5	<b>Site Name:</b> ARNW R12		<b>Date:</b> 12 July 2017						
<b>Latitude:</b> 35.80268		<b>Longitude:</b> -75.93410		<b>Datum:</b> NAD 83	<b>Elevation:</b> -2 ft	<b>ID By:</b> G. Jones						
<b>Observers:</b> G. Jones / M. Skutter				<b>Start Time:</b> 2021		<b>End Time:</b> 0121						
<b>Conditions:</b>	<b>Time</b>	<b>Temp</b>	<b>Wind</b>	<b>Clouds</b>	<b>Time</b>	<b>Temp</b>	<b>Wind</b>	<b>Clouds</b>	<b>Time</b>	<b>Temp</b>	<b>Wind</b>	<b>Clouds</b>
	2021	57	0	1	2251	80	1	50	0121	80	1	50
<b>Moon Effect:</b> waxing gibbous		<b>Start:</b> 2021		<b>Land Use:</b> Urban / Agriculture / Forest / Water / Wetland / Barren (describe): 61								
<b>Stop:</b> N/A												
<b>NETS/TRAPS:</b>	<b>A:</b> 1x2H-4m	<b>B:</b> 1x2H-6m	<b>C:</b> 1x2H-12m	<b>D:</b> 1x2H-12m	<b>E:</b>	<b>F:</b>						
<b>Pool size WxL</b>	N/A	N/A	N/A	N/A	N/A	N/A						
<b>Swoop WxL</b>	N/A	N/A	N/A	N/A	N/A	N/A						
<b>Photo? or #</b>	N/A	N/A	N/A	N/A	N/A	N/A						
<b>Site Description, other than Habitat Info covered on pg 3:</b>				Same as data sheet for 12 May 2017								
Same as data sheet for												
12 May 2017												
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



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 Data Form

Project:	NCDOT MYSE 2019		County:	Dare	Site#:	14	Night#:	1	Site Name:	ARNWR 14	Date:	7 May 2019
Latitude:	35.783480			Longitude:	-75.839315			Datum:	NAD83	Elevation:	ID By: T. Wetzel	
Observers:	C. Birdsall							Start Time:	19:55	End Time:	0055	
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1955	65	0	0	2230	59	0	0	0055	57	0	0
Moon Effect:	MAX CRES		Start:	—								
			Stop:	—								
Land Use:	Urban / Agriculture / Forest / Water / Wetland / Barren (describe): Forested Wetland											
NETS/TRAPS:	A: 1x2H:6m		B: 1x2H:6m		C: 1x2H:9m		D: 1x2H:4m		E: —		F: —	
Pool size WxL	—		—		—		—		—		—	
Swoop WxL	—		—		—		—		—		—	
Photo? or #	C. Birdsall Phone		C.B. Phone		CB-Phone		CB-Phone		—		—	
Site Description, other than Habitat Info covered on pg 3:	<p>Cluttered road through a mixed forest wetland!</p> <p>Acer rubrum dominate</p> <p>Pinus</p>											
	<p>Site sketch (label to match Nets/Traps above)</p>											

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).







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:

ARW0214



# NCDOT Mist-Netting Data Form

Project:	799.04 NC DOT MVSE 2019	County:	Dare	Site#:	15	Night#:	1	Site Name:	ARNWR15	Date:	5 June 2019		
Latitude:	35.777292			Longitude:	-75.829605			Datum:	NAD 83	Elevation:	1394	ID By:	Gr Janos
Observers:	C. Birdsall						Start Time:	2016		End Time:	0116		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2016	76	1	100%	224	71	1	75%	0116	72	1	0	
Moon Effect:	Wax Cres			Start:	N/A			Land Use:	Urban / Agriculture / <u>Forest</u> / Water / Wetland / Barren (describe): Forest 61				
				Stop:	N/A								
NETS/TRAPS:	A: 1 X 2H-4M		B: 1 X 2H-6M		C: 1 X 3H-9M		D: 1 X 2H-4M		E:		F:		
Pool size WxL	2.5m X 4m		N/A		N/A		N/A						
Swoop WxL	2.5m X unlim		N/A		N/A		N/A						
Photo? or #	Tablet		Tablet		Tablet		Tablet						
Site Description, other than Habitat Info covered on pg 3:				<p>Site sketch (label to match Nets/Traps above)</p>									
Canvasback Rd, many road ruts													
A. rubrum, L. styraciflua, M. virginiana,													
P. taeda													

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799.04 NC DOT M456 2019	County:	Dare	Site#:	15	Night#:	2	Site Name:	ARNWR15	Date:	6 June 2019		
Latitude:	35.777292			Longitude:	-75.828605			Datum:	NAD 83	Elevation:	13ft	ID By:	G. Janus
Observers:	C. Birdsall						Start Time:	2017		End Time:	0117		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2017	78	1	75%	2247	76	0	0%	0117	71	0	0%	
Moon Effect:	Way Cres			Start:	2017			Land Use:	Urban / Agriculture / Forest / Water / Wetland / Barren (describe): Forest 61				
				Stop:	2210								
NETS/TRAPS:	A: 1x2H-4m		B: 1x2H-6m		C: 1-3H-9M		D: 1-2Hx4m		E:		F:		
Pool size WxL													
Swoop WxL	N/A		N/A		N/A		N/A						
Photo? or #	Tablet		Tablet		Tablet		Tablet						
Site Description, other than Habitat Info covered on pg 3:				<p>See night 1 on 5 June 2019</p> <p>See night 1 on 5 June 2019</p> <p style="text-align: right;">Site sketch (label to match Nets/Traps above)</p>									
See night 1 on 5 June 2019													

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Daie	Site#:	16	Night#:	01	Site Name:	ARNW 16	Date:	05 June 2019		
Latitude:	35.77781				Longitude:	-75.820226			Datum:	NAD83	Elevation:	13 Ft	ID By:	N Davis
Observers:	N. Davis I. Burns							Start Time:	2016		End Time:	0116		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds		
	2016	76	4	100%	2246	72	1	50%	0116	72	0	25%		
Moon Effect:	Vax Crescent		Start:	N/A		Land Use:	Urban / Agriculture / Forest / Water (Wetland) Barren (describe): Wetland 61							
NETS/TRAPS:	A: 1x311-6m		B: 1x211-4m		C: 1x211-6m		D: 1x211-6m		E: —		F: —			
Pool size WxL	1x311-6m		N/A		5m x 2m		N/A		—		—			
Swoop WxL	N/A		N/A		6m x Unlimited		N/A		—		—			
Photo? or #	On Tablet		On Tablet		On Tablet		On Tablet		—		—			
Site Description, other than Habitat Info covered on pg 3:					<p>Site sketch (label to match Nets/Traps above)</p>									
Canvasback Rd, off of														
Kuching Rd. Put a net over Rd														
Rut.														
Dominant Veg:														
Acer rubrum, Liquidambar styraciflua														
Sessaliss albidum, Aralia sp. usm														

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT		County:	Dare		Site#:	16	Night#:	02	Site Name:	ARMWR 16	Date:	06 June 2019
Latitude:	35.77781			Longitude:	-75.820226			Datum:	NAD83	Elevation:	13F1	ID By:	N. Davis
Observers:	N. Davis 1 Burns						Start Time:	2017		End Time:	0117		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2047	78	0	0	2247	76	0	0	0117	73	0	0	
Moon Effect:	Wax Crescent		Start:	N/A		Stop:	N/A		Land Use: Urban / Agriculture / Forest / Water (Wetland) / Barren (describe): Wetland 61				
NETS/TRAPS:	A: 1X3H-6m		B: 1X2H-4m		C: 1X2H-6m		D: 1X2H-6m		E:		F:		
Pool size WxL					5m X 2m		N/A						
Swoop WxL	N/A		N/A		6m X 1m		N/A						
Photo? or #	On Tablet		On Tablet		On Tablet		On Tablet						
Site Description, other than Habitat Info covered on pg 3:				<p style="text-align: center;">Same as 05 June 19</p>									
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



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:

*A. rubrum, L. styriaca, M. virginiana, P. toro, S. albidum*

ARNWR 16  
ARNWR 15

# NCDOT Mist-Netting Data Form

Project:	NCDOT MYSE 2019		County:	Dare		Site#:	17	Night#:	01	Site Name:	ARMWR17		Date:	07 June 2019		
Latitude:	35.760998				Longitude:	-75.958550				Datum:	NAD83		Elevation:	20 FT		
Observers:	N. Davis I. Burns						Start Time:	2017			End Time:	2115				
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2017	73	0	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Moon Effect:	Start:		Land Use: Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe):													
	Stop:		Wetland 61													
NETS/TRAPS:	A: 1x2H-4m		B: 1x2H-9m		C: 1x2H-6m		D: 1x2H-6m		E:		F:					
Pool size WxL																
Swoop WxL	N/A		N/A		N/A		N/A									
Photo? or #	Tablet		Tablet		Tablet		Tablet									
Site Description, other than Habitat Info covered on pg 3:					<p>Site sketch (label to match Nets/Traps above)</p>											
Netting the intersection of Poplar Rd & Alligator Rd. Put net at end of Canal.																

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NCDOT MYS2019		County:	Dauphin	Site#:	17	Night#:	02	Site Name:	AF-NY-17	Date:	02 June 2019	
Latitude:	35.760998			Longitude:	-75.958550			Datum:	NAD 83	Elevation:	20 FT	ID By:	N. Davis
Observers:	N. Davis, I. Burns							Start Time:	2018		End Time:	0118	
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2018		0	100%	2248	72	0	250%	0118	73	0	75%	
Moon Effect:	Waxing Crescent		Start:	N/A	Land Use:	Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe): Wetland 61							
			Stop:	N/A									
NETS/TRAPS:	A: 1x2H-4m	B: 1x3H-9m	C: 1-2H-6m	D: 1x2H-6m	E:	F:							
Pool size WxL													
Swoop WxL	N/A	N/A	N/A	N/A									
Photo? or #	Tablet	Tablet	Tablet	Tablet									
<b>Site Description, other than Habitat Info covered on pg 3:</b>					<p style="text-align: center;">Same as 07 June 2019</p>								
Netting intersection of Poplar Ridge &													
Alligator Roads. Also placed a net													
at end of canal													
Dominant Veg.													
Acer rubra, Pinus strobus, Quercus													
nigra, Magnolia virginiana													
					Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799 Eastern NC <sup>MYSE</sup>	County:	Dare	Site#:	17	Night#:	3	Site Name:	ARNWR17	Date:	25 June 19	
Latitude:	35.760888	Longitude:	-75.958491	Datum:	NAD-83	Elevation:	0	ID By:	Zack Boer			
Observers:	Melanie Partin	Start Time:	2023	End Time:	0123							
Conditions:	Time 2023	Temp 79	Wind 0	Clouds 50%	Time 2253	Temp 70	Wind 0	Clouds 0	Time 0123	Temp 69	Wind 0	Clouds 0
Moon Effect:	Wan. Gibb. 50%	Start:	N/A	Stop:	N/A	Land Use: Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe): Forested - 61						
NETS/TRAPS:	A: 1x2Hx6m	B: 1x2Hx6m	C: 1x2Hx6m	D: 1x2Hx6m	E:	F:						
Pool size WxL	N/A	N/A	N/A	4m x 8m								
Swoop WxL	N/A	N/A	N/A	unlimited								
Photo? or #	Zack's tablet	Zack's tablet	Zack's tablet	Zack's tablet								
Site Description, other than Habitat Info covered on pg 3:			<p>Site sketch (label to match Nets/Traps above)</p>									
Intersection of Poplar Ridge Rd and Alligator Rd. Wooded Roads surrounded by channels and wetlands												
Dominate Veg: Acer rubrum, Persca palustris, Nyssa spp., Pinus taeda												

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	NC-DOT MYSE 2019		County:	Dare	Site#:	17	Night#:	4	Site Name:	ARNWR 17	Date:	July 10, 2019
Latitude:	35.760998		Longitude:	-75.958550		Datum:	NAD-83		Elevation:	20 ft	ID By:	Theresa Wetzel
Observers:	T. Wetzel, M. Parkin						Start Time:	2022		End Time:	0122	
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2022	82	0	60%	22:52	77	0	30%	0122	75	0	0
Moon Effect:	Start: 2200		Land Use: Urban / Agriculture / Forest / Water / <u>Wetland</u> / Barren (describe):									
	Stop: 0030		Forested wetland									
NETS/TRAPS:	A: 1x2 - 6m	B: 1x3 - 12m	C: 1x2 - 9m	D: 1x2 - 6m	E: —	F: —						
Pool size WxL	—	—	—	4m x 8m	—	—						
Swoop WxL	—	—	—	unlim	—	—						
Photo? or #	tablet	tablet	tablet	tablet	—	—						
Site Description, other than Habitat Info covered on pg 3:				<p>see previous data sheet from June -, 2019 for ARNWR 17</p> <p>see previous data sheet from June -, 2019 for ARNWR 17</p>								
See previous data sheet from June -, 2019 for ARNWR 17												

Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).









# NCDOT Mist-Netting Data Form

Project:	NCDOT MDE 20A		County:	Dare	Site#:	17	Night#:	6	Site Name:	ARNWR17	Date:	07/12/19		
Latitude:	35.760998				Longitude:	-75.958550			Datum:	NAD83	Elevation:	20 ft	ID By:	T. Wetzel
Observers:	Kirstin Palumbo							Start Time:	20:21		End Time:	01:21		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds		
	2021	83	0	35%	22:51	81	0	5%	0121	81	0	75%		
Moon Effect:	Start: 2100				Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe):									
	Wax Gib				Stop: 0000				Forested wetland					
NETS/TRAPS:	A: 1x2H-6m	B: 1x3H-12m	C: 1x2H-9m	D: 1x2H-6m	E:	F:								
Pool size WxL				4m x 8m										
Swoop WxL				unlimited										
Photo? or #														
Site Description, other than Habitat Info covered on pg 3:				<div style="text-align: right;">Site sketch (label to match Nets/Traps above)</div>										
see datasheet from														
07/10/2019														

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).

# NCDOT Mist-Netting Data Form

Project:	NC DOT MYSE <sup>2019</sup>		County:	Dare	Site#:	17	Night#:	17	Site Name:	ARNWR17	Date:	07/13/19	
Latitude:	35.760998			Longitude:	-75.958550			Datum:	NAD83	Elevation:	20 ft	ID By:	T. Wetzel
Observers:	K. Palumbo							Start Time:	20:20		End Time:		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	20:20	76°	Ø	95%	22:50	76°	Ø	85%	01:20	76°	Ø	70	
Moon Effect:	waxing gibbous 90%		Start:	17:41		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe):							
			Stop:	03:31		Forested Wetland							
NETS/TRAPS:	A: 1x2H-6m		B: 1x3H-12m		C: 1x2H-9m		D: 1x2H-6m		E: —		F: —		
Pool size WxL	—		—		—		4m x 8m		—		—		
Swoop WxL	—		—		—		unlimited		—		—		
Photo? or #	—		—		—		—		—		—		
Site Description, other than Habitat Info covered on pg 3:					<div style="text-align: right; margin-top: 20px;">Site sketch (label to match Nets/Traps above)</div>								
See datasheet from 07/10/19													

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

<b>Project:</b> <sup>2019</sup> NCDOT MYSE	<b>County:</b> Dare	<b>Site#:</b> 17	<b>Night#:</b> 8	<b>Site Name:</b> A.R.NWR 17	<b>Date:</b> 15 July 2019							
<b>Latitude:</b> 35.760998	<b>Longitude:</b> -75.958550	<b>Datum:</b> NAD83	<b>Elevation:</b> 20ft	<b>ID By:</b> G. James								
<b>Observers:</b> G. James, G. Stauffer				<b>Start Time:</b> 2019	<b>End Time:</b>							
<b>Conditions:</b>	<b>Time</b>	<b>Temp</b>	<b>Wind</b>	<b>Clouds</b>	<b>Time</b>	<b>Temp</b>	<b>Wind</b>	<b>Clouds</b>	<b>Time</b>	<b>Temp</b>	<b>Wind</b>	<b>Clouds</b>
	2019	78	0	0	2249	75	0	0	0119	74	0	25%
<b>Moon Effect:</b>	<b>Start:</b> 2050		<b>Land Use:</b> Urban / Agriculture / Forest / Water / Wetland / Barren (describe):									
Full	<b>Stop:</b> N/A		Forested Wetland									
<b>NETS/TRAPS:</b>	<b>A:</b> 1x24-6m	<b>B:</b> 1x34-12m	<b>C:</b> 1x24-9m	<b>D:</b> 1x24-6m	<b>E:</b>	<b>F:</b>						
<b>Pool size WxL</b>												
<b>Swoop WxL</b>	N/A											
<b>Photo? or #</b>	N/A											
<b>Site Description, other than Habitat Info covered on pg 3:</b>				See data sheet from 10 July 2019								
See data sheet from												
10 July 2019												
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799	County:	Dare	Site#:	18	Night#:	1	Site Name:	ARNWR18	Date:	7 June 2019	
Latitude:	35.758376			Longitude:	-75.958714			Datum:	NAD83	Elevation:	20 feet	
Observers:	C. McMurry						Start Time:	2019	End Time:	2105	ID By:	G. Jansel
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2017	73°F	0	100%	N/A							
Moon Effect:	First quarter			Start:	N/A			Land Use: Urban / Agriculture / <u>Forest</u> / Water / Wetland / Barren (describe):				
				Stop:	N/A			Forest 61				
NETS/TRAPS:	A: 1x3 H-12		B: 1x2 H-9		C: 1x2 H-6		D: 1x2 H-4		E:		F:	
Pool size WxL	N/A		N/A		N/A		N/A					
Swoop WxL	N/A		N/A		N/A		N/A					
Photo? or #	tablet		tablet		tablet		tablet					
Site Description, other than Habitat Info covered on pg 3:				<p>Site sketch (label to match Nets/Traps above)</p>								
Acer rubrum, Magnolia virginiana,												
Quercus nigra, Pinus taeda												

\*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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# NCDOT Mist-Netting Data Form

Project:	799	County:	Dare	Site#:	18	Night#:	2	Site Name:	AR.NWR18	Date:	8 June 2019		
Latitude:	35.758376			Longitude:	-75.958714			Datum:	NAD 83	Elevation:	20	ID By:	Gi. Jarvis
Observers:	C. McMurtry						Start Time:	2018		End Time:	0118		
Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	
	2018	73	0	75%	2248	72	0	25%	0118	73	0	100%	
Moon Effect:	First Quarter		Start:	2018	Stop:	2130	Land Use: Urban / Agriculture / <u>Forest</u> / Water / Wetland / Barren (describe): Forest 61						
NETS/TRAPS:	A: 1x3 H-12		B: 1x2 H-9		C: 1x2 H-6		D: 1x2 H-4		E:		F:		
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		
Site Description, other than Habitat Info covered on pg 3:					See 7 June 2019 Datasheet								
Acer rubrum, Magnolia virginiana,													
Quercus nigra, Pinus taeda													
Site sketch (label to match Nets/Traps 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 **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set, not specifically the flyway (see pg3).



# Appendix C

## Photographs of Mist-Nets



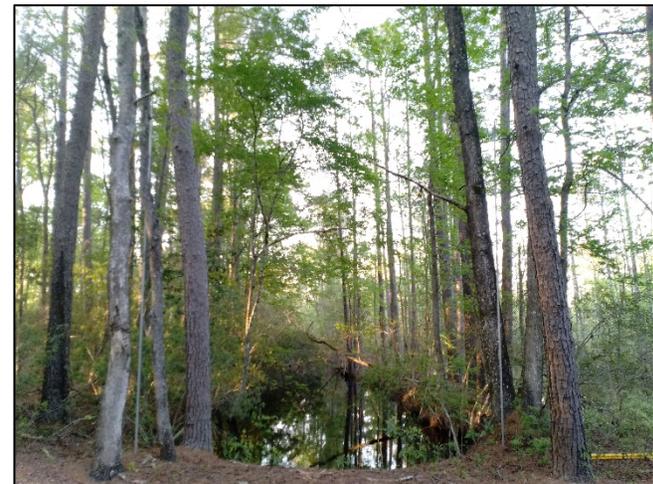
Site ARNWR1 Net A



Site ARNWR1 Net B



Site ARNWR1 Net C



Site ARNWR1 Net D



**Site ARNWR1 Net E**



**Site ARNWR1 Net F**



**Site ARNWR1 Net G**



**Site ARNWR1 Net H**



**Site ARNWR5 Net A**



**Site ARNWR5 Net B**



**Site ARNWR5 Net C**



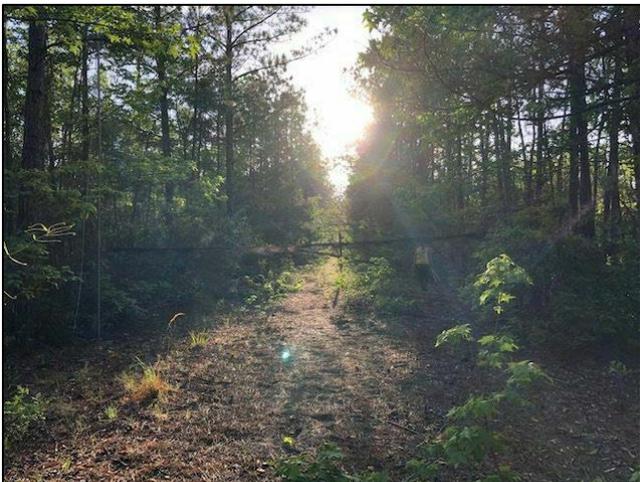
**Site ARNWR5 Net D**



**Site ARNWR6 Net A**



**Site ARNWR6 Net B**



**Site ARNWR6 Net C**



**Site ARNWR6 Net D**



**Site ARNWR6 Net E**



**Site ARNWR6 Net F**



**Site ARNWR9 Net A**



**Site ARNWR9 Net B**



**Site ARNWR9 Net C**



**Site ARNWR9 Net D**



**Site ARNWR10 Net A**



**Site ARNWR10 Net B**



**Site ARNWR10 Net C**



**Site ARNWR10 Net D**



**Site ARNWR11 Net A**



**Site ARNWR11 Net B**



**Site ARNWR11 Net C**



**Site ARNWR11 Net D**



**Site ARNWR12 Net A**



**Site ARNWR12 Net B**



**Site ARNWR12 Net C**



**Site ARNWR12 Net D**



**Site ARNWR14 Net A**



**Site ARNWR14 Net B**



**Site ARNWR14 Net C**



**Site ARNWR14 Net D**



**Site ARNWR15 Net A**



**Site ARNWR15 Net B**



**Site ARNWR15 Net C**



**Site ARNWR15 Net D**



**Site ARNWR16 Net A**



**Site ARNWR16 Net B**



**Site ARNWR16 Net C**



**Site ARNWR16 Net D**



**Site ARNWR17 Net A**



**Site ARNWR17 Net B**



**Site ARNWR17 Net C**



**Site ARNWR17 Net D**



**Site ARNWR18 Net A**



**Site ARNWR18 Net A**



**Site ARNWR18 Net C**



**Site ARNWR18 Net D**

## **Appendix D**

### **Photographs of Captured Northern-long Eared Bats**



**COPPERHEAD**  
ENVIRONMENTAL CONSULTING

2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII, Dare Co., NC  
Northern Long-eared Bat (*Myotis septentrionalis*)  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**

Adult Male  
Non-reproductive  
Band # CC0254  
Site ARNWR1  
24 April 2019



**Description:**

Adult Female  
Non-reproductive  
Band # CC0092  
Site ARNWR11  
25 April 2019



**Description:**

Adult Female  
Pregnant  
Band # CC1453  
ARNWR1  
11 May 2019





2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII, Dare Co., NC  
Northern Long-eared Bat (*Myotis septentrionalis*)  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**  
Adult Female  
Lactating  
Band # CC1047  
ARNWR6  
3 June 2019



**Description:**  
Juvenile Female  
Non-reproductive  
Not banded (bat too small)  
ARNWR1  
22 June 2019



**Description:**  
Juvenile Male  
Non-reproductive  
Not banded (bat too small)  
ARNWR1  
22 June 2019





2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII, Dare Co., NC  
Northern Long-eared Bat (*Myotis septentrionalis*)  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**  
Juvenile Male  
Non-reproductive  
Not banded (bat too small)  
ARNWR1  
22 June 2019



**Description:**  
Juvenile Female  
Non-reproductive  
Not banded (bat too small)  
ARNWR1  
22 June 2019



**Description:**  
Juvenile Male  
Non-reproductive  
Not banded (bat too small)  
ARNWR1  
22 June 2019





2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII, Dare Co., NC  
Northern Long-eared Bat (*Myotis septentrionalis*)  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**

Juvenile Male  
Non-reproductive  
Not banded (bat too small)  
ARNWR6  
22 June 2019



**Description:**

Adult Female  
Lactating  
Band # CC1908  
ARNWR1  
22 June 2019



**Description:**

Juvenile Female  
Non-reproductive  
Not banded (bat too small)  
ARNWR1  
23 June 2019





**COPPERHEAD**  
ENVIRONMENTAL CONSULTING

2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII, Dare Co., NC  
Northern Long-eared Bat (*Myotis septentrionalis*)  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**

Juvenile Female  
Non-reproductive  
Not banded (bat too small)  
ARNWR11  
24 June 2019



**Description:**

Juvenile Male  
Non-reproductive  
Not banded (bat too small)  
ARNWR1  
7 July 2019



**Description:**

Adult Male  
Non-reproductive  
Band # CC0105  
ARNWR6  
9 July 2019





2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII, Dare Co., NC  
Northern Long-eared Bat (*Myotis septentrionalis*)  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**  
Adult Male  
Non-reproductive  
Band # CC1306  
ARNWR9  
10 July 2019



**Description:**  
Adult Male  
Non-reproductive  
Band # CC1307  
ARNWR9  
10 July 2019



**Description:**  
Adult Male  
Non-reproductive  
Band # CC2059  
ARNWR17  
10 July 2019





**COPPERHEAD**  
ENVIRONMENTAL CONSULTING

2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII, Dare Co., NC  
Northern Long-eared Bat (*Myotis septentrionalis*)  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**

Juvenile Male  
Non-reproductive  
Band # CC1303  
ARNWR9  
11 July 2019



**Description:**

Adult Male  
Non-reproductive  
Band # CC1310  
ARNWR9  
12 July 2019



**Description:**

Juvenile Female  
Non-reproductive  
Band # CC2089  
ARNWR17  
13 July 2019





**COPPERHEAD**  
ENVIRONMENTAL CONSULTING

2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII, Dare Co., NC  
Northern Long-eared Bat (*Myotis septentrionalis*)  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**

Juvenile Male  
Non-reproductive  
Band # CC2355  
ARNWR1  
15 July 2019



**Description:**

Adult Female  
Post-lactating  
Band # CC2356  
ARNWR1  
15 July 2019



**Description:**

Adult Female  
Post-lactating  
Band # CC1312  
ARNWR1  
15 July 2019

**Bat Not Photographed**



**COPPERHEAD**  
ENVIRONMENTAL CONSULTING

2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII, Dare Co., NC  
Northern Long-eared Bat (*Myotis septentrionalis*)  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**

Juvenile Female  
Non-reproductive  
Band # CC1313  
ARNWR11  
15 July 2019



**Description:**

Adult Male  
Non-reproductive  
Band # CC0147  
ARNWR17  
15 July 2019



# **Appendix E**

## **Completed Roost Tree and Emergence Datasheets**

Roost No. 57 Project Phase# 799 Project Name NC DOT M/SE Date First Found 4 June 2019

Location North of Wolf pens Ownership<sup>1</sup> Federal

County Dare State NC Observer(s) W. Sator C. Mcmurry Datum NAD 83

Lat/Long or UTM (circle one): N/Easting 35.831468 W/Northing -75.902957 UTM Zone -

longleaf

#	Roost No.	Tree Species	DBH (cm)	Height (m)		Decay State <sup>2</sup> (1-9)	Bark Cover		Tree Ranking <sup>3</sup>	Observation
				Tree	Roost		Usable (%)	Total (%)		
1	<u>58</u>	<u>P. palustris</u>	<u>33.9</u>	<u>28</u>	<u>20</u>	<u>4</u>	<u>40</u>	<u>50</u>	<u>Canopy</u>	<u>-</u>
2		<u>A. rubrum</u>	<u>6.7</u>	<u>8</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Sub</u>	<u>-</u>
3		<u>Q. nigra</u>	<u>22.4</u>	<u>20</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Canopy</u>	<u>-</u>
4		<u>Q. nigra</u>		<u>20</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Canopy</u>	<u>-</u>
5		<u>P. palustris</u>	<u>24.8</u>	<u>26</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Canopy</u>	<u>-</u>
6		<u>Q. nigra</u>	<u>13.0</u>	<u>15</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Canopy</u>	<u>-</u>
7		<u>P. palustris</u>	<u>9.8</u>	<u>15</u>	<u>-</u>	<u>3</u>	<u>50</u>	<u>40</u>	<u>Sub</u>	<u>-</u>
8		<u>L. styraciflua</u>	<u>6.4</u>	<u>19</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Sub</u>	<u>-</u>
9		<u>P. palustris</u>	<u>27.8</u>	<u>27</u>	<u>-</u>	<u>1</u>	<u>5</u>	<u>100</u>	<u>Canopy</u>	<u>-</u>
10		<u>Q. nigra</u>	<u>17.9</u>	<u>20</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Canopy</u>	<u>-</u>
11		<u>Q. nigra</u>	<u>7</u>	<u>8</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Sub</u>	<u>-</u>
12		<u>Q. nigra</u>	<u>14.2</u>	<u>15</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Sub</u>	<u>-</u>
13		<u>Q. nigra</u>	<u>18.0</u>	<u>16</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Canopy</u>	<u>-</u>
14		<u>P. palustris</u>	<u>30.4</u>	<u>28</u>	<u>-</u>	<u>1</u>	<u>5</u>	<u>100</u>	<u>Canopy</u>	<u>-</u>
15		<u>Q. nigra</u>	<u>12.5</u>	<u>15</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Sub</u>	<u>-</u>
16		<u>Q. nigra</u>	<u>21.7</u>	<u>17</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Sub</u>	<u>-</u>
17			<u>17.8</u>	<u>12</u>	<u>-</u>	<u>1</u>	<u>0</u>	<u>100</u>	<u>Sub</u>	<u>-</u>
18										
19										
20										
21										
22										

Basal Area (#trees × 10)		
Live Trees (Decay State 1-2)	Snags (Decay State 3-9)	All Trees
<u>150</u>	<u>20</u>	<u>170</u>

↓ Roost Only ↓

Habitat (Circle One)		
<u>Interior</u>	Edge	Open

% Canopy Closure
<u>30</u>

Roost Type <sup>4</sup>
<u>Tree-Dead</u>

MicroHabitat <sup>5</sup> Used by Bat
<u>Exfoliating bark</u>

Notes \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

1 Ownership: Private; Federal; State; City; Other; Unknown

2 Decay State: 1 Live; 2 Declining; 3 Dead; 4 Loose Bark; 5 Clean; 6 Broken; 7 Decomposed; 8 Down Material; 9 Stump (See Back for Reference)

3 Tree Ranking: Canopy; Sub-Canopy; Understory

4 Roost Type: Tree-Live; Tree-Dead; Bat Box-Standard; Bat Box-Rocket; Bat Box-Condo; Artificial Bark; Utility Pole; Private Residence; Public Building; Auxiliary Structure-barn/shed; Other Occupied Structure; Other Unoccupied Structure; Cave; Mine; Talus Slope; Rock Outcrop; Unknown

5 MicroHabitat: Exfoliating Bark; Cavity; Crevice/Crack; Canopy/Cluster of Leaves; Other



Roost No. 57

Bat Species/Sex/Frequency: MYOSEP/F/.333

Band # CC1047

Roost Diagram

Location Diagram



Bat Days					
No.	Date 20 <u>19</u>	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	4 June	333	CC1047	F	-
2	5 June	333	CC1047	F	-
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

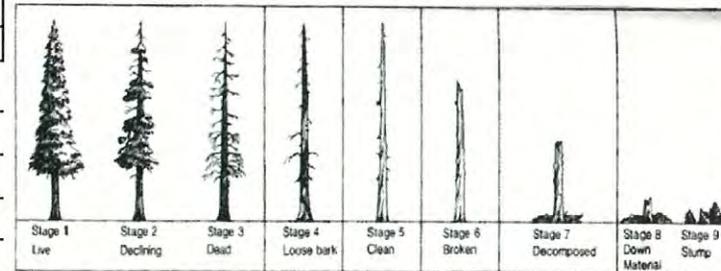
No.	Date 20 <u>19</u>	Temp (°F)	Weather	# of Bats	Time			Tagged Bat Exit #	Personnel/Comments
					Sunset	Bats Start	Bats End		
1	4 June	72	Clear	1	2016	2036	2036	1	-
2	5 June	75	Overcast/Rainy	1	2010	2055	2055	1	-
3									
4									
5									
6									

Cavity or Crevice Characteristics

No.	Roost Type	Aspect	Opening Measurements		Height from Ground (m)	Observation
			Width (cm)	Height (cm)		
1						
2						
3						
4						

Comments:

Understory too thick to see top of tree



RT 57

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:

Forested 61  
Wetland



APPENDIX E: PHASE 4 EMERGENCE SURVEYS

Site Name/ #: RT 57      Roost Name/ #: RT 57

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

\* 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?

Understory obstructed view of top of snag.

---



---

**USFWS BAT EMERGENCE SURVEY DATASHEET**

Date: 5 June 19 Surveyor(s) Full Name: Will Senter, Kellen Mcmurry  
 State: NC County: Dare Project Name: NC DOT MYSE 2019  
 Site Name/#: NS57 Roost Name/#: NS57 Bat #: CC1047  
 Lat/Long or UTM of Roost: 35, 831466, -75, 902957  
 Description of Roost/Habitat Feature Surveyed: Exfoliating bark on pine snag

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

Other Suspected Bat Species (explain): —

Weather Conditions during Survey (temperature, precipitation, wind speed):  
75° Windy, overcast, slight drizzle

Survey Start Time: 1946 Time of Sunset: 2016 Survey End Time: 2106

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

Time	Number of Bats Leaving Roost*	Comments / Notes
2055	1	Tiggered bat left roost
2106	—	Too Dark To see



Roost No. 58 Project Phase# 799.05 Project Name NCDOT MYSE 2019 Date First Found 8-June 2019

Location NW of RT 57 Ownership<sup>1</sup> Federal

County Dare State NC Observer(s) W. Saito C. Mcmurry Datum NAD83

Lat/Long or UTM (circle one): N/Easting 35,832 609 W/Northing -75,903157 UTM Zone -

#	Roost No.	Tree Species	DBH (cm)	Height (m)		Decay State <sup>2</sup> (1-9)	Bark Cover		Tree Ranking <sup>3</sup>	Observation
				Tree	Roost		Usable (%)	Total (%)		
1	58	<i>P. palustris</i>	21.5	25	18	4	30	10	Canopy	-
2		<i>Q. nigra</i>	25.2	20	-	3	40	10	Canopy	-
3		<i>Q. nigra</i>	16.7	30	-	2	100	0	Sub Canopy	-
4		<i>Q. nigra</i>	13.1	12	-	1	100	0	Canopy	-
5		<i>P. palustris</i>	25.5	30	-	1	100	0	Sub Canopy	-
6		<i>Q. nigra</i>	23.2	15	-	1	100	0	Canopy	-
7		<i>Q. nigra</i>	9.5	10	-	2	100	0	Sub canopy	-
8		<i>P. palustris</i>	21.5	25	-	1	100	0	Canopy	-
9		<i>Q. nigra</i>	15.8	25	-	1	100	0	Canopy	-
10		<i>Q. nigra</i>	19.4	12	-	1	100	0	Sub canopy	-
11		<i>Q. nigra</i>	13.0	15	-	1	100	0	Sub canopy	-
12		<i>Q. nigra</i>	10.3	10	-	1	100	0	Sub Canopy	-
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

Basal Area (#trees x 10)		
Live Trees (Decay State 1-2)	Snags (Decay State 3-9)	All Trees
100	20	120

↓ Roost Only ↓

Habitat (Circle One)

Interior     Edge     Open

% Canopy Closure

0

Roost Type<sup>4</sup>

Tree-Dead

MicroHabitat<sup>5</sup> Used by Bat

Exfoliating Bark

Notes \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

- 1 **Ownership:** Private; Federal; State; City; Other; Unknown
- 2 **Decay State:** 1 Live; 2 Declining; 3 Dead; 4 Loose Bark; 5 Clean; 6 Broken; 7 Decomposed; 8 Down Material; 9 Stump (See Back for Reference)
- 3 **Tree Ranking:** Canopy; Sub-Canopy; Understory
- 4 **Roost Type:** Tree-Live; Tree-Dead; Bat Box-Standard; Bat Box-Rocket; Bat Box-Condo; Artificial Bark; Utility Pole; Private Residence; Public Building; Auxiliary Structure-barn/shed; Other Occupied Structure; Other Unoccupied Structure; Cave; Mine; Talus Slope; Rock Outcrop; Unknown
- 5 **MicroHabitat:** Exfoliating Bark; Cavity; Crevice/Crack; Canopy/Cluster of Leaves; Other



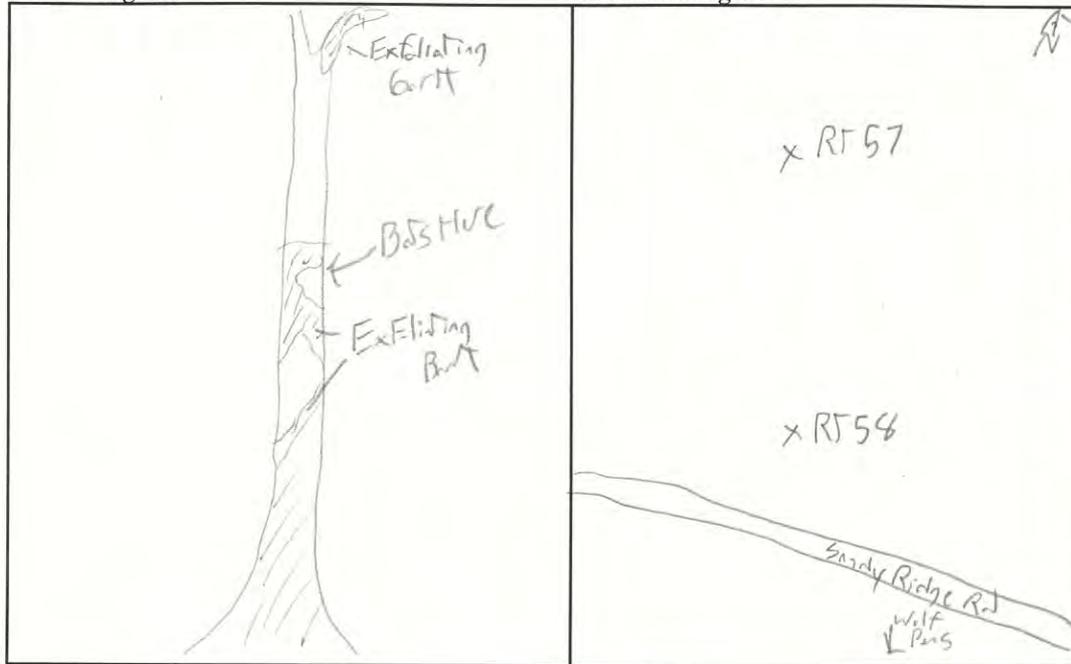
Roost No. 58

Bat Species/Sex/Frequency: MYOSEP/F/.333

Band # CC1047

Roost Diagram

Location Diagram

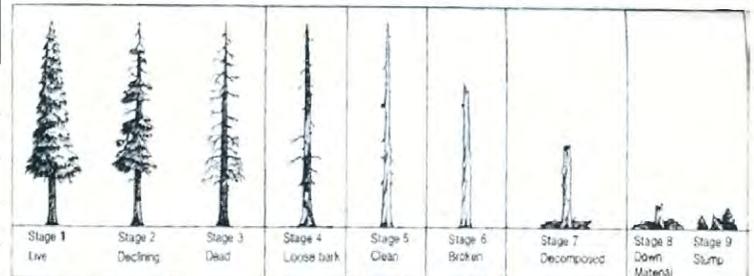


Bat Days					
No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	6 June	.333	CC1047	F	—
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count										
No.	Date	Temp	Weather	# of Bats	Time				Tagged Bat Exit #	Personnel/Comments
					Sunset	Bats Start	Bats End	Tagged Bat		
1	6 June	63	Overcast	4	2017	2021	2034	2021	1	—
2										
3										
4										
5										
6										

Cavity or Crevice Characteristics						
No.	Roost Type	Aspect	Opening Measurements		Height from Ground (m)	Observation
			Width (cm)	Height (cm)		
1						
2						
3						
4						

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



**USFWS BAT EMERGENCE SURVEY DATASHEET**

Date: 6 June 19 Surveyor(s) Full Name: William Seiter Clifton Memory

State: NC County: Dare Project Name: MCDOR MYSE 2019

Site Name/#: RT58 Roost Name/#: RT58 Bat #: CC1097

Lat/Long or UTM of Roost: 35, 932609 -76, 903157

Description of Roost/Habitat Feature Surveyed: Pine snag in swampy area  
North of Wolf pass

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):  
83°F overcast

Survey Start Time: 1947 Time of Sunset: 2017 Survey End Time: 2107

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

Time	Number of Bats Leaving Roost*	Comments / Notes
2021	1	Tagged GW
2025	1	
2027	1	
2029	1	
2107	0	roost dark to see



Roost No. *RT 489* Project Phase# *799.05* Project Name *US DOT MYSE 2019* Date First Found *7 June 2019*

Location *North of RT 558 in forested wetland* Ownership<sup>1</sup> *Federal*

County *Dare* State *NC* Observer(s) *G. Janos, C. Birdsell* Datum *NAD83*

Lat/Long or UTM (circle one):  N/Easting *35.83422*  W/Northing *-75.90361* UTM Zone *N/A*

#	Roost No.	Tree Species	DBH (cm)	Height (m)		Decay State <sup>2</sup> (1-9)	Bark Cover		Tree Ranking <sup>3</sup>	Observation
				Tree	Roost		Usable (%)	Total (%)		
1	<i>489</i>	<i>Pinus taeda</i>	<i>25.7</i>	<i>15</i>		<i>3</i>	<i>30</i>	<i>40</i>	<i>C</i>	
2		<i>hax</i>	<i>6.1</i>	<i>3</i>	<i>✓</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>U</i>	
3		<i>N. biflora</i>	<i>4.5</i>	<i>4</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
4		<i>N. biflora</i>	<i>19.9</i>	<i>14</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
5		<i>N. biflora</i>	<i>6.8</i>	<i>6</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>C</i>	
6		<i>N. biflora</i>	<i>10.2</i>	<i>9</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
7		<i>N. aquatica</i>	<i>9.8</i>	<i>10</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
8		<i>P. taeda</i>	<i>21.7</i>	<i>15</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>C</i>	
9		<i>N. biflora</i>	<i>9.8</i>	<i>10</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
10		<i>A. rubrum</i>	<i>7.9</i>	<i>8</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
11		<i>A. rubrum</i>	<i>4.7</i>	<i>4</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
12		<i>A. rubrum</i>	<i>5.4</i>	<i>5</i>	<i>-</i>	<i>2</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
13		<i>A. rubrum</i>	<i>12.4</i>	<i>11</i>	<i>-</i>	<i>3</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
14		<i>N. biflora</i>	<i>10.5</i>	<i>9</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
15		<i>N. biflora</i>	<i>14.3</i>	<i>10</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
16		<i>N. biflora</i>	<i>10.4</i>	<i>11</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
17		<i>N. biflora</i>	<i>6.5</i>	<i>4</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
18		<i>A. rubrum</i>	<i>8.7</i>	<i>6</i>	<i>-</i>	<i>2</i>	<i>0</i>	<i>100</i>	<i>SC</i>	
19		<i>P. taeda</i>	<i>26.7</i>	<i>15</i>	<i>-</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>C</i>	
20		<i>P. taeda</i>	<i>30</i>	<i>15</i>	<i>-</i>	<i>3</i>	<i>0</i>	<i>100</i>	<i>C</i>	
21		<i>P. taeda</i>	<i>25.9</i>	<i>17</i>	<i>-</i>	<i>2</i>	<i>0</i>	<i>100</i>	<i>C</i>	
22		<i>N. biflora</i>	<i>14.0</i>	<i>10</i>	<i>-</i>	<i>1</i>	<i>0</i>	<i>100</i>	<i>SC</i>	

Basal Area (#trees × 10)		
Live Trees (Decay State 1-2)	Snags (Decay State 3-9)	All Trees
<i>180</i>	<i>90</i>	<i>270</i>

↓ Roost Only ↓

Habitat (Circle One)

Interior    
  Edge    
  Open

% Canopy Closure

*0*

Roost Type<sup>4</sup>

*Tree - Dead*

MicroHabitat<sup>5</sup> Used by Bat

*Exfoliating bark*

Notes *Gray rat snake in lower section of bark*

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

- 1 **Ownership:** Private; Federal; State; City; Other; Unknown
- 2 **Decay State:** 1 Live; 2 Declining; 3 Dead; 4 Loose Bark; 5 Clean; 6 Broken; 7 Decomposed; 8 Down Material; 9 Stump (See Back for Reference)
- 3 **Tree Ranking:** Canopy; Sub-Canopy; Understory
- 4 **Roost Type:** Tree-Live; Tree-Dead; Bat Box-Standard; Bat Box-Rocket; Bat Box-Condo; Artificial Bark; Utility Pole; Private Residence; Public Building; Auxiliary Structure-barn/shed; Other Occupied Structure; Other Unoccupied Structure; Cave; Mine; Talus Slope; Rock Outcrop; Unknown
- 5 **MicroHabitat:** Exfoliating Bark; Cavity; Crevice/Crack; Canopy/Cluster of Leaves; Other



*23 P. taeda 32.4 15 - 3 10 70 C*

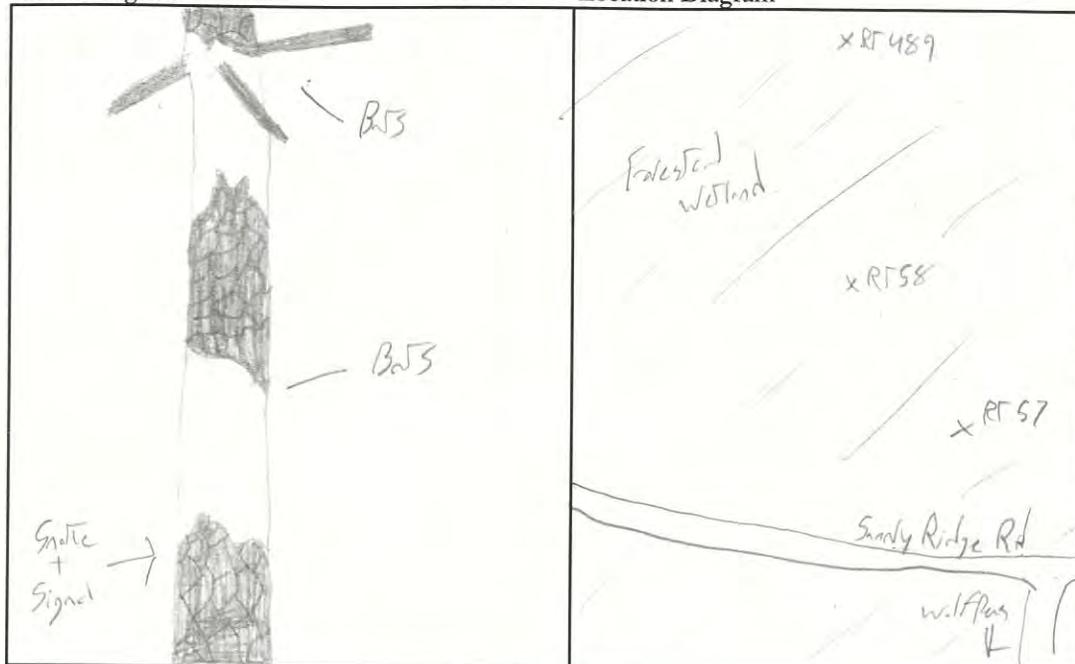
Roost No. 489

Bat Species/Sex/Frequency: MYOSEP/F/.333

Band # CC1047

Roost Diagram

Location Diagram



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	7 June 2019	.333	CC1047	F	Weak signal
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

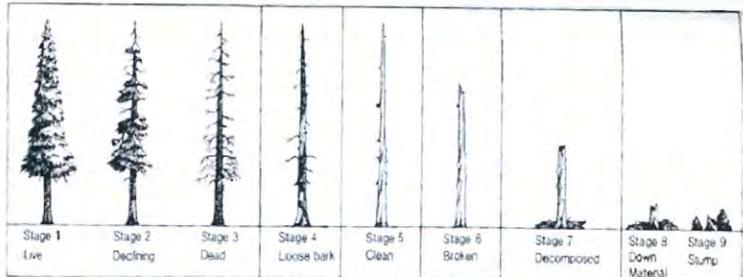
Emergence Count

No.	Date	Temp (°F)	Weather	# of Bats	Time				Tagged Bat Exit #	Personnel/Comments
					Sunset	Bats Start	Bats End	Tagged Bat		
1	7 June	73	Overcast	8	2017	2011	2049	—	—	See below
2										
3										
4										
5										
6										

Cavity or Crevice Characteristics

No.	Roost Type	Aspect	Opening Measurements		Height from Ground (m)	Observation
			Width (cm)	Height (cm)		
1						
2						
3						
4						

Comments: Signal sounded fine during morning hrs. (Temp said it was sounding weak + snake was where signal was best. During emergence signal still sounded good + then cut out w/ no bat emerging. Bat was treated 8 June 2019 + no signal was heard.



**USFWS BAT EMERGENCE SURVEY DATASHEET**

Date: 6-7-19 Surveyor(s) Full Name: Will Sator Crystal Bardsal  
 State: NC County: DARE Project Name: NC DDP MYSE 2019  
 Site Name/#: RF 489 Roost Name/#: RF 489 Bat #: CC1047  
 Lat/Long or UTM of Roost: \_\_\_\_\_  
 Description of Roost/Habitat Feature Surveyed: 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): \_\_\_\_\_

Survey Start Time: 1947 Time of Sunset: 2017 Survey End Time: 2117

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

Time	Number of Bats Leaving Roost*	Comments / Notes
2011	1	Top of tree west South
2012	1	Top of tree west West
2041	2	Middle of tree west South
2044	2	Middle of tree west
2049	2	Top of tree



Roost No. 442 Project Phase# 799 Project Name EASTERN NC MYSE Date First Found 23 JUN 2019  
 Location SOUTHWEST SANDY RIDGE ROAD Ownership<sup>1</sup> FEDERAL  
 County DALL State NC Observer(s) S PATTERSON, D BOUTE Datum NAD83  
 Lat/Long or UTM (circle one): N/Easting 35.820348 W/Northing -75.909129 UTM Zone \_\_\_\_\_

#	Roost No.	Tree Species	DBH (cm)	Height (m)		Decay State <sup>2</sup> (1-9)	Bark Cover		Tree Ranking <sup>3</sup>	Observation
				Tree	Roost		Usable (%)	Total (%)		
1	442	NYSSA biflora	21.2	15	9	2	100	100	SL	
2		Taxodium distichum	18.1	12		3	0	100	U	
3		Pinus echinata	3.1	10		1	0	100	U	
4		T. distichum	10.8	15		3	0	100	U	
5		T. distichum	2.0	19		1	0	100	SL	
6		NYSSA biflora	13.3	16		1	0	100	C	
7		NYSSA biflora	13.5	16		1	0	100	C	
8		snag	10	11		5	3	95	U	
9		NYSSA biflora	10.7	16		1	0	100	SL	
10		T. distichum	15.6	16		2	0	100	U	
11		NYSSA biflora	17.2	17		1	0	100	C	
12		NYSSA biflora	12.4	16		1	0	100	C	
13		T. distichum	19	20		2	0	100	C	
14		NYSSA biflora	18.5	19		1	0	100	C	
15		pine snag	29.9	15		4	56	70	U	
16		NYSSA biflora	9.8	18		1	0	100	SL	
17		NYSSA biflora	17.5	12		2	0	100	U	
18		T. distichum	6.8	9		2	0	100	U	
19		T. distichum	13.7	19		2	0	100	C	
20										
21										
22										

Basal Area (#trees × 10)		
Live Trees (Decay State 1-2)	Snags (Decay State 3-9)	All Trees
150	40	190

↓ Roost Only ↓

Habitat (Circle One)		
Interior	Edge	Open

% Canopy Closure
15

Roost Type <sup>4</sup>
Tree-Live

MicroHabitat <sup>5</sup> Used by Bat
Cavity

Notes \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

**1 Ownership:** Private; Federal; State; City; Other; Unknown

**2 Decay State:** 1 Live; 2 Declining; 3 Dead; 4 Loose Bark; 5 Clean; 6 Broken; 7 Decomposed; 8 Down Material; 9 Stump (See Back for Reference)

**3 Tree Ranking:** Canopy; Sub-Canopy; Understory

**4 Roost Type:** Tree-Live; Tree-Dead; Bat Box-Standard; Bat Box-Rocket; Bat Box-Condo; Artificial Bark; Utility Pole; Private Residence; Public Building; Auxiliary Structure-barn/shed; Other Occupied Structure; Other Unoccupied Structure; Cave; Mine; Talus Slope; Rock Outcrop; Unknown

**5 MicroHabitat:** Exfoliating Bark; Cavity; Crevice/Crack; Canopy/Cluster of Leaves; Other

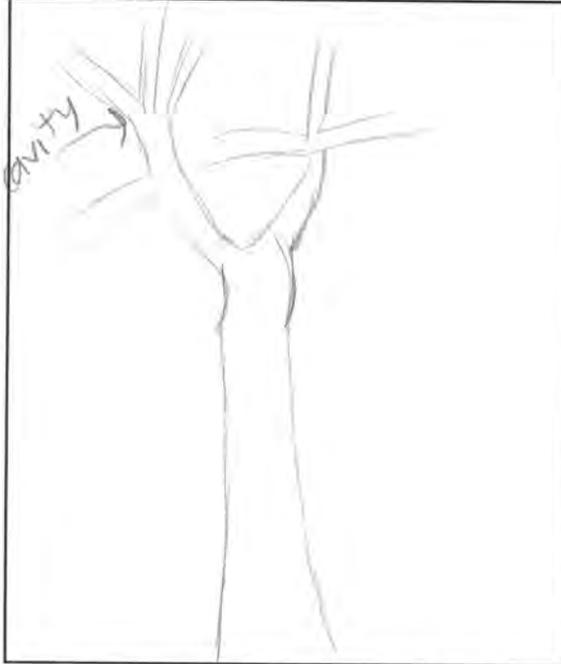
Roost No. 442

Bat Species/Sex/Frequency: MYSE/F/932

Band # CC1908

Roost Diagram

Location Diagram



Bat Days

No.	Date 20 <u>19</u>	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	6/23	932	CC1908	F	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

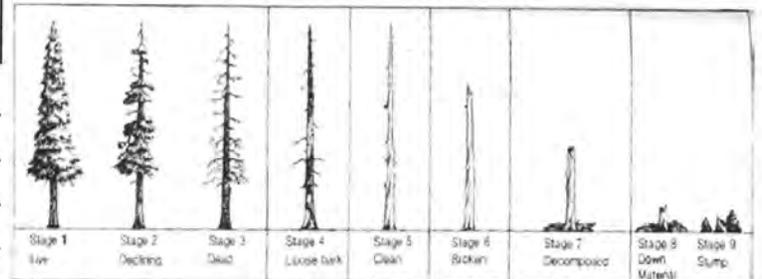
Emergence Count

No.	Date 20 <u>19</u>	Temp (°F)	Weather	# of Bats	Time			Tagged Bat Exit #	Personnel/Comments
					Sunset	Bats Start	Bats End		
1	6/23	81	clear	1	2022	2040	2040	1	
2									
3									
4									
5									
6									

Cavity or Crevice Characteristics

No.	Roost Type	Aspect	Opening Measurements		Height from Ground (m)	Observation
			Width (cm)	Height (cm)		
1						
2						
3						
4						

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





Roost No. 992 Project Phase# 799 Project Name Eastern NC MYSE Date First Found 24 JUN 2019

Location To the East of the road leading to wolf pens Ownership<sup>1</sup> Federal

County Dare State NC Observer(s) \_\_\_\_\_ Datum NAD 83

Lat/Long or UTM (circle one): N/Easting 35.828040 W/Northing -75.901678 UTM Zone \_\_\_\_\_

#	Roost No.	Tree Species	DBH (cm)	Height (m)		Decay State <sup>2</sup> (1-9)	Bark Cover		Tree Ranking <sup>3</sup>	Observation
				Tree	Roost		Usable (%)	Total (%)		
1	992	<i>Persea palustris</i> snag	7.5	7.0	2.5	3	30	75	U	
2		<i>N. Biflora</i>	16.9	14		1	0	100	SC	
3		<i>P. palustris</i>	11.6	9		1	0	100	SC	
4		<i>N. Biflora</i>	30.6	19		1	0	100	C	
5		<i>N. Biflora</i>	30.7	18		1	0	100	C	
6		<i>P. palustris</i>	14.1	12		1	0	100	SC	
7		<i>P. palustris</i>	13.8	8		1	0	100	U	
8		<i>Liquidambar styraciflua</i>	30	20		1	0	100	C	
9		<i>P. palustris</i>	18.7	11		1	0	100	U	
10		<i>Liquidambar styraciflua</i>	19.1	19		1	0	100	C	
11		<i>P. palustris</i>	14.9	12		1	0	100	SC	
12		<i>N. Biflora</i>	43.5	20		1	0	100	C	
13		<i>P. palustris</i>	17.1	17		1	0	100	SC	
14		<i>L. styraciflua</i>	25.1	18		1	0	100	C	
15		<i>N. Biflora</i>	19.9	13		1	0	100	SC	
16		<i>magnolia virginiana</i>	16.7	15		1	0	100	SC	
17		<i>P. palustris</i>	10.9	10		1	0	100	U	
18		<i>N. Biflora</i>	15.8	12		1	0	100	SC	
19		<i>N. Biflora</i>	11.7	11		1	0	100	SC	
20		<i>Ilex opaca</i>	11.7	9		2	0	100	U	
21										
22										

Basal Area (#trees × 10)		
Live Trees (Decay State 1-2)	Snags (Decay State 3-9)	All Trees
190	10	200

↓ Roost Only ↓

Habitat (Circle One)

Interior     Edge     Open

% Canopy Closure

100

Roost Type<sup>4</sup>

Cedar tree - dead

MicroHabitat<sup>5</sup> Used by Bat

cavity + exfoliating bark

Notes \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

- 1 **Ownership:** Private; Federal; State; City; Other; Unknown
- 2 **Decay State:** 1 Live; 2 Declining; 3 Dead; 4 Loose Bark; 5 Clean; 6 Broken; 7 Decomposed; 8 Down Material; 9 Stump (See Back for Reference)
- 3 **Tree Ranking:** Canopy; Sub-Canopy; Understory
- 4 **Roost Type:** Tree-Live; Tree-Dead; Bat Box-Standard; Bat Box-Rocket; Bat Box-Condo; Artificial Bark; Utility Pole; Private Residence; Public Building; Auxiliary Structure-barn/shed; Other Occupied Structure; Other Unoccupied Structure; Cave; Mine; Talus Slope; Rock Outcrop; Unknown
- 5 **MicroHabitat:** Exfoliating Bark; Cavity; Crevice/Crack; Canopy/Cluster of Leaves; Other



Roost No. 992

Bat Species/Sex/Frequency: MYSE/F/932

Band # CC1908

Roost Diagram

Location Diagram

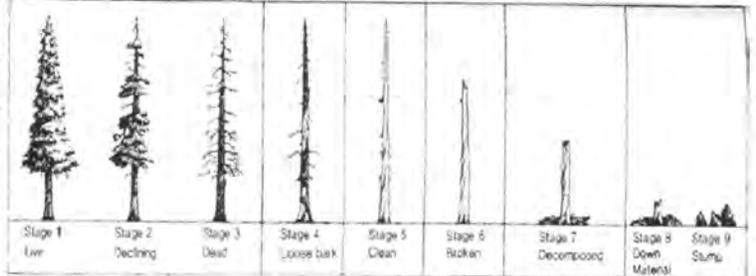


Bat Days					
No.	Date 2019	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	10/29	932	CC1908	F	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count										
No.	Date 2019	Temp (°F)	Weather	# of Bats	Time				Tagged Bat Exit #	Personnel/Comments
					Sunset	Bats Start	Bats End	Tagged Bat		
1	10/29	78	clear	4	2022	2034	2038	2038	4	
2										
3										
4										
5										
6										

Cavity or Crevice Characteristics						
No.	Roost Type	Aspect	Opening Measurements		Height from Ground (m)	Observation
			Width (cm)	Height (cm)		
1	cavity	105	4	5	2.5	
2						
3						
4						

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





Bat Species/Sex/Frequency: MYSE/F1932

Band # 101908

Sheet 1 of 1

Roost No. 993 Project Phase# 799 Project Name NC DOT MYSE 2019 Date First Found 10/25/19

Location South of Sandy Ridge Rd near RT 992 Ownership Federal

County Dare State NC Observer(s) S. Patterson, D. Batie, G. Steiffer Datum NAD83

Lat/Long or UTM (circle one): N/Easting 35.827389 W/Northing 75.901795 UTM Zone \_\_\_\_\_

#	Roost No.	Tree Species	DBH (cm)	Height (m)		Decay State <sup>2</sup> (1-9)	Bark Cover		Tree Ranking <sup>3</sup>	Observation
				Tree	Roost		Usable (%)	Total (%)		
1	993	Pinus palustris	60	6	2	1	0	100	U	
2		Nyssa bicolor	16.75	15		1	0	100	C	
3		N. bicolor	18	13		1	0	100	C	
4		Ilex opaca	19.5	10		1	0	100	SL	
5		N. bicolor	19.25	18		1	0	100	C	
6		N. bicolor	9.25	10		1	0	100	SL	
7		N. bicolor	12.5	12		1	0	100	SL	
8		Pinus spp. snag	52.2	20		3	20	70	C	
9		N. bicolor	14.4	7		1	0	100	U	
10		P. palustris	15.8	7		1	0	100	U	
11		N. bicolor	17.7	12		1	0	100	SL	
12		N. bicolor	39.5	20		1	0	100	C	
13		N. bicolor	21.5	14		1	0	100	SL	
14		N. bicolor snag	50.9	20		3	0	100	C	
15		N. bicolor	15.7	10		1	0	100	U	
16		P. palustris	17.1	7		1	0	100	U	
17		N. bicolor	17.0	10		1	0	100	U	
18		Liquidambar styraciflua	21.0	9		1	0	100	SL	
19		L. styraciflua	28.1	15		1	0	100	SL	
20										
21										
22										

Basal Area (#trees x 10)		
Live Trees (Decay State 1-2)	Snags (Decay State 3-9)	All Trees
170	20	190

↓ Roost Only ↓

Habitat (Circle One)

Interior     Edge     Open

% Canopy Closure

45

Roost Type<sup>4</sup>

Tree-live

MicroHabitat<sup>5</sup> Used by Bat

cavity

Notes \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

- 1 **Ownership:** Private; Federal; State; City; Other; Unknown
- 2 **Decay State:** 1 Live; 2 Declining; 3 Dead; 4 Loose Bark; 5 Clean; 6 Broken; 7 Decomposed; 8 Down Material; 9 Stump (See Back for Reference)
- 3 **Tree Ranking:** Canopy; Sub-Canopy; Understory
- 4 **Roost Type:** Tree-Live; Tree-Dead; Bat Box-Standard; Bat Box-Rocket; Bat Box-Condo; Artificial Bark; Utility Pole; Private Residence; Public Building; Auxiliary Structure-barn/shed; Other Occupied Structure; Other Unoccupied Structure; Cave; Mine; Talus Slope; Rock Outcrop; Unknown
- 5 **MicroHabitat:** Exfoliating Bark; Cavity; Crevice/Crack; Canopy/Cluster of Leaves; Other



Roost No. 993

Bat Species/Sex/Frequency: MYSE/F/1932

Band # CC1908

Roost Diagram

Location Diagram



Bat Days

No.	Date	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	6/25	932	CC1908	F	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

Emergence Count

No.	Date	Temp (°F)	Weather	# of Bats	Time			Tagged Bat Exit #	Personnel/Comments
					Sunset	Bats Start	Bats End		
1	6/25	78	cloudy	1	2022	2027	2027	1	
2									
3									
4									
5									
6									

Cavity or Crevice Characteristics

No.	Roost Type	Aspect	Opening Measurements		Height from Ground (m)	Observation
			Width (cm)	Height (cm)		
1	cavity	35	5	10	2.0	
2						
3						
4						

Comments:

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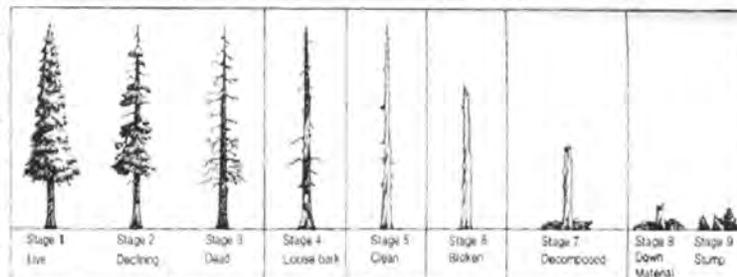
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Roost No. 994 Project.Phase# 799 Project Name NC DOT MYSE 2019 Date First Found 6/26/19

Location West of the northern side of Red Wolf Park, about 0.2 mi S of Sandy Ridge Rd Ownership<sup>1</sup> Federal

County Dare State NC Observer(s) D. Baker, G. Shaffer, M. Martin Datum WGS-84

Lat/Long or UTM (circle one): N/Easting 35.8280897 W/Northing 75.9050295 UTM Zone     

#	Roost No.	Tree Species	DBH (cm)	Height (m)		Decay State <sup>2</sup> (1-9)	Bark Cover		Tree Ranking <sup>3</sup>	Observation
				Tree	Roost		Usable (%)	Total (%)		
1	994	<i>Pinus taeda</i>	33.0	18	8	4	30	60	C	
2		<i>Acer rubrum</i>	7.6	8		2	0	95	U	
3		<i>Persea palustris</i>	9.8	10		2	0	95	SC	
4		<i>Nyssa biflora</i>	12.6	11		1	0	100	SC	
5		<i>Persea palustris</i>	13.5	10		1	0	100	SC	
6		<i>Persea palustris</i>	13.1	7		2	0	100	SC	
7		<i>Persea palustris</i>	13.6	10		1	0	100	SC	
8		<i>Persea palustris</i>	13.5	12		1	0	100	SC	
9		<i>Persea palustris</i>	9.0	11		1	0	100	SC	
10		<i>Persea borbonia</i>	8.8	7		1	0	100	SC	
11		<i>Nyssa biflora</i>	14.3	10		1	0	100	SC	
12		<i>Pinus taeda</i>	17.5	10		4	50	30	SC	
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

Basal Area (#trees × 10)		
Live Trees (Decay State 1-2)	Snags (Decay State 3-9)	All Trees
100	20	120

↓ Roost Only ↓

Habitat (Circle One)

Interior     Edge     Open

% Canopy Closure

30

Roost Type<sup>4</sup>

Tree - Dead

MicroHabitat<sup>5</sup> Used by Bat

Exfoliating Bark

Notes \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

- 1 Ownership: Private; Federal; State; City; Other; Unknown
- 2 Decay State: 1 Live; 2 Declining; 3 Dead; 4 Loose Bark; 5 Clean; 6 Broken; 7 Decomposed; 8 Down Material; 9 Stump (See Back for Reference)
- 3 Tree Ranking: Canopy; Sub-Canopy; Understory
- 4 Roost Type: Tree-Live; Tree-Dead; Bat Box-Standard; Bat Box-Rocket; Bat Box-Condo; Artificial Bark; Utility Pole; Private Residence; Public Building; Auxiliary Structure-barn/shed; Other Occupied Structure; Other Unoccupied Structure; Cave; Mine; Talus Slope; Rock Outcrop; Unknown
- 5 MicroHabitat: Exfoliating Bark; Cavity; Crevice/Crack; Canopy/Cluster of Leaves; Other



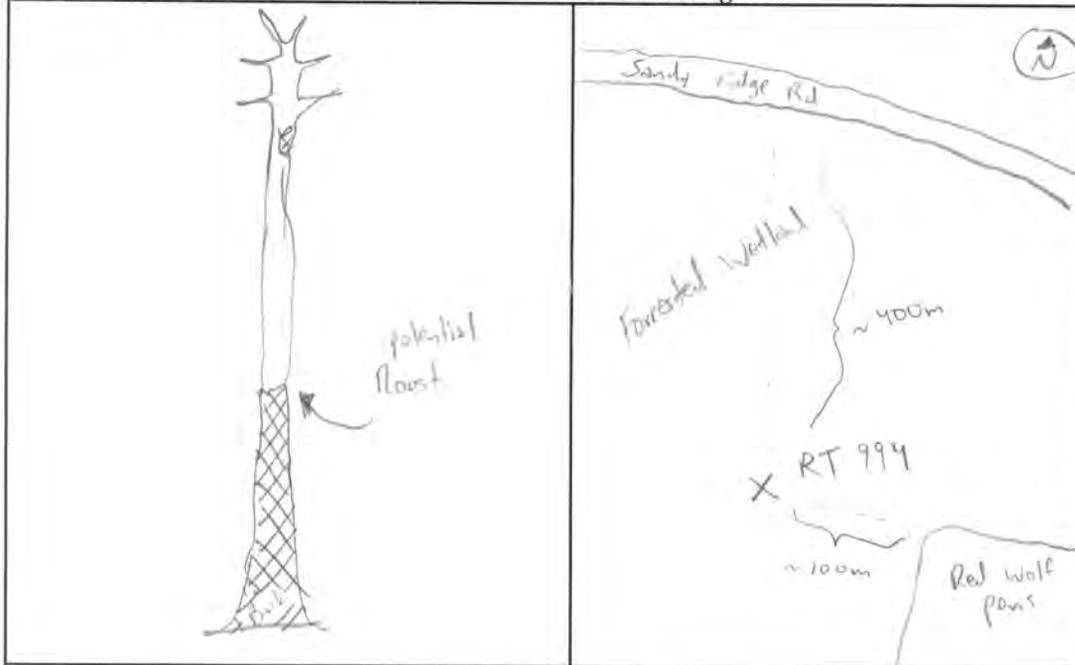
Roost No. 994

Bat Species/Sex/Frequency: MYSE/F/932

Band # CC1908

Roost Diagram

Location Diagram



Bat Days					
No.	Date 2019	Bat Freq.	Bat Band #	Sex of Bat	Observations
1	26-6	932	CC1908	F	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

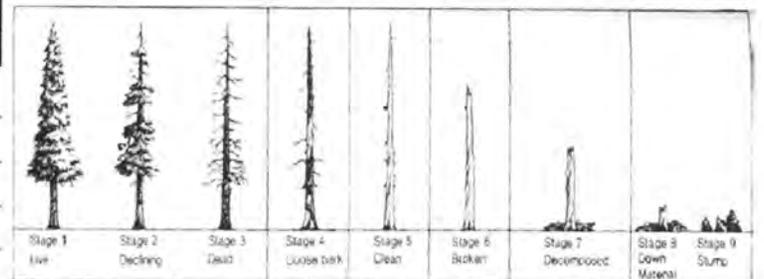
Emergence Count

No.	Date 2019	Temp (°F)	Weather	# of Bats	Time				Tagged Bat Exit #	Personnel/Comments
					Sunset	Bats Start	Bats End	Tagged Bat		
1	26-6	83	clear	1	2023	2035	2035	2035	1	
2										
3										
4										
5										
6										

Cavity or Crevice Characteristics

No.	Roost Type	Aspect	Opening Measurements		Height from Ground (m)	Observation
			Width (cm)	Height (cm)		
1	exfoliating	-	-	-	8	
2						
3						
4						

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





# Appendix F

## Photographs of Day Roosts



**COPPERHEAD**  
ENVIRONMENTAL CONSULTING

2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII  
Northern Long-eared Bat Roost Trees  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**  
RT 57  
*Pinus palustris*

**Used By:**  
Bat 333  
Band # 1047  
4-5 June 2019



**Description:**  
RT58  
*Pinus palustris*

**Used By:**  
Bat 333  
Band # CC1047  
6 June 2019





**COPPERHEAD**  
ENVIRONMENTAL CONSULTING

2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII  
Northern Long-eared Bat Roost Trees  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**

RT489

*Pinus taeda*

**Used By:**

Bat 333

Band # CC1047

7 June 2019



**Description:**

RT 442

*Nyssa biflora*

**Used By:**

Bat 932

Band # CC1908

23 June 2019





**COPPERHEAD**  
ENVIRONMENTAL CONSULTING

2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII  
Northern Long-eared Bat Roost Trees  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**  
RT992  
*Persea palustris*

**Used By:**  
Bat 932  
Band # CC 1908  
24 June 2019



**Description:**  
RT993  
*Persea palustris*

**Used By:**  
Bat 932  
Band # CC 1908  
25 June 2019





**COPPERHEAD**  
ENVIRONMENTAL CONSULTING

2019 Eastern North Carolina Northern Long-eared Bat  
Research Project, Phase VII  
Northern Long-eared Bat Roost Trees  
Photographic Record

TIP No. R-9999

County, State:  
Dare County, NC

Client:  
NCDOT

**Description:**

RT994

*Pinus taeda*

**Used By:**

Bat 932

Band # CC 1908

26 June 2019

