

Northern Long-eared Bat Research Study
Eastern North Carolina
Spring/Summer 2018 Survey Phase VI
Southeast Section Report

TIP R-9999

WBS No. 34634.1.4

Prepared for



The North Carolina Department of Transportation
Environmental Analysis Unit
Biological Surveys Group
1598 Mail Service Center
Raleigh, NC 27699-1598
(919) 707-6000

November 2018

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Prepared by



324 Blackwell St
Durham, NC 27278
Tel: (919) 732-1300

November 2018

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1.0 PROJECT DESCRIPTION

The North Carolina Department of Transportation (NCDOT) contracted with Three Oaks Engineering (Three Oaks) to assist in conducting part of a research study of the federally Threatened Northern Long-Eared Bat (*Myotis septentrionalis*; NLEB) in eastern North Carolina. The objective of this study was to determine the distribution of NLEB in eastern North Carolina.

Three Oaks conducted mist-netting in four counties in the North Carolina coastal plain. NCDOT coordinated sampling locations with state and federal resource agencies to avoid duplicating efforts. All mist-netting locations addressed in this report were situated in southeastern North Carolina. This report provides the results of the Summer 2018 phase of the overall Eastern NC NLEB Programmatic Agreement research project. This research project was developed to collect data over five years on the distribution, habitat characteristics, and behavior of NLEB in eastern NC. The 2018 summer surveys described in this report occurred from April to mid-August.

The goal of the survey was to catch the target species, NLEB. Surveys were conducted within suitable summer roosting and foraging habitat for NLEB. Surveys were conducted by a qualified bat biologist with current US Fish and Wildlife Service (USFWS) and NC Wildlife Resources Commission (NCWRC) permits (see Section 4.0 Investigator Qualifications).

2.0 METHODS

This section describes the methods used to perform habitat assessments and field surveys. Survey methodology followed procedures and protocols set forth by the NCDOT project scope and the Standardization for NLEB Research document provided by NCDOT (2016). All survey work was consistent with the protocols stipulated in the National White-nose Syndrome (WNS) Decontamination Protocol (USFWS 2018a), North Carolina's White-nose Syndrome (WNS) Surveillance and Response Plan (NCWRC 2016), USFWS Guidance and Justification for Decontamination in North Carolina (USFWS 2016), and the NCDOT WNS Decontamination Protocol (NCDOT 2014).

Surveys were conducted in the following counties:

1. Brunswick County
2. Columbus County
3. Onslow County - Camp Lejeune only
4. Robeson County

Locations and sites for netting within Camp LeJeune (Onslow County) were suggested by USFWS. In other counties, state game lands and state parks were targeted locations due to the extensive habitat available. The most suitable net sites for capturing NLEB within each location were selected by Three Oaks' bat biologist. Thirty-two calendar nights of mist-netting were conducted, with eight calendar nights of netting conducted in each county. The number of locations netted in each county depended on the availability of quality habitat, potential sites for mist-netting, and netting results.

Locations selected were:

Brunswick County

Juniper Creek Game Land

- Camp Branch Road (site 1)
- Federal Road ponds (site 2)

Green Swamp Game Land

- Main road (site 3)
- Edge of Green Swamp (site 4)

Columbus County

Lumber River State Park

- Big Sandy Ridge (site 1)
- Big Sandy Ridge fork (site 2)
- Big Sandy Ridge south (site 3)

Columbus County Game Land

- Mitchell Field Road (site 4)

Onslow County

Camp Lejeune

- No name road (site 3* & 3b)
- Old Town Point Road (site 4*)
- Magnolia Road (site 5*)
- Mills Run (site 7*)

Robeson County

Lumber River State Park

- Mill Run (site 1)
- Wildcat 2 (site 2)
- Rafinesque's tower (site 3)
- Peter's Lake (site 4)
- Peter's Lake east (site 5)
- Peter's Lake swamp (site 6)

*Site numbers pre-determined by USFWS and Camp Lejeune staff

2.1 Habitat Characterization

Several of the above locations had not previously been surveyed. An initial desktop-GIS assessment was performed using the latest orthoimagery to determine potential mist-netting sites for NLEB at each location, followed by a site visit.

At each survey site, the natural community type was characterized using the Classification of the Natural Communities of North Carolina, Fourth Approximation (Schafale 2012), the overall habitat was described, and habitat in the survey area was scored by selecting one descriptor from each of the following:

1. Pine/Hardwood/Mixed
2. Upland/Bottomland
3. Managed (thinned, burned, or pine plantation)/Unmanaged

4. Cutover/Immature forest/Mature forest
5. Clutter* (Classifications 1-4)
 - (1) Sparse/no, < 10% cover (example: open for 40m in all directions)
 - (2) Low, 10–39% cover (low clutter stands typically contain <6 or >95-year-old trees,
 - (3) Medium, 40–75% cover (medium clutter stands typically contain 70–100 year-old trees, example: at least 10-m wide travel corridor, fairly open above)
 - (4) High, > 75% cover (high clutter stands typically contain 10–25 year-old trees, example: closed canopy & travel corridor < 10-m wide)
6. Natural (>50% wooded)/Rural (>50% agricultural land)/Mixed (primary land use is not wooded or agricultural)

*Clutter was characterized visually as an average cover of all strata of the forested area.

If NLEB were captured, additional habitat data were to be collected: forest basal area (m²/ha), assessed using a 10-factor prism, and canopy cover, assessed using a sighting tube at 10 random locations within a 0.05-ha circular plot around each site (Cook et al. 1995, Ford et al. 2006).

2.2 Mist-net Surveys

Surveys were conducted between April 17th and August 15th, 2018. Mist-netting locations/sites for Camp Lejeune were scouted by USFWS and Camp Lejeune staff. At the remaining locations, extensive scouting was conducted by Three Oaks' bat biologist to determine the best mist-netting sites. A variety of community types were selected for sampling as long as good netting corridors were available. Site coordinates were recorded using a handheld GPS unit.

Three Oaks' bat biologist determined the location and number of nets to set each night using best professional judgement, with a minimum of four nets per site. Net sites were placed in high quality foraging/roosting habitat within each study location. Digital photographs were taken of each net set placement (Appendix A). Mist-net surveys followed methodologies as outlined by the USFWS Range-Wide Indiana Bat Summer Survey Guidelines (USFWS 2018b) and the NCDOT document, Standardization for NLEB Research (2016). Surveys were repeated if winds moved the nets more than 50 percent of the time, or if rain/fog persisted for 30 minutes or continued intermittently throughout the survey period. Mist-netting did not take place if the ambient air temperature was forecast to fall below 50° Fahrenheit.

Nets were checked for bats every eight to ten minutes. Data (e.g., bat captures, weather, habitat type) were recorded on waterproof NCDOT mist-netting data sheets (Appendix B). For each bat capture, data collection included time of capture, species, age, sex, reproductive condition, weight, and right forearm length. All bats were banded with a uniquely-numbered Porzana band on the right forearm (males) or left forearm (females). Nets remained open at least five hours a night.

3.0 FINDINGS

3.1 Habitat Characterization

A summary of habitat information from each mist-net site is presented in Table 1.

Table 1. Habitat Characterization Summary

Location	Site No.	Community Type	Forest Type	Topographic Position	Forest Management	Forest Maturity	Clutter	Land Use
Brunswick County								
Juniper Creek Game Land	1 – Camp Branch Rd	Nonriverine Swamp Forest, Mixed Subtype	Pine/hardwood	Bottomland	Unmanaged	Mature	High	Natural
	2 – Federal Rd ponds	Nonriverine Swamp Forest Highly Disturbed	Pine/hardwood	Bottomland	Unmanaged	Immature	Medium	Natural
Green Swamp Game Land	3 – main road	Pine Plantation/Nonriverine Swamp Forest, Mixed Subtype	Pine	Bottomland	Unmanaged	Mature	High	Natural
	4 – edge of Green Swamp	Coastal Plain Small Stream Swamp	Pine/hardwood	Bottomland	Unmanaged	Mature	High	Natural
Columbus County								
Lumber River State Park	1 – Big Sandy Ridge	Mesic Mixed Hardwood Forest, Coastal Plain Subtype	Pine/hardwood	Upland	Unmanaged	Mature	High	Natural
	2 – Big Sandy Ridge fork	Mesic Mixed Hardwood Forest, Coastal Plain Subtype	Pine/hardwood	Upland	Unmanaged	Mature	High	Natural
	3 – Big Sandy Ridge south	Sand Barren (typic subtype)/Mesic Mixed Hardwood Forest (Coastal Plain Subtype)	Hardwood	Upland	Unmanaged	Mature	High	Natural
Columbus Co Game Land	4 – Mitchell Field Rd	Mesic Mixed Hardwood Forest, Coastal Plain Subtype	Pine/hardwood	Upland	Unmanaged	Mature	High	Natural
Onslow County								
Camp Lejeune	3 & 3b – No name road	Mesic Mixed Hardwood Forest Coastal Plain Subtype	Pine/hardwood	Upland	Unmanaged	Mature	High	Natural
	4 – Old Town Point	Mesic Mixed Hardwood Forest Coastal Plain Subtype	Pine/hardwood	Upland	Unmanaged	Mature	High	Natural
	5 – Magnolia Lane	Mesic Mixed Hardwood Forest Coastal Plain Subtype /Coastal Plain Depression Swamp	Pine/hardwood	Bottomland	Unmanaged	Mature	High	Natural
	7 – Mills Run	Mesic Mixed Hardwood Forest Coastal Plain Subtype	Pine/hardwood	Upland	Unmanaged	Mature	High	Natural
Robeson County								
Lumber River State Park	1 – Mill Run	Coastal Plain Small Stream Swamp	Hardwood	Bottomland	Unmanaged	Mature	High	Natural
	2 – Wildcat II	Blackwater Bottomland Hardwoods High Subtype	Pine/hardwood	Bottomland	Unmanaged	Mature	High	Natural
	3 – Rafinesque’s Tower	Blackwater Bottomland Hardwoods Low Subtype	Pine/hardwood	Bottomland	Unmanaged	Mature	High	Natural
	4 – Peter’s Lake	Pine Plantation/Blackwater Bottomland Hardwoods	Pine/hardwood	Bottomland	Pine Plantation/Unmanaged	Mature	High	Natural
	5 – Peter’s Lake east	Pine Plantation/Blackwater Bottomland Hardwoods	Pine/hardwood	Bottomland	Pine Plantation/Unmanaged	Mature	High	Natural
	6 – Peter’s Lake Swamp	Blackwater Bottomland Hardwoods/ Coastal Plain Depression Swamp	Pine/hardwood	Bottomland	Unmanaged	Mature	High	Natural

3.2 Mist-net Surveys

Thirty-two full nights of mist-netting were conducted; an additional night ended early due to rain. Eight nights of netting were conducted per county.

Weather conditions varied from clear to 100% overcast, while the nightly temperature ranged from 51° to 78° Fahrenheit. Netting was conducted from approximately 20:15 to 1:15 Eastern Daylight time. Four to five nets were typically erected at each net site; most nets were stacked double-high or triple-high. Some nets were moved from one night to another within a site to sample an alternative fly-way.

A summary of mist-netting captures is given in Table 2 (organized by county). Three hundred forty (340) bats were captured in total, representing seven species. Lumber River State Park at the Wildcat II site was the location with the fewest bats captured, with zero bats over the course of one night. Big Sandy Ridge Fork at Lumber River State Park (site 2) had the highest number of bats captured (67 captured in two nights); this site apparently was near a Southeastern Bat maternity colony due to the number of Southeastern bats captured, which included many juveniles. The most commonly captured species was the Eastern Red Bat (*Lasiurus borealis*) with 138 captures. The least captured bat was Rafinesque's Big-eared Bat (*Corynorhinus rafinesquii macrotis*) with eight (8) captures. No NLEB were captured. Captures per night ranged from 0 (zero) to 37 bats. Photos for each mist-net site are provided in Appendix A, data sheets are in Appendix B, and representative photos of each bat species are in Appendix C.

One bat observed during the survey, a Big Brown Bat (*Eptesicus fuscus*) captured at Camp Lejeune the night of May 3rd, had significant amounts of scarring and splotching on its wings, warranting a rating score of 1 on the Reichard wing index score (2009). It is not known if this was due to WNS or some other cause. The bat was swabbed, but the swab was not submitted for testing as the splotching did not fluoresce under a black light. The bat was an adult male that appeared healthy otherwise.

Table 2. Mist-netting Capture Summary

Location	Site	Night	Date (2018)	CORA	EPFU	LABO	LASE	MYAU	NYHU	PESU	TOTAL	NOTES	
Brunswick County													
Juniper Creek Game Land	1 – Camp Branch Rd	1	5/21			5	1		1		7		
		2	5/22			2				1	3		
	2 – Federal Rd ponds	1	5/23		2	2	2	1	4	1	12		
		2	6/12		2	1		3	2	2	10		
		3	6/13		3	2	2	1			8		
Green Swamp Game Lane	3 – main road	1	6/14			1					1		
	4 – edge of Green Swamp	1	7/10		1	1			2	1	5	Smoke at beginning and end of night	
		2	7/11		1	3			3		7		
Columbus County													
Lumber River State Park	1 – Big Sandy Ridge	1	6/4			2	1	10		1	14		
		2	6/5			3		2			5		
	2 – Big Sandy Ridge fork	1	6/6		1	4		30	1	1	37	MYAU maternity colony in vicinity	
		2	6/7			2		28			30		
	3 – Big Sandy Ridge south	1	7/16		1	8				1		10	
		2	7/17			7				1		8	
Columbus County Game Land	4 – Mitchell Field Rd	1	7/18		1	12	4		2		19		
		2	7/19			13	5	1	1	1	21	ATV activity in the area after dark	
Onslow County													
Marine Corps Base Camp Lejeune	4 - Old Town Point	1	4/17		1	1					2		
		2	4/18		1	3				1	5		
	3 - No name road	1	4/19			4	5				9		
		2	4/30		1	1	2				4		
	3b - No Name Road	1	5/1		2	10	4		1	1	18		
	5 - Magnolia Lane	1	5/2		7	3	6				16		
		2	5/3		4	1					5		
	7 - Mills Run	1	5/7		1	6	1			3	11		

Location	Site	Night	Date (2018)	CORA	EPFU	LABO	LASE	MYAU	NYHU	PESU	TOTAL	NOTES
Robeson County												
Lumber River State Park	1 - Mill Run	1	5/8	1		10		2			13	
		2	5/9	2	1	1		1			5	
	2 - Wildcat II	1	7/25								0	
	3 - Rafinesque's Tower	1	7/26	1		7					8	
	4 - Peter's Lake	1	8/1	4		5	2			3	14	
		2	8/2		1	2	1			1	5	
	5 - Peter's Lake East	1	8/8			3	1				4	Rainstorm, closed nets at 21:45
		2	8/9		1	6	2		1	2	12	
	6 - Peter's Lake Swamp	1	8/14		1	7	2	1		1	12	
				Totals	8	33	138	41	80	20	20	340

*Numbering system from USFWS and Camp Lejeune staff

SPECIES: Rafinesque's Big-eared Bat=CORA, Big Brown Bat=EPFU, Red Bat=LABO, Silver-haired Bat=LANO, Seminole Bat=LASE, Southeastern Bat=MYAU, Northern Long-eared bat=MYSE, Little Brown Bat=MYLU, Evening Bat=NYHU, Tri-color Bat=PESU

4.0 INVESTIGATOR QUALIFICATIONS

Investigator:	Mary Frazer
Education:	M.E.M., Resource Ecology, Duke University B.S. Zoology, University of Wisconsin
Experience:	Environmental Specialist, Three Oaks Engineering, July 2015-present Environmental Program Consultant, NCDOT, 2000-2015 Environmental Specialist, Wisc. Coastal Mgt Program, 1996-2000 Water Regulation Specialist, Wisc. Dept Natural Resources, 1994-1996 Biologist, Soil and Environmental Consultants, 1992-1994
Permits:	NCWRC 18-ES0224 & 18-SC00161; USFWS TE54578B-2
Responsibilities:	Field survey, document preparation
Investigator:	Lisa Gatens
Education:	M.S., Marshall University, 1996 B.S, West Virginia State University, 1991
Experience:	Collection Manager, Mammalogy, North Carolina Museum of Natural Sciences, 1999 - 2004 Research Curator, Mammalogy, North Carolina Museum of Natural Sciences, 2004 – Present
Responsibilities:	Field survey
Investigator:	Ed Corey
Education:	B.S., Wildlife Sciences, Botany & Zoology, North Carolina State University, 2004
Experience:	Inventory Biologist, North Carolina Division of Parks and Recreation, 2006-Present Research Technician, Maryland Department of Natural Resources, 2005 Research Technician, North Carolina Museum of Natural Sciences, 2005 Pine Snake Intern, North Carolina State University, 2003
Responsibilities:	Field survey
Investigator:	Nancy Scott
Education:	M.E.M., Water Resources, Duke University, 2011 B.S. Environmental Science, University of Delaware, 2006
Experience:	Environmental Scientist, Three Oaks Engineering, 2015-Present Environmental Scientist, The Catena Group, 2012-2015
Responsibilities:	Field survey, document preparation
Investigator:	Lizzy Stokes-Cawley
Education:	M.E.M. Water Resources, Duke University, 2016 B.S. Conservation Biology, St. Lawrence University, 2011
Experience:	Environmental Scientist, Three Oaks Engineering, 2017-Present
Responsibilities:	Field survey, document preparation

Investigator: Paige Green
Education: B.S. Natural Resources- Ecosystem Assessment, North Carolina State University, 2019
Experience: Environmental Scientist, Three Oaks Engineering, 2018. Undergraduate Research Assistant, NCSU Cooperative Tree Improvement Program, December 2015-present
Responsibilities: Field survey

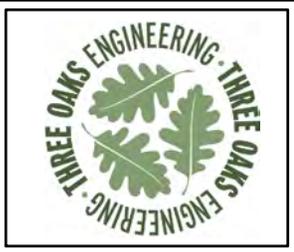
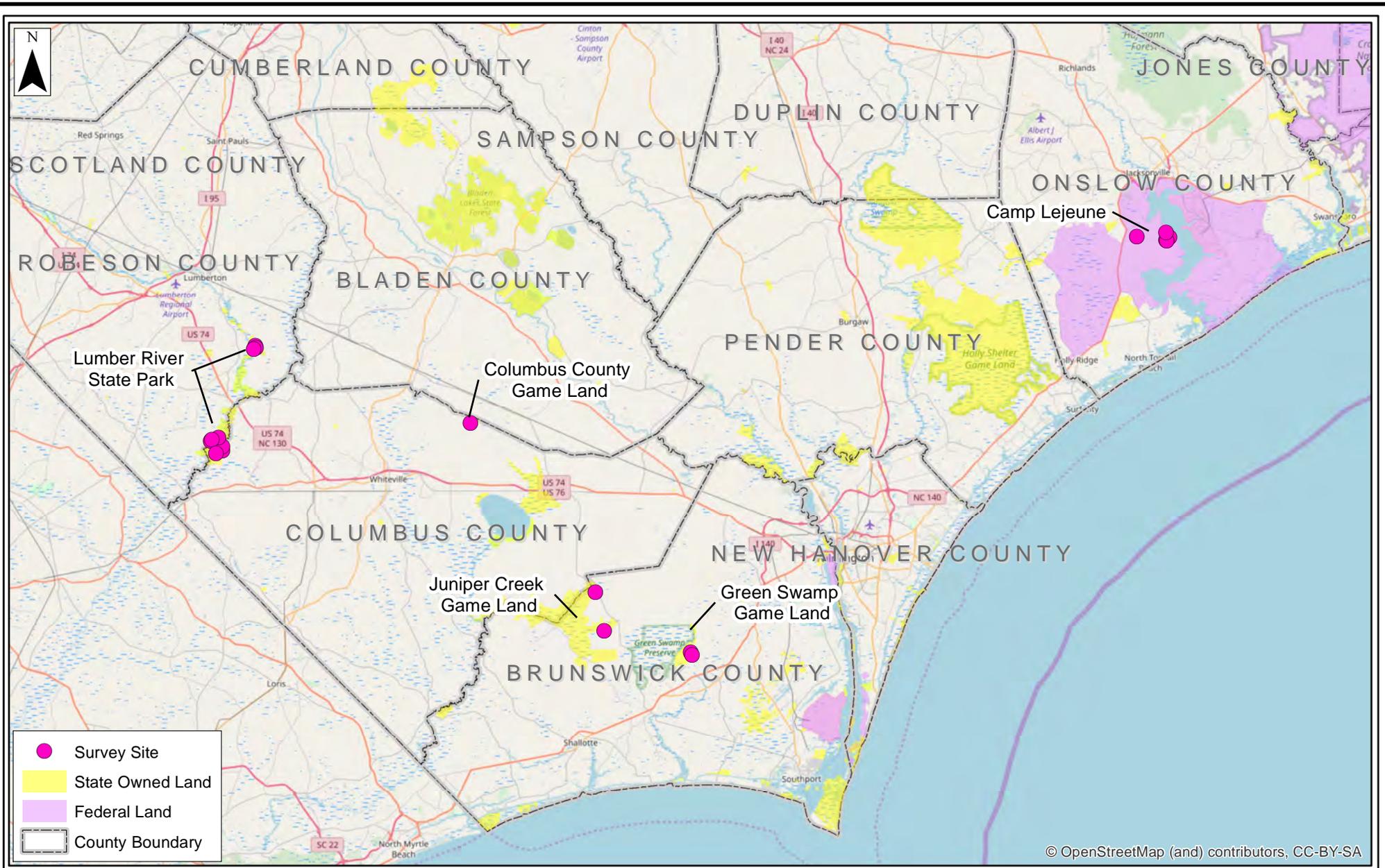
Investigator: Jake Rosemond
Education: B.S Environmental Science, Western Carolina University, 2017
Experience: Environmental Scientist, Three Oaks Engineering, 2018 - Present
Responsibilities: Field survey, document preparation

Investigator: Shelby Moody
Education: M.E.E.R.M., Masters of Earth and Environmental Resource Management, 2017, University of South Carolina.
B.S., Environmental and Natural Resources - Conservation Biology, 2015, Clemson University
Experience: Environmental Scientist, Three Oaks Engineering, December 2017 – Present
Responsibilities: Field survey

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FIGURES



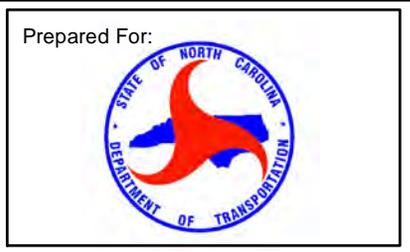
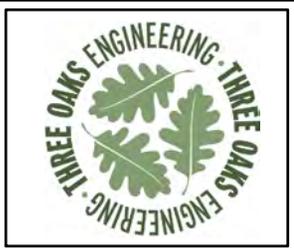
**Eastern North Carolina Northern
Long-Eared Bat Research Project**

Summer 2018 Survey Sites

Brunswick, Columbus, Onslow, and Robeson Counties,
North Carolina

Date:	August 2018
Scale:	0 2.5 5 Miles
Job No.:	18-302
Drawn By:	NMS
Checked By:	MEF

Figure
1



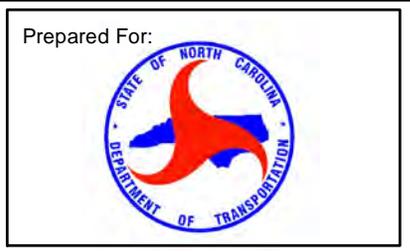
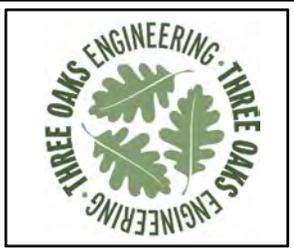
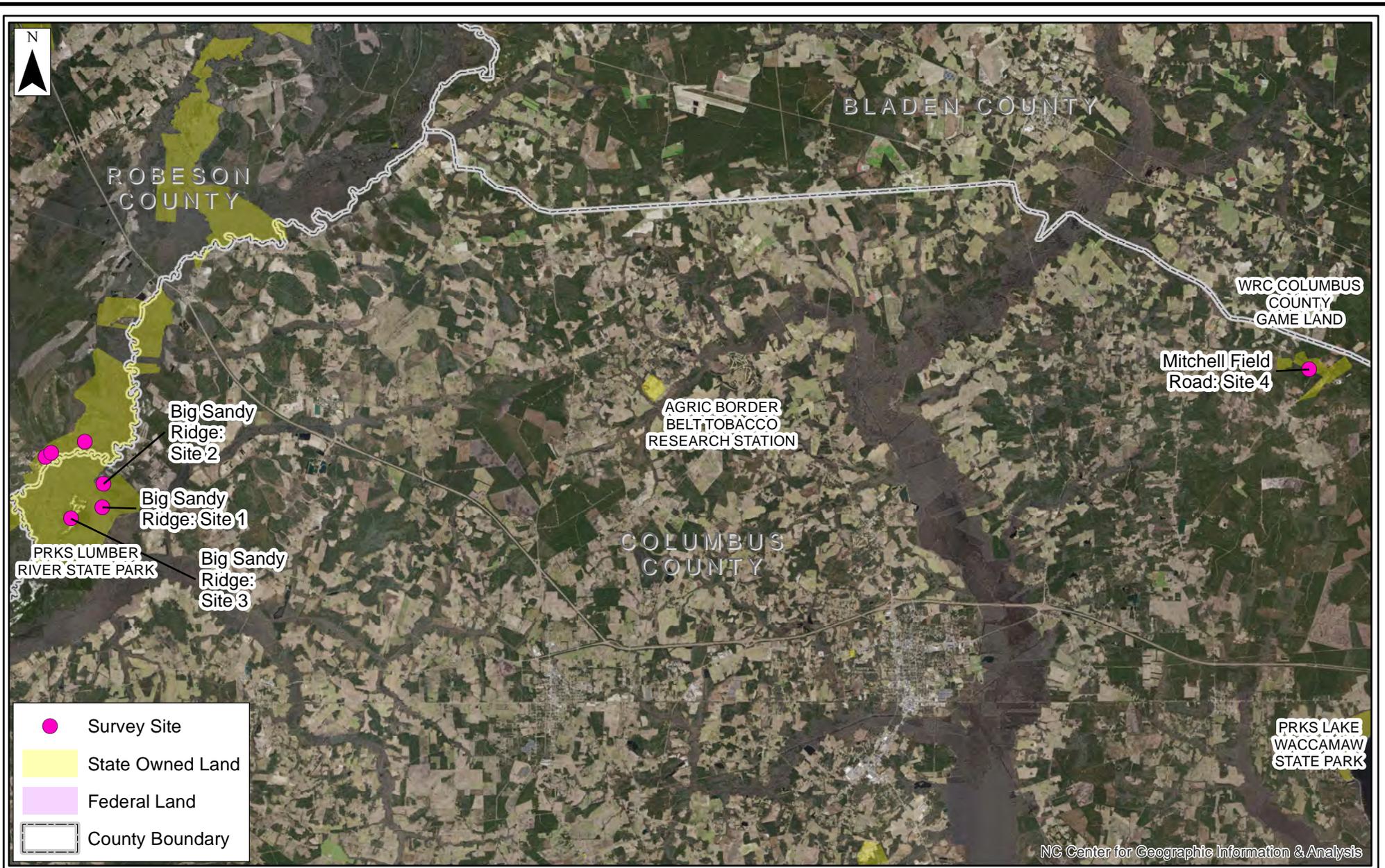
Eastern North Carolina Northern Long-Eared Bat Research Project

Summer 2018 Survey Sites

Brunswick County, North Carolina

Date:	August 2018
Scale:	0 0.5 1 Miles
Job No.:	18-302
Drawn By:	NMS
Checked By:	MEF

Figure
2



**Eastern North Carolina Northern
Long-Eared Bat Research Project**

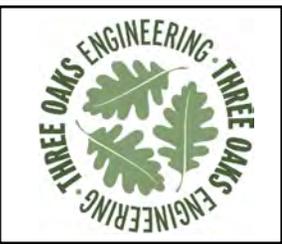
 Summer 2018 Survey Sites

 Columbus County, North Carolina

Date:		August 2018	
Scale:		0 1 2 Miles	
Job No.:		18-302	
Drawn By:	Checked By:		
NMS	MEF		

Figure

3



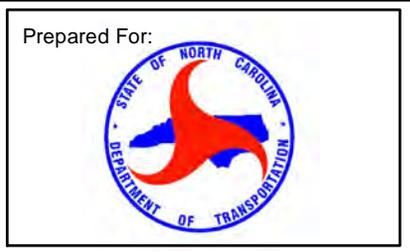
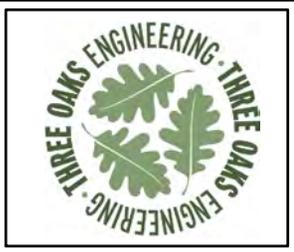
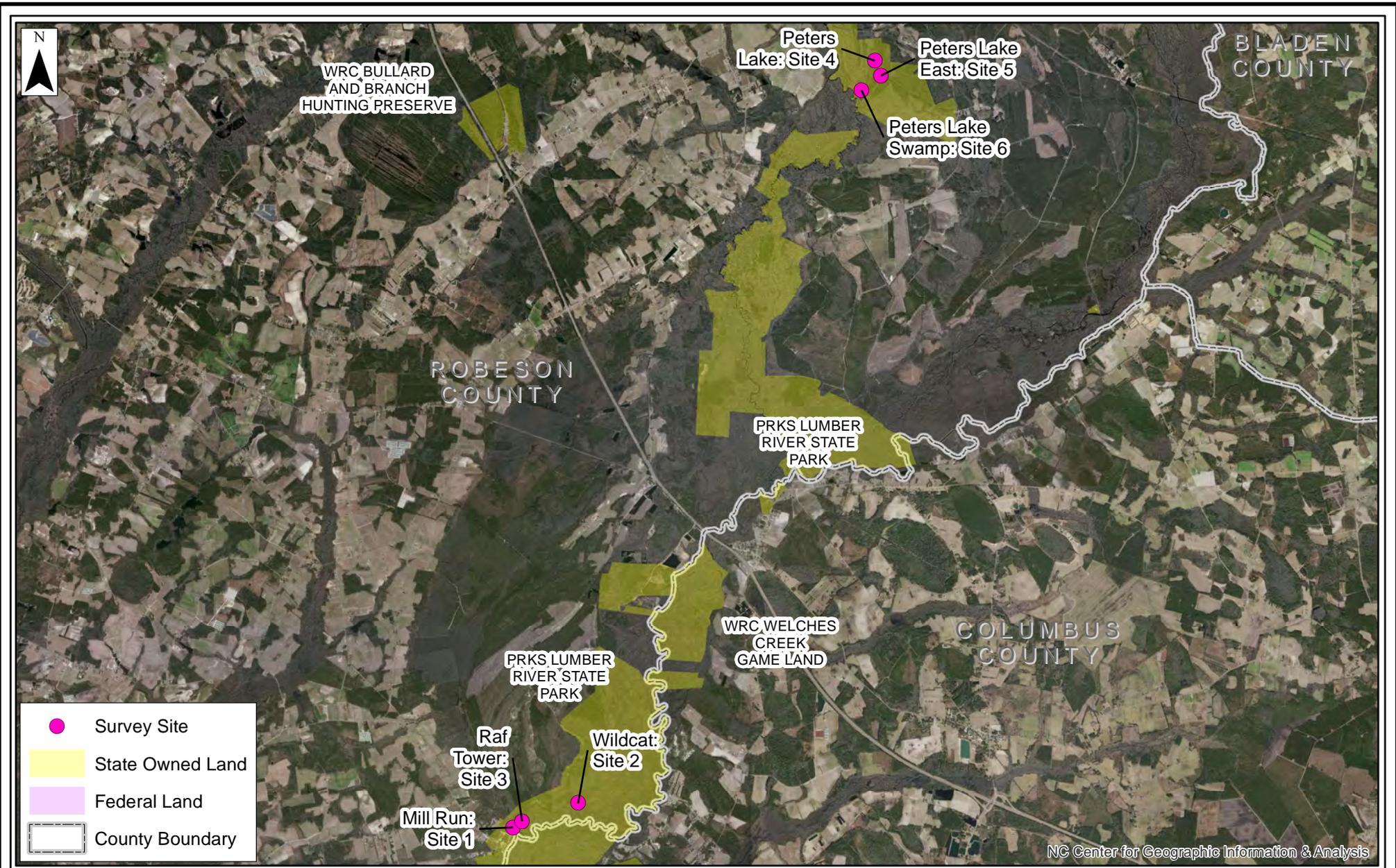
**Eastern North Carolina Northern
Long-Eared Bat Research Project**

Summer 2018 Survey Sites

Onslow County, North Carolina

Date: August 2018	
Scale: 0 500 1,000 Feet	
Job No.: 18-302	
Drawn By: NMS	Checked By: MEF

Figure
4



**Eastern North Carolina Northern
Long-Eared Bat Research Project**

 Summer 2018 Survey Sites

 Robeson County, North Carolina

Date:		August 2018	
Scale:		0 0.5 1 Miles	
Job No.:		18-302	
Drawn By:	Checked By:		
NMS	MEF		

Figure

5

APPENDICES

Appendix A. Net-Set Photographs

Juniper Creek G.L., Camp Branch Road, Brunswick County



Site 1, Net A (5/21)



Site 1, Net B (5/21)



Site 1, Net C (5/21)



Site 1, Net D (5/21)



Site 1, Net E (5/22)

Juniper Creek G.L., Federal Road, Brunswick County



Site 2, Net A (5/23, 6/12, 6/13)



Site 2, Net B (5/23)



Site 2, Net C (5/23, 6/12, 6/13)



Site 2, Net D (5/23, 6/12, 6/13)



Site 2, Net E (5/23)



Site 2, Net F (6/12)



Site 2, Net G (6/12)



Site 2, Net I & H (6/13)

Green Swamp G.L., Main Road, Brunswick County



Site 3, Net A (6/14)



Site 3, Net B (6/14)



Site 3, Net C (6/14)



Site 3, Net D (6/14)

Lumber River S.P., Big Sandy Ridge, Columbus County



Site 1, Net A (6/4)



Site 1, Net B (6/4)



Site 1, Net C (6/4, 6/5)



Site 1, Net D (6/4, 6/5)



Site 1, Net E (6/4, 6/5)



Site 1, Net F (6/5)



Site 1, Net G (6/5)

Lumber River S.P., Big Sandy Ridge Fork, Columbus County



Site 2, Net A (6/6, 6/7)



Site 2, Net B (6/6, 6/7)



Site 2, Net C (6/6, 6/7)



Site 2, Net D (6/6, 6/7)



Site 2, Net E (6/6, 6/7)

Columbus Co G.L., Mitchell Field Road, Columbus County



Site 4, Net A (7/18)



Site 4, Net B (7/18)



Site 4, Net C (7/18)



Site 4, Net D (7/18)

Camp LeJeune – No Name Road, Onslow County



Site 3, Net A (4/19)



Site 3 Net B (4/19)



Site 3, Net C (4/19)



Site 3, Net D (4/19)



Site 3, Net E (4/19)



Site 3, Net F (4/30)

Camp LeJeune – No Name Road, Onslow County



Site 3b, Net B (5/1)



Site 3b, Net C (5/1)



Site 3b, Net G (5/1)



Site 3b, Net H (5/1)



Site 3b, Net I (5/1)

Camp LeJeune – Old Town Point Road, Onslow County



Site 4, Net A (4/17)



Site 4, Net B (4/17)



Site 4, Net C (4/17)



Site 4, Net D (4/17)

Camp LeJeune – Magnolia Lane, Onslow County



Site 5, Net A (5/2)



Site 5, Net B (5/2)



Site 5, Net C (5/2)



Site 5, Net D (5/2)



Site 5, Net E (5/2)

Camp LeJeune – Mills Creek, Onslow County



Site 7, Net A (5/7)



Site 7, Net B (5/7)



Site 7, Net C (5/7)



Site 7, Net D (5/7)



Site 7, Net E (5/7)

Lumber River S.P., Mill Run, Robeson County



Site 1, Net A (5/8, 5/9)



Site 1, Net B (5/8, 5/9)



Site 1, Net C (5/8, 5/9)



Site 1, Net D (5/8, 5/9)

Lumber River S.P., Wildcat II, Robeson County



Site 2, Net A (7/25)



Site 2, Net B (7/25)



Site 2, Net C (7/25)



Site 2, Net D (7/25)

Lumber River S.P., Rafinesque's Tower, Robeson County



Site 3, Net A (7/26)



Site 3, Net B (7/26)



Site 3, Net C (7/26)



Site 3, Net D (7/26)

Lumber River S.P., Peter's Lake, Robeson County



Site 4, Net A (8/1, 8/2)



Site 4, Net B (8/1, 8/2)



Site 4, Net C (8/1, 8/2)



Site 4, Net D (8/1, 8/2)

Lumber River S.P., Peter's Lake East, Robeson County



Site 5, Net A (8/8)



Site 5, Net B (8/8)



Site 5, Net C (8/8)



Site 5, Net D (8/8)

Lumber River S.P., Peter's Lake Swamp, Robeson County



Site 6, Net A (8/14)



Site 6, Net B (8/14)



Site 6, Net C (8/14)



Site 6, Net D (8/14)



Site 6, Net E (8/14)

Appendix B. Mist-Net Survey Data Forms

Bat Survey Data Form

Project: R-9999 NLEB		County: Brunswick		Site #: 1	Night #: 1	Site name: ^{med glasses} Juniper Creek ^{trip pile up} Camp Branch Rd (Brunswick Site)	Date: 5/21/18
Directions to site: Camp Branch Rd, off			Latitude: 35 34.181237		Longitude: -83 78.359360		Elevation:
Directions, cont. NC 211. Turn R. off Camp Branch Rd onto 1st game land access road (gated).							
ID person(s): Mary Frazer				Observers: Nancy Scott		Net open time: 20:25	Net close time: 01:25
Sky:	DUSK-time, temp, description 20:37 72°F cloudy		MID-SAMPLE-time, temp, description 22:50 71° overcast		END-time, temp, description 01:01 68.5° overcast damp		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 1		4=small branches in motion 5=small trees sway 6=large branches in motion 0		7=hard to walk 8=twigs break from trees, go home, this is a gale! 0		
Moon effect: ^{1st @} (moon phase, start/stop time visible, # nets illuminated) 48% @ 20:25; ACD nets illuminated, behind clouds 22:40; did not reappear.							
Number/type of nets: (label & include size) A- 6m triple, B- 4m triple, C- 6m triple, D- 6m double							
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) long leaf pine, loblolly, red maple, water oak, clematis, horse-sugar, gelsemium, Atlantic white cedar, magnolia virginiana, Ilex verticillata							
Dirt road in mixed pine flat (mixed/wet) habitat							
Disturbance: (List 3 most signif. disturbances within 500m) house nearby, dirt road, highway				<p>Site sketch (net labels, north arrow, landmarks)</p>			
ANABAT file name: @ table - relatively quiet							
ANABAT location(s): somewhat on							
Remarks: (rain events, other wildlife, etc.) Check will's windows calling - one perched near nets just before sunset & then two were chasing each other overhead + Dung beetles, longhorn beetles, cicada beetle, June bugs, peckered frog, pinewood tree frogs, cricket frogs, bullfrog, carpenter frogs, 2 imperial moths							

Bat Survey Data Form

Juniper Creek
NCDOT

Project: R-9999 NLEB		County: Brunswick		Site #: 1	Night #: 2	Site name: Camp Branch Rd Brunswick Site 1	Date: 5/22/18
Directions to site: Camp Branch Rd. off NC 211			Latitude: 35		Longitude: -83		Elevation:
Directions, cont. Turn R off Camp Branch Rd onto 1st game land access road (gated)							
ID person(s): Mary Frazer				Observers: Nancy Scott		Net open time: 20:15	Net close time: 1:15
Sky:	DUSK-time, temp, description 20:08 74°F Cloudy		MID-SAMPLE-time, temp, description 22:45, 69.5°F, cloudy		END-time, temp, description 00:50 70° overcast		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 1		4=small branches in motion 5=small trees sway 6=large branches in motion 0-1		7=hard to walk 8=twigs break from trees, go home, this is a gale! 0		
Moon effect: <small>(moon phase, start/stop time visible, # nets illuminated)</small> 1st qtr 59% @ 20:10 Moon set ~ 23:30. (behind trees/clouds)							
Number/type of nets: <small>(label & include size)</small> A-6m triple, B-4m triple, C-6m triple, E-6m double							
Site description: <small>(net placement, stream data, Habitat description, dominant species, canopy cover)</small> see Night 1 data sheet for details							
Dirt road in mixed pine flat (mesic/wet) habitat							
Disturbance: <small>(List 3 most signif. disturbances within 500m)</small> house nearby, paved road, NC Highway 211				<div style="text-align: center;">Forested Swamp</div> <div style="text-align: center;">Forested Swamp</div>			
ANABAT file name: @ truck							
ANABAT location(s): scrub							
Remarks: <small>(rain events, other wildlife, etc.)</small> chuck wills widow flew into net C immediately after opening. It then proceeded to fly into nets B + then A. see 5/21 for frog click beetles, imperial moths, June bugs in net a few fireflies out							
				Site sketch <small>(net labels, north arrow, landmarks)</small>			

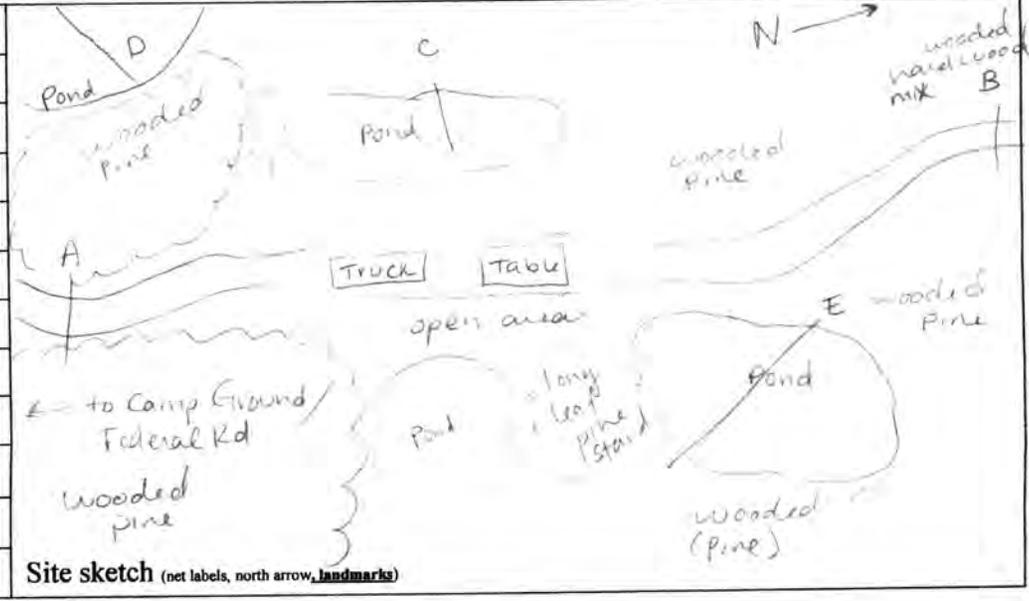
(take OPS point)
~~drop~~
~~go bags~~

Bat Survey Data Form

(Juniper Creek)

NCDOT

Project: R-9999 NLEB		County: Brunswick		Site #: 2	Night #: 1	Site name: Federal Rd ponds	Date: 5/23/18
Directions to site: Turn Right off NC 211 onto				Latitude: 35 34.127289	Longitude: -83 78.345690	Elevation:	
Directions, cont. Federal Rd, then Right at designated camp ground							
ID person(s): Mary Frazer				Observers: Nancy Scott		Net open time: 20:20	Net close time: 1:20
Sky:	DUSK-time, temp, description 20:12, 73 °F, cloudy		MID-SAMPLE-time, temp, description 22:40 68°F hazy, humid		END-time, temp, description 00:45 68° slightly cloudy		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 1		4=small branches in motion 5=small trees sway 6=large branches in motion 0-1		7=hard to walk 8=twigs break from trees; go home, this is a gale! 0		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) waxing gibbous 71% @ 7 GDE nets illuminated most of the night.							
Number/type of nets: (label & include size) A-4m double, B-4m triple, C-6m single, D-12m single, E-18m single							
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Series of small borrow pits along dirt road in pine forest.							
long leaf pine, loblolly pine Atlantic white cedar, wax myrtle, horse sugar, red maple, water oak, <i>Flex glabra</i> , <i>I. cortacea</i> .							
Sarcocolla in flower (~4), sundews							
Disturbance: (List 3 most signif. disturbances within 500m) old borrow pits, dirt road,							
ANABAT file name:							
ANABAT location(s): sarabat							
Remarks: (rain events, other wildlife, etc.) bullfrogs green frogs, cricket frog, pine woods treefrogs, carpenter frogs.							
vine bugs in net							
whip-poor-will							



Bat Survey Data Form

Project: R-9999 NLEB		County: Brunswick				Site# 2	Night # 1	Site name: Federal Rd ponds				Date: 5/23/18	
Time	Species*	Net	Age (A/JV)	Sex (M/F)	Repro NR/PGL/PL/SCR	Forearm length	Weight + bag	Bag weight	Bat weight	Wing cond [^]	Band 3 ants/nd	# wing punches	Comments
20:46	LASE	A	A	F	NR	43	20.5	8	12.5	0			1
21:15	LASE	A	A	M	NR	37	17.0	8	9.0	0			2
21:20	NYHU	C	A	F	P	41	20.5	8	12.5		0121		3
21:25	NYHU	D	A	F	P	36	21.0	8	13.0	0	0159		4
21:40	<i>Coscinus sp.</i>	A											5
21:45	LABO	C	A	M	NR	40	20.0	8	12.0	0			6
21:45	EPFU	C	A	F	P	47	35.0	8	27.0	0	0773		7
22:00	NYHU	D	A	F	P	39	23.0	8	15.0	0	0140		8
23:05	NYHU	D	A	F	P	36	19.5	8	11.5	0	0161		9
00:10	MYAU	E	A	F	P	39	16.5	8.5	8.0	0	0108		10
00:48	LABO	A	A	F			17.5	8	9.5				11
1:09	EPFU	A	A	M	NR	47?	24.0	8	16.0		0777		12
1:18	PESU	D	A	M	NR	34	13.0	7	6.0	0			13
													14
													15
													16
													17
													18
													19
													20
													21
													22

*SPECIES: big brown=EPFU, Pip/tricolor=PESU, little brown=MYLU, northern long-ear=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU
 red=LABO, hoary=LACI, silver=LANO, Seminole=LASE yellow=LAIN, evening=NYHU, Rafbat=CORA, VA big-ear=COTO, Brazilian free-tail=TABR

^WING condition damage: 0=none; 1=less than 50% pigment loss; 2=greater than 50% scarring/plotching, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage
 TAKE PICTURE!

Need to do
 - Alcohol
 - Black trash bags
 - shoe goo
 - Pova
 - Pova

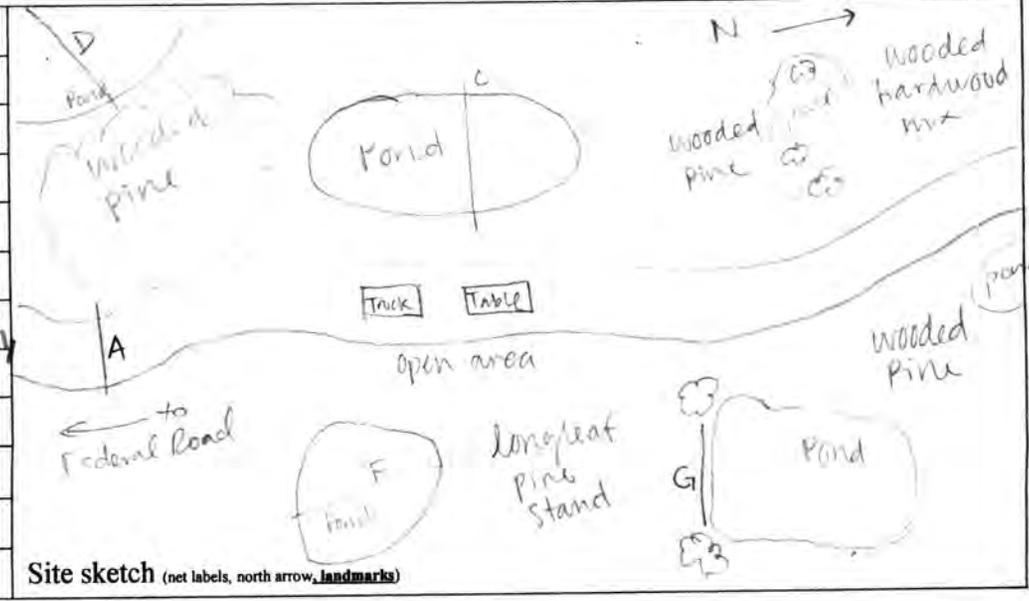
GPS

Bat Survey Data Form

(Juniper creek) NCDOT

Project: R-9999 NLEB	County: Brunswick	Site #: 2	Night #: 2	Site name: Federal Rd ponds	Date: 6-12-2018
Directions to site: Turn right off NC 211 onto		Latitude: 35 34.127289	Longitude: -83 -78.345690		Elevation:
Directions, cont. Federal Rd, then right @ designated campground					
ID person(s): Mary Frazer, ^{Cody Parks}			Observers: Paige Green	Net open time: 20:38	Net close time: 01:38
Sky:	DUSK-time, temp, description 20:25, 73°F Overcast	MID-SAMPLE-time, temp, description 22:50, 69°F Partly cloudy	END-time, temp, description 01:38, 68°F Clear skies		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 1	4=small branches in motion 5=small trees sway 6=large branches in motion 0-1	7=hard to walk 8=twigs break from trees; go home, this is a gale! 0		
Moon effect: New moon 0% (moon phase, start/stop time visible, # nets illuminated)					
Number/type of nets: A: 4m double C: 9m single D: 12m single F: 18m single G: 9m double (label & include size)					
Site description: series of small borrow pits in pine forest. (net placement, stream data, Habitat description, dominant species, canopy cover)					
longleaf pine, loblolly pine, Atlantic whitecedar, Wax myrtle, Horse sugar, Red maple, Water oak, Ilex glabra, Ilex coriacea					

Disturbance: (List 3 most signif. disturbances within 500m)	Old borrow pits, dirt road,
ANABAT file name:	periodic calls on anabat
ANABAT location(s):	sonobat on
Remarks: (rain events, other wildlife, etc.)	bullfrogs, green frogs, narrowmouth rain within past 24 hours carpenter frog, cricket frogs, frogs A few beetles in net - dung beetles, long horn beetle Many small flying biting ants Ibis! (Rain until ~ 5pm) periodic cannon(?) fire after dark



Bat Survey Data Form

(Juniper Creek) NCDOT

Project: R-9999 NLEB	County: Brunswick	Site #: 2	Night #: 3	Site name: Federal Rd Ponds	Date: 6-13-2018
Directions to site: Turn right off of NC 211		Latitude: 35 34.127289		Longitude: -83 -78.345090	Elevation:
Directions, cont. onto Federal Rd, then right at designated campground					
ID person(s): Mary Frazer, Cody Parks			Observers: Paige Green	Net open time: 20:30	Net close time: 01:30
Sky:	DUSK-time, temp, description 20:16, 77°F clear skies	MID-SAMPLE-time, temp, description 22:30 73°F clear	END-time, temp, description 00:45 71°F clear skies		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0	4=small branches in motion 5=small trees sway 6=large branches in motion 0	7=hard to walk 8=twigs break from trees, go home, this is a gale!		

Moon effect: New moon
(moon phase, start/stop time visible, # nets illuminated)

Number/type of nets: A-4m double C-9m single D-12m single F-18m single H-9m single I-9m single
(label & include size)

Site description: Series of small borrow pits in pine forest. Longleaf pine, loblolly pine, atlantic white cedar,
(net placement, stream data, Habitat description, dominant species, canopy cover)

Wax myrtle, Horse sugar, Red maple, Water oak, Ilex glabra, Ilex corniacea

Disturbance:
(List 1 most signif. disturbances within 500m)

old borrow pits, dirt road

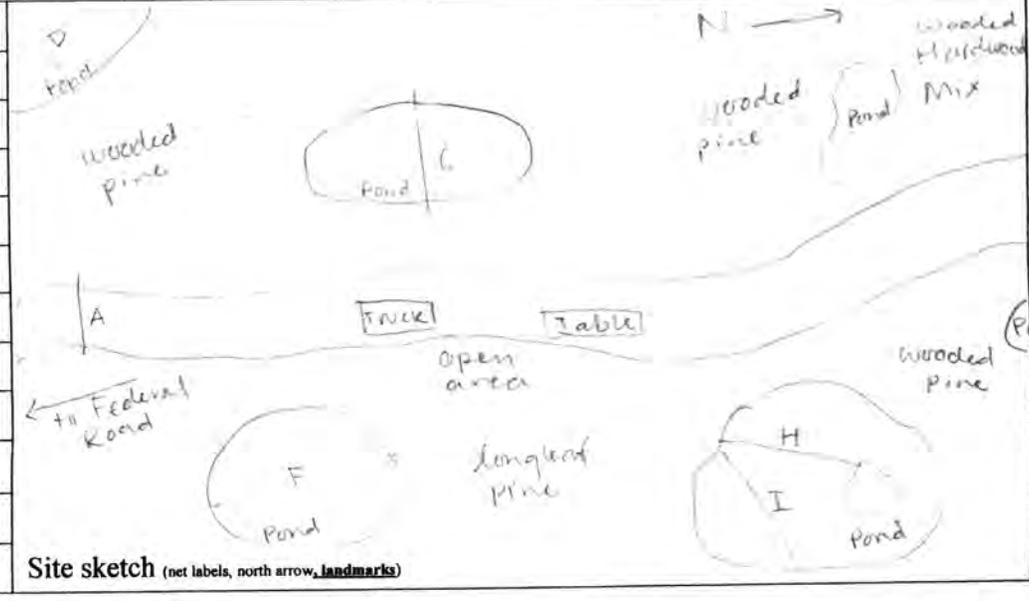
ANABAT file name:

ANABAT location(s): scattered in

Remarks:
(rain events, other wildlife, etc.)

Many mosquitoes, flying ants
Whippoorwill; beetles in net
cuckoo frog, pine woods tree frogs, bull frog, coopers
gray tree frog, green frogs

Many ibis flying over pre-dusk to roost nearby



Site sketch (net labels, north arrow, landmarks)

Bat Survey Data Form

NCDOT

alcohol
big dope

Project: <u>R-9999 NLEB</u>	County: <u>BRUNSWICK</u>	Site #: <u>3</u>	Night #: <u>1</u>	Site name: <u>Green Swamp main road</u>	Date: <u>6-14-2018</u>
Directions to site: <u>Green Swamp Game Land</u>		Latitude: <u>35 24.097362</u>	Longitude: <u>-83 78.201689</u>		Elevation:
Directions, cont. <u>southeastern portion of game land, accessed off Cherrytree Rd NE</u>					
ID person(s): <u>MARY FRAZER Cody PARKS</u>		Observers: <u>Paige Green</u>		Net open time: <u>20:32</u>	Net close time: <u>1:30</u>
Sky:	DUSK-time, temp, description <u>21:01, 76°F, heavy cloudy</u>	MID-SAMPLE-time, temp, description <u>23:32, 70°F, partly cloudy</u>	END-time, temp, description <u>1:05 68°F partly cloudy</u>		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed <u>0-1</u>	4=small branches in motion 5=small trees sway 6=large branches in motion <u>0 HUMID</u>	7=hard to walk 8=twigs break from trees, go home, this is a gale! <u>0 Humid</u>		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) <u>None</u>					
Number/type of nets: (label & include size) <u>A - triple high 9M B - double high 9M C - double 6M D - double 6M</u>					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) <u>overgrown Pine plantation w/ red maples, titi, Ilex glabra, Arundinaria, Magnolia, etc.</u>					
<u>Nets placed on main dirt road thru gameland plus access road along hunt club property.</u>					
<u>Medium clutter, canopy fairly open over road</u>					
Disturbance: (List 3 most signif. disturbances within 500m) <u>dirt roads, clear cuts in a few areas</u>					
ANABAT file name: <u>—</u>					
ANABAT location(s): <u>—</u>					
One bat seen at dist. <u>—</u>					
Remarks: (rain events, other wildlife, etc.) <u>Rained heavily ~ 5-6 pm.</u>					
<u>Humid. Many Mosquitoes.</u>					
<u>Pine woods tree frogs, narrow mouth toads, green frogs</u>					
<u>little grass frogs? Cape's gray tree frogs</u>					
<u>shakage</u>					

Site sketch (net labels, north arrow, landmarks)

Bat Survey Data Form

SE corner of green swamp game land
NCDOT

Project: R-999NLEB	County: Brunswick	Site #: 4	Night #: 1	Site name: Edge of Green Swamp / Edge of Dale's	Date: 7/10/18
Directions to site: Cherry tree access to		Latitude: 35 34.0927881	Longitude: -83 -78.1996117		Elevation:
Directions, cont. game land dirt road (near Bolivia)					
ID person(s): M. Frazer, C. Parks			Observers: J. Rosemond	Net open time: 20:45	Net close time: 1:45
Sky:	DUSK-time, temp, description 20:45 72°F Scattered Clouds	MID-SAMPLE-time, temp, description 23:45 67°F Clear Skys	END-time, temp, description 01:45 67°F Smokey		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0 light smoke	4=small branches in motion 5=small trees sway 6=large branches in motion 0-1 humid	7=hard to walk 8=twigs break from trees, go home, this is a gale! 0		

Moon effect: (moon phase, start/stop time visible, # nets illuminated) None

Number/type of nets: 4 A) 6-triple B) 6-triple C) 4-Double D) 4-Double

Site description: (net placement, stream data, Habitat description, dominant species, canopy cover)

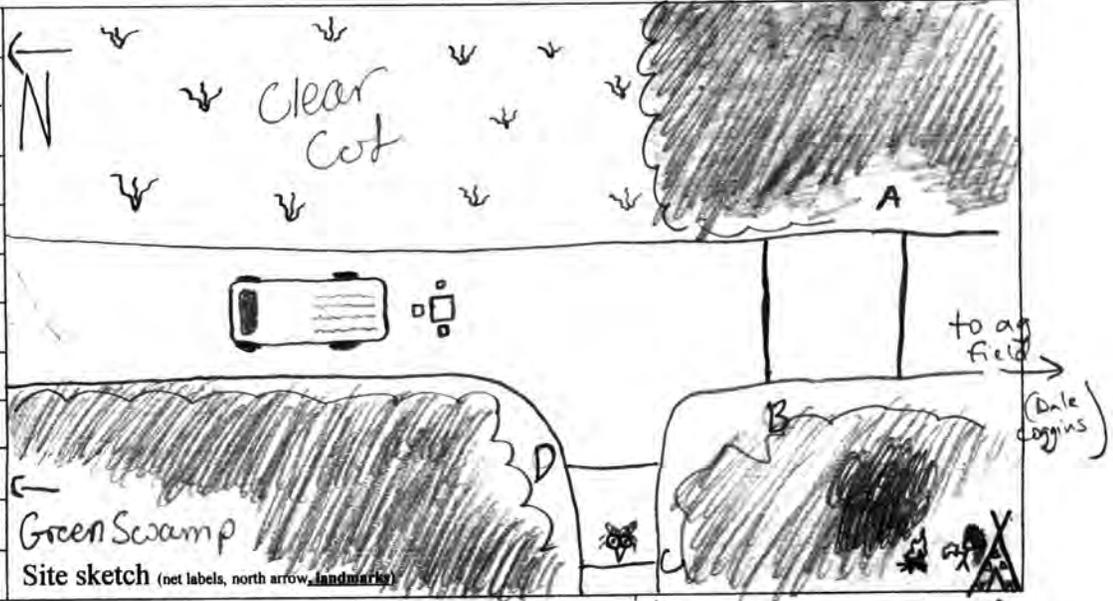
At the edge of gameland; A, B located on sandy road covered by mixed pine + hardwood. Nets C + D on bush hogged trail covered by same mix of trees. Loblolly, tulip poplar, red maple, Tax. viricata, gardenia, Arundinaria, cyrilla, water oak, wax myrtle

Disturbance: (List 3 most signif. disturbances within 500m) Clear cut on Eastern Side of road, Ag field to the South of net A

ANABAT file name: sonobat.org_anabat @ truck

ANABAT location(s): Few calls on Anabat

Remarks: (rain events, other wildlife, etc) Smoke rolled in around 20:30; present until ~21:45. From distant controlled burn. Light smoke again @ 1:10. Ding beetles, tan junebugs & long horn beetles in net. Whippoorwill & chuck wills widow @ dusk. Several turkeys & bob white in the afternoon



00:50 2 bats circling over cleared area
more smoke @ 01:25

mosquito alley
(not an actual fire at least, not nearby)

Bat Survey Data Form

NCDOT

Project: R-9999 NLEB	County: Brunswick	Site #: 4	Night #: 2	Site name: Edge of Green Swamp / Dale's Field	Date: 7/11/18
Directions to site: Cherry tree access to		Latitude: 35 34.0927881	Longitude: -83 -78.1996117		Elevation:
Directions, cont. game land dirt road (near Bolivia)					
ID person(s): M. Frazer C. Parks			Observers: J. Rosemond	Net open time: 20:30	Net close time: 1:30
Sky:	DUSK-time, temp, description 20:30 75° Clear Skys	MID-SAMPLE-time, temp, description 23:30 72° clear	END-time, temp, description 1:15 70° clear		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0-1	4=small branches in motion 5=small trees sway 6=large branches in motion 0	7=hard to walk 8=twigs break from trees, go home, this is a gale! 0		

Moon effect: (moon phase, start/stop time visible, # nets illuminated) None

Number/type of nets: 4 A) 6-triple B) 6-triple C) 4-Double D) 4-Double

Site description: (net placement, stream data, Habitat description, dominant species, canopy cover)

At edge of gameland; A + B located on sandy road surrounded by pine + mixed hardwood. C + D located on bush hogged road covered by the same diversity of trees. Loblolly, tulip poplar, red maple, gorsema, cypress, water oak, wax myrtle, magnolia virginiana.

Disturbance: (List 1 most signif. disturbances within 500m) Ag field

ANABAT file name: @ truck. Sonobat on

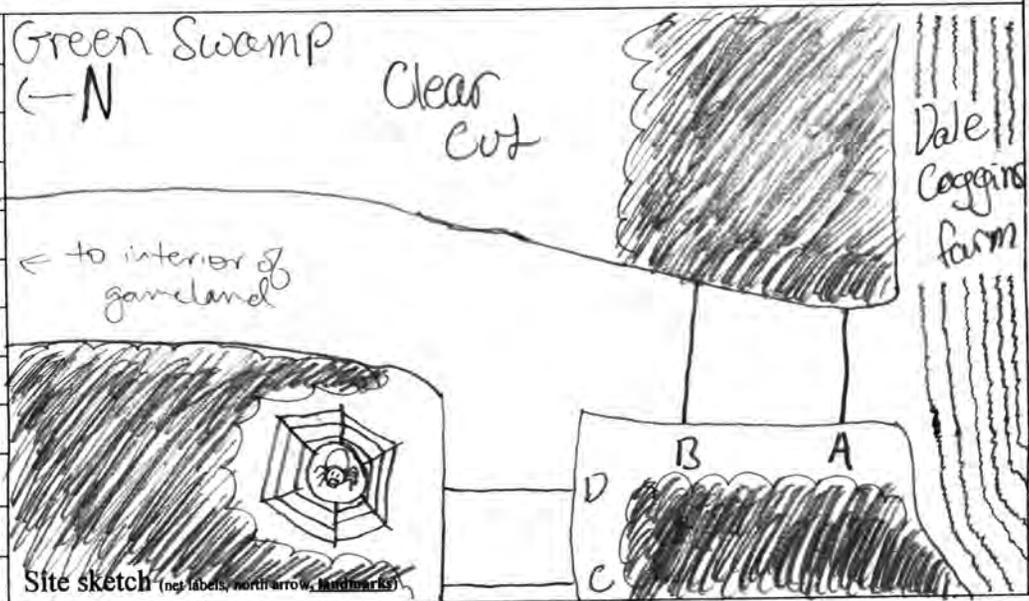
ANABAT location(s):

Remarks: (rain events, other wildlife, etc.) Regular bat calls over clear

cut area just after dusk.

Barred owl monkey calls ~ 23:15.

Whippoorwill



Site sketch (net labels, north arrow, landmarks)

Bat Survey Data Form

LURI

NCDOT

Project: R-9999 MEB		County: Columbus Co		Site #: 1	Night #: 1	Site name: Big Sandy Ridge	Date: 6/4/18
Directions to site: Dirt road to the south of +			Latitude: 35 34.377948		Longitude: -83 78.979615		Elevation:
Directions, cont. near the end of Princess Ann Rd.							
ID person(s): M. Frazer, C. Parks				Observers: E. Corey, J. Rosemond		Net open time: 20:30	Net close time: 1:30
Sky:	DUSK-time, temp, description 21:00 74°F clear		MID-SAMPLE-time, temp, description 23:10 70°F clear		END-time, temp, description 01:15 67° clear		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0		4=small branches in motion 5=small trees sway 6=large branches in motion 0		7=hard to walk 8=twigs break from trees. go home, this is a gale! 0		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) 0 not visible							
Number/type of nets: (label & include size) A - double high 6m, B - double 6m, C, 6m 2x, D - 9 double 9, E - triple 9							
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) dirt road in wet bottomland hardwood forest							
red maple, swamp chestnut, water oak, sweet gum, magnolia virginiana, loblolly Perses palustris							
Disturbance: (List 3 most signif. disturbances within 500m) dirt road + ditch				<p>The sketch shows a cross-section of the site. A wavy line at the top represents the ground surface. Below it, a horizontal line represents a ditch. Five vertical lines represent net locations, labeled A, B, C, D, and E from left to right. A north arrow points towards the top right. An arrow labeled 'to Princess Ann Rd' points towards the right side of the sketch.</p>			
ANABAT file name: sonobat.m							
ANABAT location(s):							
Remarks: (rain events, other wildlife, etc) June bugs (many) + dung beetles in net. Fireflies. Barred owls nearby							
green frogs							
Site sketch (net labels, north arrow, landmarks)							

Bat Survey Data Form

LURI

NCDOT

Project: R-9999 NLEA	County: Columbus Co	Site #: 2	Night #: 1	Site name: Big Sandy Ridge (Fork)	Date: 6/6/18
Directions to site: Dirt road to the South at		Latitude: 35 34.384623		Longitude: -83 78.979530	Elevation:
Directions, cont. intersection of the 2nd fork					
ID person(s): M. Frazer, C. Parks			Observers: E. Corey, J. Rosemond	Net open time: 20:30	Net close time: 1:30
Sky: DUSK-time, temp, description 20:30 78°F Clear	MID-SAMPLE-time, temp, description 23:00 72°F Clear		END-time, temp, description 01:30 71°F Clear		
Wind: 0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0	4=small branches in motion 5=small trees sway 6=large branches in motion 0-1		7=hard to walk 8=twigs break from trees; go home, this is a gale! 0-1		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) Half moon 0 (behind trees)					
Number/type of nets: (label & include size) S) A: 6 triple B: 9 double C: 9 double D: 6 double E: 4 triple					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Dirt Road in wet bottom land hard Wood forest					
Red Maple, Swamp Chestnut, Water Oak, Sweet gum					
@ fork in road					
Disturbance: (List 3 most signif. disturbances within 500m) Sandy Road, Stag: water, hard wood forest			Princess Ann Rd ↑ N		
ANABAT file name: Sonobat on			<p>Site sketch (net labels, north arrow, landmarks)</p>		
ANABAT location(s):					
Remarks: (rain events, other wildlife, etc.) scarlet snake, ringneck snake					
Flying squirrel					
green tree frog, green frog, bullfrog, S leopard, chuckle					
lots of beetles in net + bugs flying your face after sunset					

Bat Survey Data Form

two band types used

Project: R-9999		County: Columbus Co				Site# 2		Night # 1	Site name: Big Sandy Ridge (Fork)				Date: 6/6/18
Time	Species*	Net	Age (A/JV)	Sex (M/F)	Repro NR/PGL/PL/SCR	Forearm length ^{mm}	Weight + bag	Bag weight	Bat weight	Wing cond [^]	Band (3oaks NC)	# wing punches	Comments
20:52	MYAU	A	A	M	NR	36mm	15.5g	7.5	8g	0	0108	3 oaks	Sonobat (Distress 21:04)
21:25	MYAU	D	A	F	PL	38	14g	7.8	6.2g	0	0178		Pix(1)
21:28	MYAU	B	A	F	PL	38	15g	7.8	7.2g	0	0171		Pix(1) Sonobat (21:30)
21:28	escape	B											(Distress/release)
21:38	MYAU	A	A	F	PL	38	14.5g	7.5	7g	0	0148		Sonobat (Distress 21:40)
21:40	MYAU	D	A	F	PL	37	16g	7.8	8.2g	0	0109		Small blemish L wing (D 21:44)
21:43	MYAU	A	A	F	PL	39	14.2g	7.7	6.5g	0	0135		Pix(2)
21:51	MYAU	A	A	F	P	-/-	16g	7.5	8.5g	0	0166		Distress-21:54
21:56	MYAU	B	A	F	PL	38	16g	8	8g	0	0129		
21:56	LABO	C	A	F	P	42	27g	7.5	19.5g	0			(no buffle head, wooly fur, belly roots, dark but not black)
* 21:56	MYAU	C	J	M	NR	37	13g	7.8	5.2g	0	0100	NCSM	Brown Pix-face, belly, toes gray coat
22:15	LABO	E	A	F	P	40	22.5g	8	14.5g	0			
22:19	MYAU	B	J	M	NR	35	13g	7.5	5.5g	0	0076		
22:19	MYAU	B	A	F	PL	38	16g	8	8g	0	0094		
22:19	PESU	B	A	M	NR	33	13g	8	5g	0	0077		Distress 22:23
22:30	MYAU	D	A	F	P	39	16g	8	8g	0	0078		
22:30	MYAU	D	A	F	L	40	17g	7.5	9.5g	0	0073		
22:39	MYAU	D	A	M	NR	36	14g	7.8	6.2g	0	0075		
22:39	MYAU	B			escape								
22:44	LABO	A	A	M	NR	39	20g	8	12g	0			
22:44	EPFU	A	A	M	NR	45	24g	8	22g	0	0755		(3oaks band)
22:48	MYAU	D	A	M	NR	38	14g	8	6g	0	0081		

*SPECIES: big brown=EPFU, Pip/tricolor=PESU, little brown=MYLU, northern long-eared=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU, red=LABO, hoary=LACI, silver=LANO, Seminole=LASE yellow=LAIN, evening=NYHU, Rafbat=CORA, VA big-eared=COTO, Brazilian free-tail=TABR

^WING condition damage: 0=none, 1=less than 50% pigment loss, 2=greater than 50% scarring/splotching, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage
TAKE PICTURE!

Bat Survey Data Form

Project: R-9999		County: Columbus Co				Site# 2	Night # 1	Site name: Big Sandy Ridge (Fork)					Date: 6/6/18
Time	Species*	Net	Age (A/JV)	Sex (M/F)	Repro NR/PG/L/PL/SCR	Forearm length	Weight + bag	Bag weight	Bat weight	Wing cond [^]	Band NCSM	# wing punches	Comments
23:02	LABO	C	A	F	P	39	28.0	8	20g	0	—		
23:05	MYAU	A	A	F	PL	38	15	8	7g	0	0093		3 blemishes (healed holes?) on R ¹ 2 on L ²
23:23	MYAU	B	A	F	L	39	17.5	8	9.8g	0	0086		
23:31	MYAU	D	A	F	PL	38	15.8	7.8	8g	0	0084		
23:31	MYAU	D	A	F	PL	39	16	7.6	8.4g	0	0083		
23:33	MYAU	C	J	M	NR	37	14	7.8	6.2g	0	0092		
23:37	MYAU	A	A	F	L	37	16.5	7.5	9g	0	0099		Distress 23:41 (Banded right) ⁷
23:51	MYAU	D	A	F	NR	37	15	8	7g	0	0082		
23:56	MYAU	C	J	M	NR	36	13.8	8	5.8g	0	0097		
04:08	MYAU	A	A	F	P	38	15.8	7.7	8.1g	0	0088		
01:25	MYAU	A	A	F	P	38	15.2	7.9	7.3g	0	0089		
04:25	MYAU	A	J	M	NR	36	12	8	4g	0	0095		Distress 24:25 ¹²
01:40	MYAU	A	A	F	PL	38	17	7.5	9.5g	0	0087		
01:42	MYAU	D	A	F	P	38	16.1	8.2	7.9g	0	0074		Blemish on right wing ¹⁴
01:10	NYHU	C	A	M	NR	34	16.1	8.2	7.9g	0	0091		
01:20	MYAU	A	J	M	NR	36	14.2g	7.5	6.5g	0	0090		

*SPECIES: big brown=EPPU, Pip/tricolor=PESU, little brown=MYLU, northern long-ear=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU, red=LABO, hoary=LACI, silver=LANO, Seminole=LASE yellow=LAIN, evening=NYHU, Raibat=CORA, VA big-ear=COTO, Brazilian free-tail=TABR

[^]WING condition damage: 0=none; 1=less than 50% pigment loss; 2=greater than 50% scarring/splotching, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage
TAKE PICTURE!

Bat Survey Data Form

LURI

NCDOT

Project: <u>R-9999 NLER</u>	County: <u>Columbus Co</u>	Site #: <u>2</u>	Night #: <u>2</u>	Site name: <u>Big Sandy Ridge (fork)</u>	Date: <u>6/7/18</u>
Directions to site: <u>Dirt road to the South at</u>		Latitude: <u>35 34.384623</u>	Longitude: <u>-83 78.979530</u>		Elevation:
Directions, cont.: <u>intersection of 2nd fork</u>					
ID person(s): <u>M. Frazer, C. Parks</u>			Observers: <u>E. Corey, J. Rosemond</u>		Net open time: <u>20:30</u>
Net close time: <u>1:30</u>		Sky: <u>20:30 78°F Cloudy</u>		MID SAMPLE-time, temp, description: <u>23:00 72°F Partly Cloudy</u>	
Wind: <u>0</u>		END-time, temp, description: <u>01:30 71°F Clear</u>		7-hard to walk 8-twigs break from trees, go home, this is a gale!	

Moon effect: 0 - covered by cloud / behind trees
 (moon phase, start/stop time visible, # nets illuminated)

Number/type of nets: 5) A-6 triple B-9 double C-9 double D-6 double E-6 double
 (label & include size)

Site description: Dirt road in wet bottom land, hard wood forest
 (net placement, stream data, Habitat description, dominant species, canopy cover)

Red Maple, Swamp Chestnut, Water Oak, Sweet gum, Magnolia virginiana
(@ fork in road) loblolly, Persim palustris, wax myrtle

Disturbance: Sandy road, Stag. water
 (List 3 most signif. disturbances within 500m)

hard wood forest

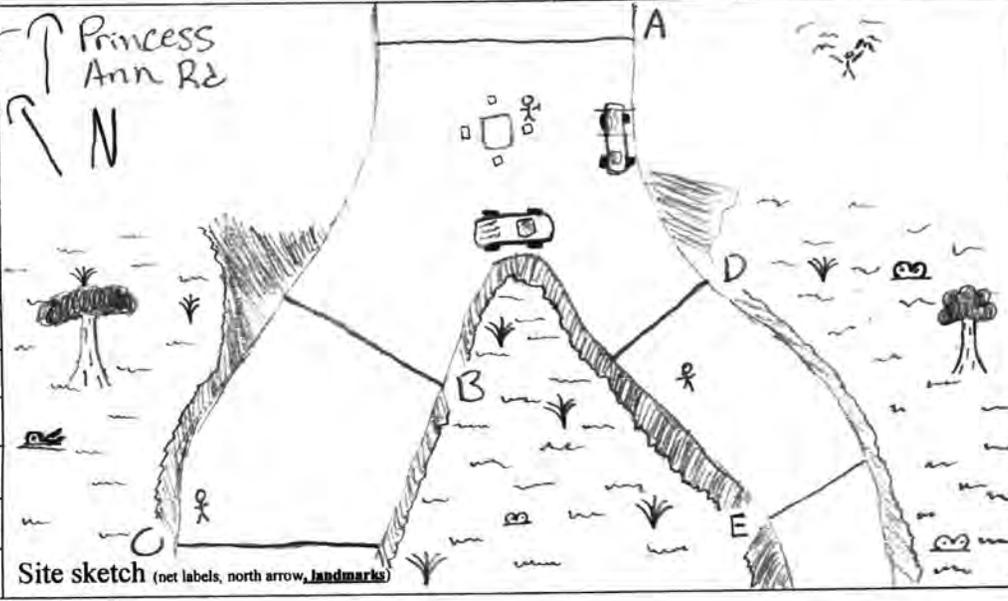
ANABAT file name: Somobaton

ANABAT location(s):

Remarks: beetles in net, but not as many
small flying insects as last night.

scarlet snake, many green tree frog calling
distant barred owls.

Juvenile MYAU more brown/grey than orange



Bat Survey Data Form

two band types used!

Project: R-9999		County: Columbus Co		Site# 2		Night # 2		Site name: Big Sandy Ridge		Date: 6/7/18			
Time	Species*	Net	Age (A/JV)	Sex (M/F)	Repro NR/PG/L/PL/SCR	Forearm length mm	Weight + bag g	Bag weight	Bat weight g	Wing cond [^]	Band	# wing punches	Comments
21:00	MYAU	A	A	F	PL	38	15.2	9.0	7.2	0	30015NE 0187	-	Three O.L.s Band Sono @ 21:09
21:20	MYAU	C	A	F	PL	38	15	8	7	0	0080	NCSM	
21:20	LABO	B	A	F	P	40	26	8	18	0	-		left forearm infected
21:20	LABO	B	A	F	P	42	24.5	8	16.5	0	-		Sono (21:31 chased)
21:40	MYAU	A	A	F	PL	40	15.5	8	7.5	0	0064	NCSM	
21:40	MYAU	A	J	F	NR	NE recapture from 6/4					30015NE 0063		30015NE (0063) recapture from 6/4/18
21:50	MYAU	B	J	M	NR	36	14.1	7.9	6.2	0	0063	NCSM	
21:50	MYAU	C	J	F	NR	37	14.0	7.5	6.5	0	0059	NCSM	Sono @ 21:55
21:52	MYAU	C	J	F	NR	38	14.7	8.0	6.7	0	0062	NCSM	
21:52	MYAU	C	J	F	NR	38	14.5	8	5.5	0	0067	NCSM	
22:28	MYAU	E	J	F	NR	37	14	8	6	0	0098	NCSM	Sonobat 22:28
22:40	MYAU	D	A	F	PL	38	15.5	8	6.5	0	0052	NCSM	Bat flies present
22:41	MYAU	A	A	F	PL	37	13	8	5	0	0051	NCSM	
22:41	MYAU	A	J			escapee							
22:43	MYAU	C	J	F	NR	37	14	8	6	0	0071	NCSM	Pix to show bso. color
22:57	MYAU	C	J	F	NR	35	11.5	8	3.5	0	0085	NCSM	very tiny body
22:57	MYAU	B	J	M	NR	34	13.6	8	5.6	0	0054	NCSM	
22:57	MYAU	D	J	F	NR	35	13.5	8	5.5	0	0060	NCSM	
23:14	MYAU	B	J	F	NR	38	15.2	8	6.8	0	0057	NCSM	Sonobat (23:17)
23:28	MYAU	D	J	M	NR	36	14	8.2	5.8	0	0055	NCSM	
23:28	MYAU	A				escapee							
23:41	MYAU	B	J	M	NR	35	14	8	6	0	0061	NCSM	

*SPECIES: big brown=EPPU, Pip/tricolor=PESU, little brown=MYLU, northern long-ear=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU, red=LABO, hoary=LACI, silver=LANO, Seminole=LASE yellow=LAIN, evening=NYHU, Rafbat=CORA, VA big-ear=COTO, Brazilian free-tail=TABR

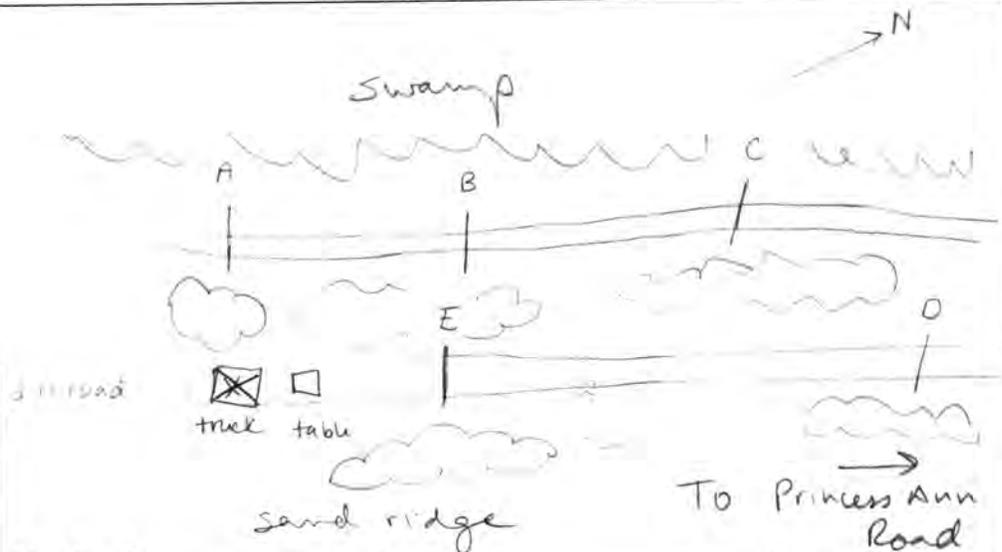
^WING condition damage: 0=none; 1=less than 50% pigment loss; 2=greater than 50% scarring/splotching, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage
TAKE PICTURE!

Bat Survey Data Form

LURI

NCDOT

Project: R-9999 NLES ^B		County: Columbus	Site #: 3	Night #: 1	Site name: Big Sandy South	Date: 7/16/18
Directions to site: Take Big Sandy Bridge		Latitude: 35 34.374247	Longitude: -83 78.990089		Elevation:	
Directions, cont. Road off Princess Ann Rd, go past first intersection & continue 7 1/2 mi.		ID person(s): M Frazer		Observers: N Scott, C Parks	Net open time: 20:35	Net close time: 1:35
Sky:	DUSK-time, temp, description 20:30 76°F, partly cloudy, humid	MID-SAMPLE-time, temp, description mostly 23:00, 72°F, clear humid		END-time, temp, description 1:15 71°F clear		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 3	4=small branches in motion 5=small trees sway 6=large branches in motion 0		7=hard to walk 8=twigs break from trees, go home, this is a gale! 0		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) waxing crescent, 21:10, none/behind trees						
Number/type of nets: (label & include size) A: 6m triple, B: 4m double, C: 6m double, D: 4m double, E: 6m single						
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Dirt roads on sand ridge dropping down into swamp to the west.						
Loblolly pine, live oak, water oak, sweet gum, cleyra, sassafras, persimmon, Magnolia virg.						
Disturbance: (List 1 most signif. disturbances within 500m) dirt roads						
ANABAT file name: @ truck - few/no bat calls						
ANABAT location(s): sonobat on						
Remarks: (rain events, other wildlife, etc.) Night hawks out before sunset Barred owls calling fairly regularly. Periodic lightning flashes despite clear sky. Bats visible flying in open areas, especially red bat. A few beetles in net.						



Site sketch (net labels, north arrow, landmarks)

Bat Survey Data Form

Project: R-9999		County: Columbus				Site# 2		Night #1		Site name: LURI Big Sandy South			Page 1 of Date: 7/16/18	
Time	Species*	Net	Age (A/JV)	Sex (M/F)	Repro NR/PGL/PL/SCR	Forearm length	Weight + bag	Bag weight	Bat weight	Wing cond [^]	Band	# wing punches	Comments	
21:15	LABO	A	A	M	NR	40mm	16.5	8	8.5	0			Using white-out instead of EFN	1
21:47	LABO	B											bands on LABO	
22:25	LABO	A	A	F	NR	40	19.0	8	11.0	0				
22:26	LABO	A											EFN	4
22:44	NYHU	C	J	M	NR	34	16.0	8.0	8.0	0	Throat 1288	0	22:58 some bat	5
23:40	LABO	D	A	F	NR	42	17.0	8.0	9.0	0			LABO circled net while this LABO was in net	6
23:50	EPFU	E	A	F	NR	46	23.5	8.0	15.5	0	20065 0781			7
00:05	LABO	A	J	F	NR	42.0	19.0	8.0	11.0	0				8
00:40	LABO	A											EFN	9
00:50	LABO	D	J	M	NR	40	17.5	7.5	10.0	0				10
														11
														12
														13
														14
														15
														16
														17
														18
														19
														20
														21
														22

*SPECIES: big brown=EPFU, Pip/tricolor=PESU, little brown=MYLU, northern long-eared=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU, red=LABO, hoary=LACI, silver=LANO, Seminole=LASE, yellow=LAIN, evening=NYHU, Rafbat=CORA, VA big-eared=COTO, Brazilian free-tail=TABR

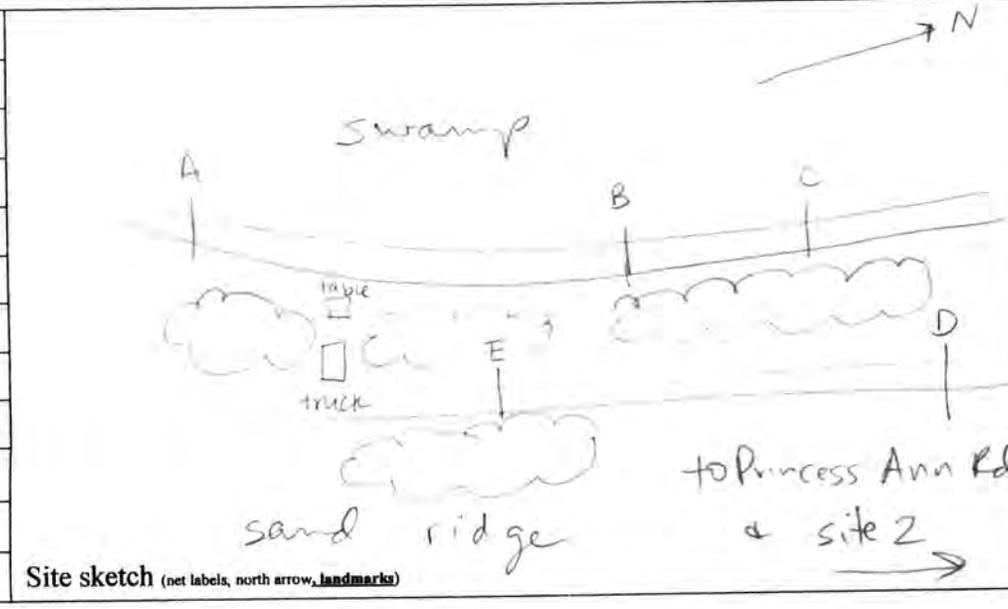
[^]WING condition damage: 0=none; 1=less than 50% pigment loss; 2=greater than 50% scarring/splotching, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage
TAKE PICTURE!

Bat Survey Data Form

NCDOT

Project: R-9999 NLEB	County: Columbus	Site #: 3	Night #: 2	Site name: ^{LURI} Big Sandy South	Date: 7/17/18
Directions to site: Lumber River State		Latitude: 35	Longitude: -83		Elevation: 130
Directions, cont. Park off Princess Ann Rd.		Net open time: 21:00 ^{opened late due to rain}			
ID person(s): M. Frazer		Observers: N. Scott, C. Parks		Net close time: 1:45	
Sky:	DUSK-time, temp, description 20:35, 74°F, drizzling	MID-SAMPLE-time, temp, description 00:01, 71.5°F, cloudy	END-time, temp, description 1:20, 71.5°F, cloudy		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0	4=small branches in motion 5=small trees sway 6=large branches in motion 0 HUMID	7=hard to walk 8=twigs break from trees, go home, this is a gale! 0		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) not visible					
Number/type of nets: (label & include size) A: 6m triple, B: 4m double, C: 6m double, D: 4m double, E: 6m single					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) see night 1 (7/16) for details					
Dirt roads on sand ridge adjacent to swamp					
includes Sand live oak (<i>Q. geminata</i>), blue jack oak (<i>Q. incana</i>), sand laurel oak (<i>Q. hemisphaerica</i>) + turkey oak (<i>Q. laevis</i>)					

Disturbance: (List 1 most signif. disturbances within 500m)	dirt roads/trails
ANABAT file name:	—
ANABAT location(s):	—
Remarks: (rain events, other wildlife, etc.)	Rain in evening before sunset.
Night hawk at before dark, (<i>H. vesicator</i>)	
Narrow moth toads + gray treefrogs calling	
Various beetles / June bugs in nets.	
1 barred owl calling @ 22:40.	



small gloves
D cells
keck gator
rodent
bug spray

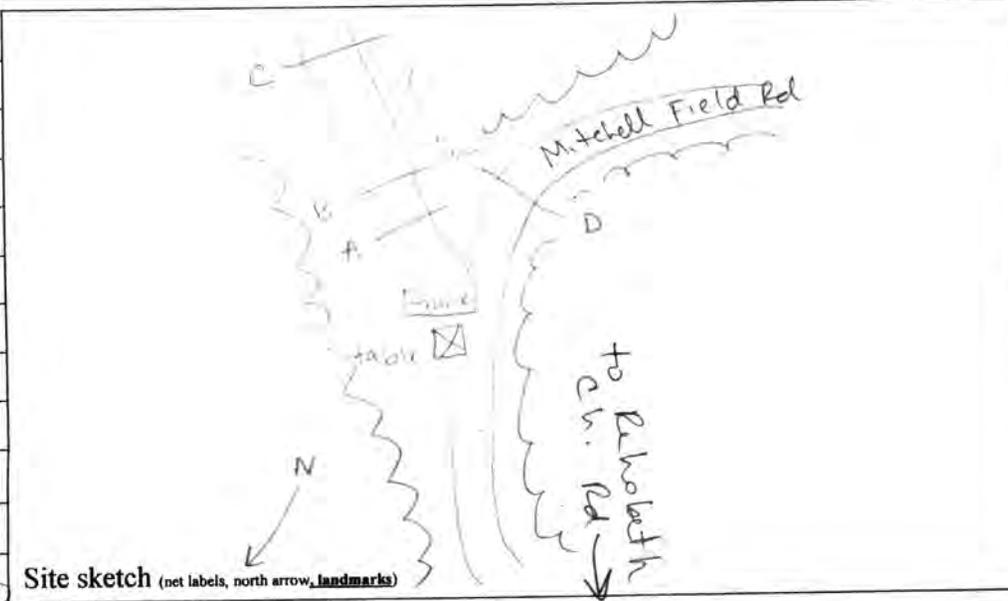
Bat Survey Data Form

NCDOT

Columbus Co. Game Lands

Project: R-9999 NLEB	County: Columbus	Site #: 4	Night #: 1	Site name: Mitchell Field Rd	Date: 7/18/18
Directions to site: Mitchel Field Rd in		Latitude: 34.415851	Longitude: -78.565549	Elevation:	
Directions, cont. Columbus Co. Game Land off Rehebeth Ch. Rd					
ID person(s): M. Frazer			Observers: N Scott, C. Parks		Net open time: 20:35
Net close time: 1:35					
Sky:	DUSK-time, temp, description 20:35, 76°F, clear	MID-SAMPLE-time, temp, description 23:14, 71°, clear	END-time, temp, description 01:20, 69°F, clear, humid		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0	4=small branches in motion 5=small trees sway 6=large branches in motion 0	7=hard to walk 8=twigs break from trees, go home, this is a gale! 0		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) waxing crescent 40.0%, 20:30, ^{nets} non illuminated.					
Number/type of nets: (label & include size) A: 0 m double, B: 16 m double, C: 4 m double, D: 12 m triple order of photos: C, B, A, D					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Dirt road in mixed pine-hardwood bottomland forest. loblolly pine, red maple, sweet gum, American holly, clematis, Ilex glabra					

Disturbance: (List 3 most signif. disturbances within 500m)	dirt roads, house w/in 1/2 mile.
ANABAT file name:	@ truck
ANABAT location(s):	sonobat on
Remarks: (rain events, other wildlife, etc.)	Nighthawk heard before sunset, whippoorwill + chuck-wills-widow after sunset (one briefly in net). Also a screech owl, coyotes-distant - @ 21:30, bats seen flying along main road lots of mosquitoes! Beetles, mostly in net



Site sketch (net labels, north arrow, landmarks)

Bat Survey Data Form

Project: R-9999 NLEB		County: Columbus				Site# 4	Night # 1	Site name: Columbus Co Game lands, Mitchell Field R			Date: 7/18/18	Comments	
Time	Species*	Net	Age (A/JV)	Sex (M/F)	Repro NR/ PG/L/PL/SCR	Forearm length	Weight + bag	Bag weight	Bat weight	Wing cond [^]	Band	# wing punches	Comments
21:20	EPPU	D	JV	F	NR	44	24	8.0	16g	0	3 dark NC 0790	—	
21:49	NYHU	A	JV	F	NR	36	16	8.0	8g	0	3 dark NC 1312	—	
21:54	LABO	D	JV	M	NR	38	17	8.0	9g	0	—	—	
21:55	LASE	D	JV	F	NR	42	18	8.0	10g	0	—	—	
22:13	LASE	B	JV	M	NR	39	15	8.0	7.0	0	—	—	
22:17	LASE	D	JV	F	NR	40	16	7.5	8.5	0	—	—	
22:40	LABO	D	JV	F	NR	43	19.5	8.0	11.5	0	—	—	
22:40	LABO												
22:35	LABO												ESCAPE
23:00	LABO	D	JV	F	NR	41	17.5	8	9.5	0	—	—	ESCAPE
23:00	NYHU	D	JV	M	NR	33	15.0	8	7	0	—	—	looked young, subadult band, Fw still coming in
23:06	LASE	D	JV	M	NR	41	17	7.5	9.5	0	—	—	Mite on Rt forearm
23:02	LABO	D	JV	M	NR	36	16.5	8	8.5	0	—	—	
23:00	LA. sp.	D											EFN
23:00	LA. sp.	D											EFN
23:15	LABO	D	JV	F	NR	41	18	8	10	0	—	—	
00:00	LABO	B	A	F	L	38	21	8.0	13.0	0	—	—	
00:05	LABO	D	JV	F	NR	40	17	8.0	9.0	0	—	—	
1:05	LABO	D	JV	F	NR	41	18	8.0	10.0	0	—	—	
1:05	LABO	B											ESCAPE
1:12	LABO	D	JV	M	NR	39	17	8.0	9.0	0	—	—	

*SPECIES: big brown=EPPU, Pip/tricolor=PESU, little brown=MYLU, northern long-ear=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU
red=LABO, hoary=LACI, silver=LANO, Seminole=LASE yellow=LAIN, evcning=NYHU, Rafbat=CORA, VA big-ear=COTO, Brazilian free-tail=TABR

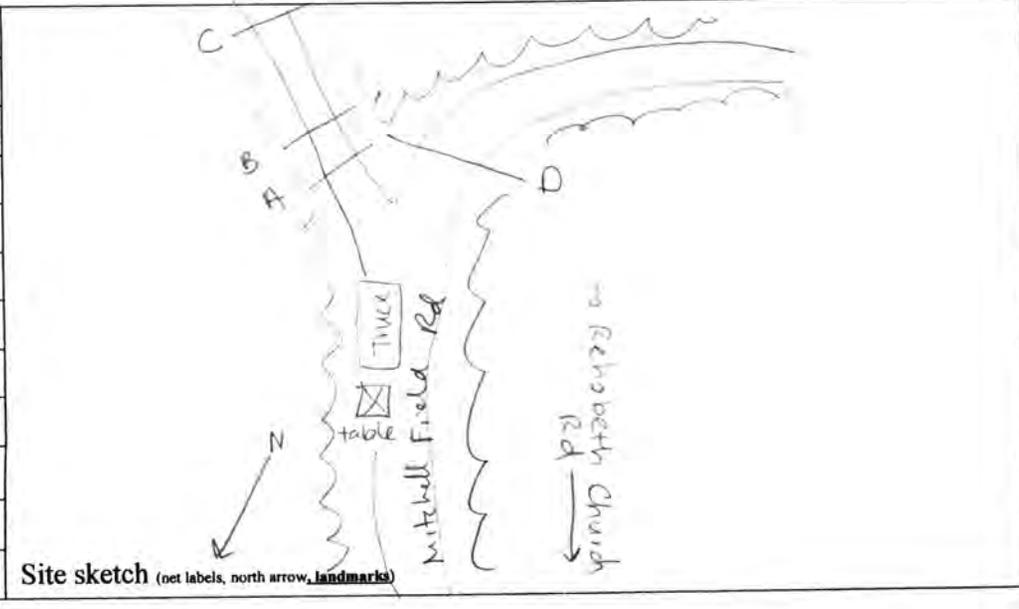
^WING condition damage: 0=none; 1=less than 50% pigment loss; 2=greater than 50% scarring/splotching, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage
TAKE PICTURE!

Bat Survey Data Form

NCDOT

Project: R-9999 NLEB	County: Columbus	Site #: 4	Night #: 2	Site name: Columbus Co. Game Lands Mitchell Field Rd	Date: 7/19/18
Directions to site: Mitchell Field Road off		Latitude: 34.415851	Longitude: -83.78565549	Elevation:	
Directions, cont. Rehobeth Church Rd					
ID person(s): M. Frazer			Observers: N. Scott, C. Parks	Net open time: 20:30	Net close time: 1:30
Sky:	DUSK-time, temp, description 20:35, 71°F, clear	MID-SAMPLE-time, temp, description 23:15, 67°, mostly clear	END-time, temp, description 1:15, 69°, partly cloudy		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0	4=small branches in motion 5=small trees sway 6=large branches in motion 0	7=hard to walk 8=twigs break from trees, go home, this is a gale! 0 humid		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) 1/2 quarter, 50%, 20:00 visible, only net D 10% illuminated for a brief time					
Number/type of nets: (label & include size) A: 6m double, B: 6m double, C: 4m double, D: 12m triple					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Dirt road in mixed-pine hardwood bottomland forest					
See details from night 1 (7/18).					

Disturbance: (List 1 most signif. disturbances within 500m)	dirt roads, house w/in 1/2 mile
ANABAT file name:	sambata on
ANABAT location(s):	
Remarks: (rain events, other wildlife, etc.)	Net D closed for several minutes due to ATV party. night hawk, pine woods tree frog, nightjar (1 in net)
	a few beetles in nets & a couple imperial moths



Bat Survey Data Form

Columbus Co. Game Lands

Page 1 of 1

Project: R-9999		County: Columbus				Site# 4	Night # 2	Site name: Mitchel Field Road					Date: 7/19/2018
Time	Species*	Net	Age (A/JV)	Sex (M/F)	Repro NR/PG/L/PL/SCR	Forearm length	Weight + bag	Bag weight	Bat weight	Wing cond [^]	Band	# wing punches	Comments
21:45	LACE	D	JV	M	NR	39	15	7.5	7.5	0			
21:45	LACE	P	A	M	SCR?	41	14	8	11	0			tests evident but small, not sure about repro status
21:55	LABO	B	JV	M	NR	39	19	8	11	0			
21:50	LABO	C	A	F	PL	39	21	8	13	0			
21:59	LABO	D	JV	M	NR	39	17	8	9	0			
21:58	LABO	A	JV	F	NR	41	17.5	8	9.5	0			
22:05	LABO	P	JV	F	NR	39.5	17.0	8	9	0			
22:05	LASE	D	JV	M	NR	40	16.0	8	8	0			
22:20	NYHU	D	JV	F	NR	34	16.0	8	8	0	Soaks NC 1289		22:27 rel.
22:38	PESU	D	JV	F	NR	33	14.0	8	6	0	2 Soaks NC 1273		22:40 distress 22:45 rel
22:45	LASE	A	JV	M	NR	44	18	8	10	0			22:49 released
23:10	LABO	A	A	F	PL	42	23	8	15	0			
23:25	LABO	D	JV	F	NR	42	18	8	10	0			
23:25	LABO	D	JV	F	NR	39	18	8	10	0			
23:30	MYAU	A	A	M	NR	36	14	8	6	0	Soaks NC 1344		23:42 distress 23:46 rel
23:35	LASE	D	JV	F	NR	42	17	8	9	0			
00:03	LABO	A	JV	M	NR	37	17	8	9	0			
00:00	LABO	B	JV	F	NR	41	19	8	11	0			
00:45	LABO	D	JV	F	NR	39	19	8	11	0			
1:10	LABO	C	JV	F	NR	41	18	8	10	0			
1:35	LABO	D	JV	M	NR					0			released at net

*SPECIES: big brown=EPFU, Pip/tricolor=PESU, little brown=MYLU, northern long-eared=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU, red=LABO, hoary=LACI, silver=LANO, Seminole=LASE yellow=LAIN, evening=NYHU, Rafbat=CORA, VA big-eared=COTO, Brazilian free-tail=TABR

^WING condition damage: 0=none; 1=less than 50% pigment loss; 2=greater than 50% scarring/splotching, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage TAKE PICTURE!

Bat Survey Data Form

Camp LeJeune

NCDOT

Project: NLEB R-9999	County: Onslow	Site #: 3	Night #: 1	Site name: Onslow No name road	Date: 4/19/2018
Directions to site: Just off No name road		Latitude: 35 34.658911	Longitude: -83 77.401107		Elevation:
Directions, cont. on dirt track - Near Old Town Point Rd.					
ID person(s): Mary Frazer		Observers: L. Stokes-Carley + Kelly + Ally + Mallory (Camp LeJeune)		Net open time: 19:55	Net close time: 00:45
Sky:	DUSK-time, temp, description 66°F, 19:45, mostly clear	MID-SAMPLE-time, temp, description 55° 23:00, clear	END-time, temp, description 00:25 51°F clear		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 1-2	4=small branches in motion 5=small trees sway 6=large branches in motion 1-2 w/ gusts of 3	7=hard to walk 8=twigs break from trees; go home, this is a gale! 1-2		
Moon effect: moon sliver @ sunset, Moon set ~23:00 <small>(moon phase, start/stop time visible, # nets illuminated)</small>					
Number/type of nets: 1 triple high 9m (A), double 6m (B), double 6m (C), single 9m (D), single 4m (E) <small>(label & include size)</small>					
Site description: <small>(net placement, stream data, Habitat description, dominant species, canopy cover)</small>					
loblolly forest, long unused dirt/brush Rd. lots of puddles in road cuts plus a small borrow pit. Sweet gum, s. red oak, wax myrtle, red bay, live oak. A few small swampy areas adjacent to netting corridor.					
Disturbance: <small>(List 3 most signif. disturbances within 500m)</small>		dirt road			
ANABAT file name:		somewhat @ work up table			
ANABAT location(s):		somewhat @ truck on main road.			
Remarks: <small>(rain events, other wildlife, etc.)</small>		Intermittent calls No small arms fire! 1 luna moth no beetles in net; a few moths visible breezy			
		Site sketch <small>(net labels, north arrow, landmarks)</small>			

Bat Survey Data Form

Camp Levee

NCDOT

Project: NLEBR-9999	County: Onslow	Site #: 3	Night #: 2	Site name: No name road	Date: 4/30/18
Directions to site: Just off No name road		Latitude: 35 34.658911	Longitude: -83 77.401107	Elevation:	

Directions, cont. on dirt track, Near Old Town Point Rd.

ID person(s): M. Frazier, C. Parks, L. Gates	Observers: Gary Haight (biologist) Alicia Cassie	Net open time: 20:00	Net close time: 1:00
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Sky:	DUSK-time, temp, description	MID-SAMPLE-time, temp, description	END-time, temp, description
	20:15 57°F clear	20:45 53°F clear	00:30 51°F clear

Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed	4=small branches in motion 5=small trees sway 6=large branches in motion	7=hard to walk 8=twigs break from trees; go home, this is a gale!
	0	0-1	0 humid

Moon effect: Full moon rise @ 21:30. Most nets shaded, 2 illuminated starting @ ~23:00.

Number/type of nets: triple high 9M(A), double 6M(B), double 6M(C), single 9M(D), single 6M(E), double 9M(F)

Site description: Narrow dirt track in bobby forest w/ sweet gum.

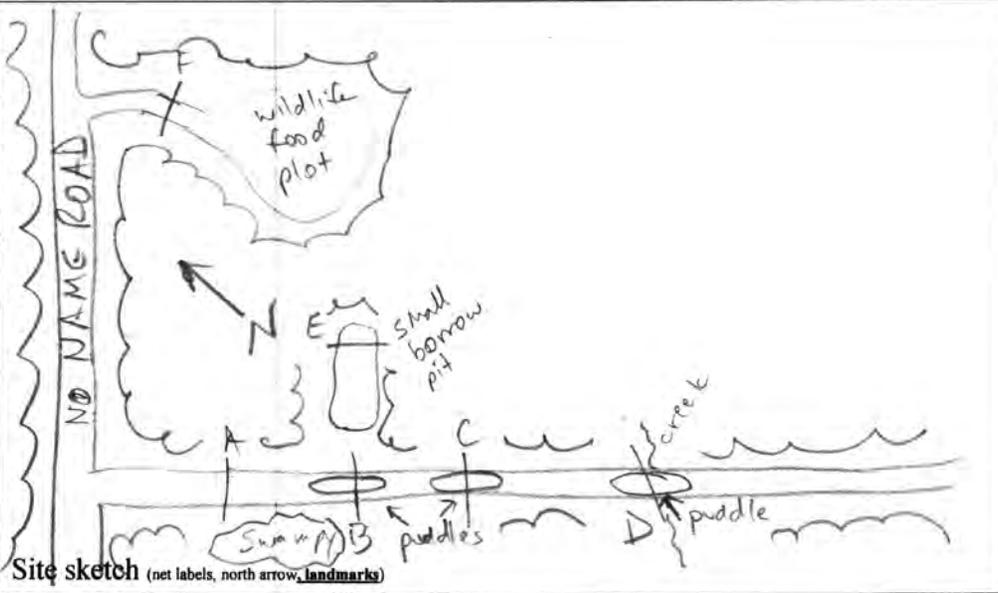
Lots of road cut puddles. Also a short drive heading to a food plot.
see 4/19/18 for more detail
Net A partly illuminated ~ 23:45.

Disturbance: dirt road
(List 3 most signif. disturbances within 500m)

ANABAT file name: _____

ANABAT location(s): _____

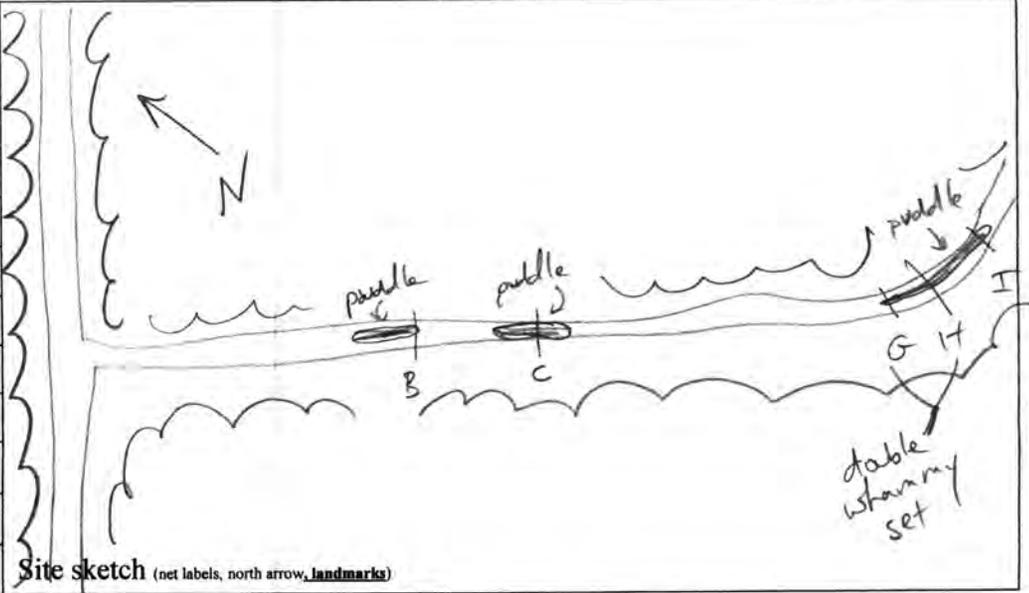
Remarks: Chuck wills widow calling steadily. Also small arm fire.
Artillery @ sunset.



Bat Survey Data Form

NCDOT

Project: <i>R-9999 MLCB survey</i>	County: <i>Onslow</i>	Site #: <i>3b</i>	Night #: <i>1</i>	Site name: <i>no name road</i>	Date: <i>5/1/18</i>
Directions to site: <i>see 4/30/18</i>		Latitude: <i>35 34.658057</i>	Longitude: <i>-83 77.40082</i>		Elevation:
Directions, cont. <i>Further down dirt road from site 3 by a couple hundred feet.</i>					
ID person(s): <i>Frazer, Galen, Parks</i>			Observers: <i>E. Gaydos, H. Ferreira</i>	Net open time: <i>20:00</i>	Net close time: <i>1:00</i>
Sky:	DUSK-time, temp, description <i>21:00 clear 62°F</i>	MID-SAMPLE-time, temp, description <i>22:25 clear 59°F</i>	END-time, temp, description <i>00:31 clear 56.5°F</i>		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed <i>0</i>	4=small branches in motion 5=small trees sway 6=large branches in motion <i>0</i>	7=hard to walk 8=twigs break from trees, go home, this is a gale! <i>0</i>		
Moon effect: <small>(moon phase, start/stop time visible, # nets illuminated)</small> <i>Moon rise behind trees ~ 22:30. Nets mostly shaded.</i>					
Number/type of nets: <small>(label & include size)</small> <i>B-double 6m, C-double 6m, G-single 9m, H-triple 6m, I-double 6m</i>					
Site description: <small>(net placement, stream data, Habitat description, dominant species, canopy cover)</small> <i>see 4/19/18 for details</i>					
<i>Dirt road w/ curve & puddles.</i>					
Disturbance: <small>(List 3 most signif. disturbances within 500m)</small> <i>dirt road, weapons</i>					
ANABAT file name: <i>Anabat @ table</i>					
ANABAT location(s): <i>Petterson on ~ 22:45</i>					
Remarks: <small>(rain events, other wildlife, etc.)</small> <i>click beetle, dung beetle, June bugs, crickets</i> <i>2 luna moths in net. Katydid have started singing. Chuck wills widow singing. Small arms fire - all night.</i> <i>1st time this season</i>					
<i>Chuck wills widow flew in net C but got out.</i>					



Bat Survey Data Form

B-Close truck
C
G
H-Big red
I-Telescope

Project: NLEB survey R-9999		County: Onslow				Site# 36	Night # 1	Site name: No name road				Date: 5/1/18	
Time	Species*	Net	Age (A/JV)	Sex (M/F)	Repro NR/PGL/PL/SCR	Forearm length	Weight + bag	Bag weight	Bat weight	Wing cond [^]	Band 3065 NC	# wing punches	Comments
2022	LABO	B	A	F	NR	-	-	-	-	0	0193		1st net from 4/19/18
202A	LABO	H	A	M	NR	41mm	19.5	10	9.5	0	0179		Smaller plotchus R-wing Pencil size hole trailing L-wing
2024	LABO	H	A	M	NR	40	20.75	10.2	10.55	0	0111		
2024	LABO	H	A	M	NR	38	19.0	10.4	8.6	0	0114		
2024	LASE	H	A	F	PG	43.5	22.5	10.4	12.1	0	0162		
2100	EPFU	H	A	F	NR	46	24.0	7.5	16.5	0	0940		Small light splotchus both wings
2106	NYHU	C	A	M	NR	35	18.0	10.2	7.8	0	0137		physical damage - Scar
2113	LABO	G											EFN
2113	LASE	H	A	M	NR	41	18.0	7.0	11.0	0	0156		
2158	LASE	G	A	F	PG	43	21.25	10.0	11.25	0	0192		either pregnant or full
2158	LABO	I	A	F	PG	42	24.5	10.5	14.0	0	0422		either pregnant or full
22:10	LABO	B	A	M							0147		[Recapture] from 4/19/18
22:30	Lasurus	B											EFN
2258	LABO	I	A	F	PG	42	21.0	7.25	13.75	0	0134		
2317	LABO	H	A	F	NR	41	18.0	7.0	11.0	0	0139		
2338	EPFU	H	A	M	NR	45	24.0	10.0	14.0	0	0902		Recorded w/ peterson @ 2345
2339	LASE	B	A	M	NR	40	18.0	7.5	10.5	0	0151		
0015	PESU	C	A	F	NR	34	16.0	10.0	6.0	0	0184		
0035	LABO	C	A	M	NR	40	19.25	10	9.25	1	0180		physical damage

*SPECIES: big brown=EPFU, Pip/tricolor=PESU, little brown=MYLU, northern long-ear=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU
red=LABO, hoary=LACI, silver=LANO, Seminole=LASE yellow=LAIN, evening=NYHU, Rafbat=CORA, VA big-ear=COTO, Brazilian free-tail=TABR

^WING condition damage: 0=none; 1=less than 50% pigment loss; 2=greater than 50% scarring/splotching, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage
TAKE PICTURE!

Therms, 6 sec. hand notes
 Say on some (2)
 (New River station)

Bat Survey Data Form

Camp LeJeune

NCDOT

Project: NLEB survey	County: Onslow	Site #: 4	Night #: 1	Site name: Old Town Pt Rd	Date: 4/17/2018
Directions to site: R-9999		Latitude: 35 34.662026	Longitude: -83 77.395267		Elevation:
Directions, cont. Just off Old Towne Point Rd					
ID person(s): Mary Frazer			Observers: L Stokes-Cawley + Craig Terbrink	Net open time: 20:00	Net close time: 01:00
Sky:	DUSK-time, temp, description Mostly sunny 60°F 20:00	MID-SAMPLE-time, temp, description 22:15 54°F clear	END-time, temp, description 00:24 54°F clear		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0-2 variable	4=small branches in motion 5=small trees sway 6=large branches in motion 0-2	7=hard to walk 8=twigs break from trees; go home, this is a gale! 1-2 Humidity not bad		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) ☉					
Number/type of nets: (label & include size) 2 triple high 9m (A+B), 1 triple high 6m (B), 1 double high 9m (C)					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Pine forest with dirt road heading to wildlife food plot & buried utility line corridor.					
Moderate-aged loblolly stand w/ sweet gum, redbark, live oak, wax myrtle haws-sugar?, beauty berry					
Disturbance: (List 3 most signif. disturbances within 500m) Gravel road, dirt road			<p>Site sketch (net labels, north arrow, landmarks)</p>		
lots of small arms fire in the distance until ~ 23:00.					
ANABAT file name:					
ANABAT location(s): new work-up station					
Remarks: (rain events, other wildlife, etc.) 2 luna moths in net 1 beetle " " hardly any mosquitos					
NO bat calls on Anabat					
chuck-wills-widow called briefly @ sunset					
a few moths flying around					

Bat Survey Data Form

Camp Le Jeune

NCDOT

Project: NLEB Survey	County: Onslow	Site #: 4	Night #: 2	Site name: Old Town Pt Rd 1	Date: 4/18/2018
Directions to site: Just off Old Towne Birt Rd		Latitude: 35 34.662026	Longitude: -83 77.395267	Elevation:	

Directions, cont.

ID person(s): Mary Frazer	Observers: L Stokes-Cawley + Gary + Ally + Mallory	Net open time: 19:55	Net close time: 00:55
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Sky: DUSK-time, temp, description 62°F @ 20:00, mostly sunny, clear	MID-SAMPLE-time, temp, description 23:00; mostly clear, 63°F	END-time, temp, description 00:35; mostly clear 64°F dry
Wind: 0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0-2	4=small branches in motion 5=small trees sway 6=large branches in motion 0-2	7=hard to walk 8=twigs break from trees, go home, this is a gale! 0-2

Moon effect: moon sliver @ sunset

Number/type of nets: 2 triple high 9m (A+D), 1 triple high 6m (B), 1 double high 9m (C), 1 single 4m (E)

Site description: (net placement, stream data, Habitat description, dominant species, canopy cover)
 loblolly forest with buried water line, tiny borrow pit/pool, + dirt road to food plot.

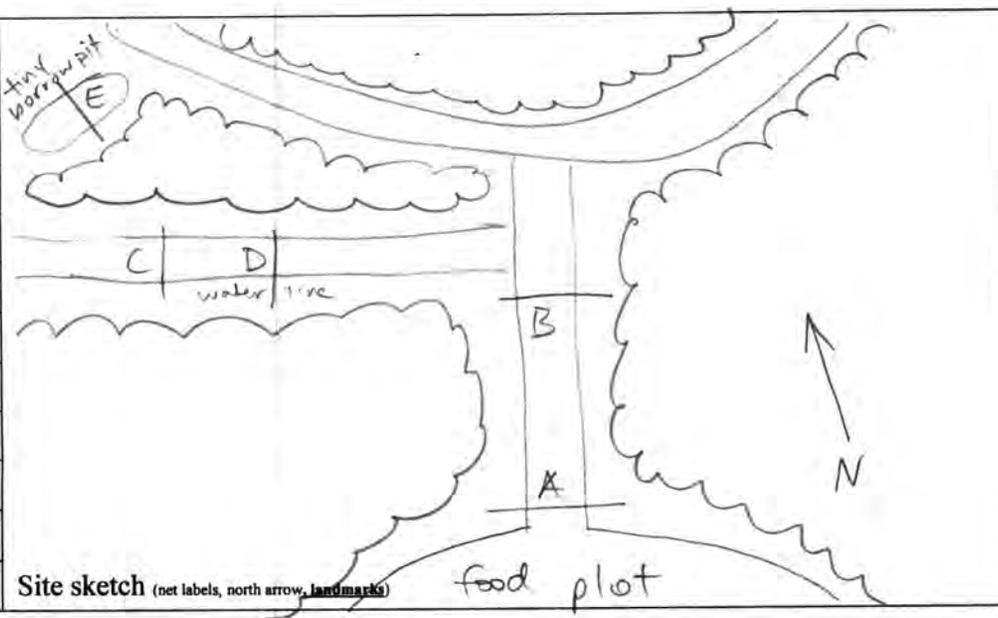
Disturbance: gravel road

ANABAT file name: sporadic calls on bat detector

ANABAT location(s):

Remarks: lots of small arms fire

luna moth in net
 leopard frog, spring peeper, chuck wills widow



Site sketch (net labels, north arrow, landmarks)

Bat Survey Data Form

NCDOT

Project: NLEBR-9999	County: Onslow	Site #: 5	Night #: 1	Site name: ^{off} Magnolia Ln	Date: 2 May 2018
Directions to site:		Latitude: 35 34.669249	Longitude: -83 77.401108	Elevation:	

Directions, cont. Dirt road off Magnolia Ln.

ID person(s): Frasier, Gaters, Parks	Observers:	Net open time: 20:00	Net close time: 1:00
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Sky: DUSK-time, temp, description 70°F 19:40, wind 2-4 clear	MID-SAMPLE-time, temp, description 72:30 64°F clear	END-time, temp, description 00:30 61° clear
Wind: 0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed	4=small branches in motion 5=small trees sway 6=large branches in motion	7=hard to walk 8=twigs break from trees, go home, this is a gale! 2-3

Moon effect: (moon phase, start/stop time visible, # nets illuminated) Moon rise ~ 23:30. Nets shaded. 89% full

Number/type of nets: (label & include size) A: 1x5m single, B: double 9, C: double 12, D: double 6, E: triple 6

Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Road corridor w/ patches of open than more dense understory, large ephemeral pond near

nets - not retreatable, trees are mixed pine & hardwood

sweet gum, laurel oak, elm, red oak, yellow poplar, red maple, water hickory

Disturbance: (List 3 most signif disturbances within 500m) dirt road

small arms fire - sporadic, brief artillery fire.

ANABAT file name: @table

ANABAT location(s): Peterson on

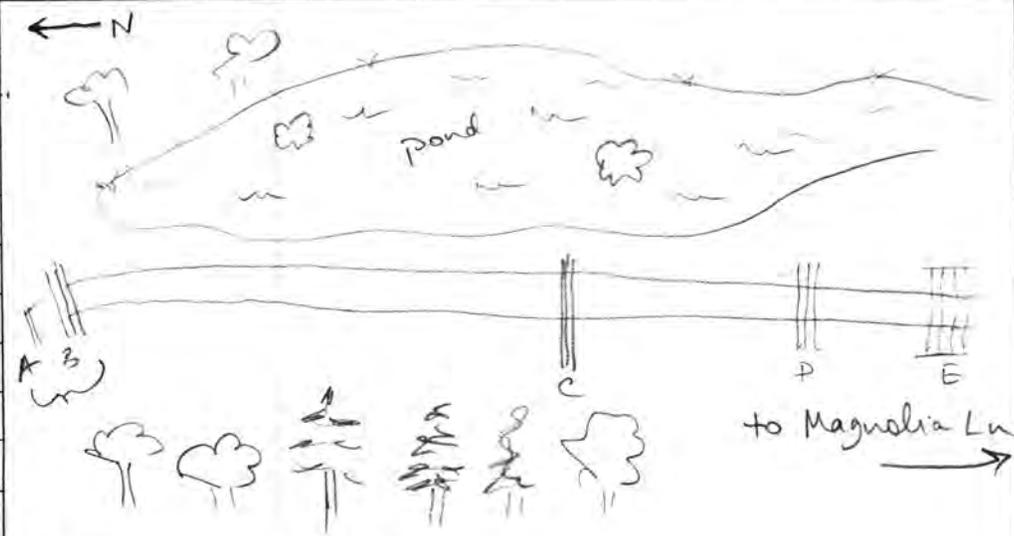
Remarks: (rain events, other wildlife, etc.) Lots of June bugs, dung beetles

in nets. Especially in D

Flying squirrel in net C

Periodic calls on Anabat - adjacent to

pond.



Site sketch (net labels, north arrow, landmarks)

Bat Survey Data Form

Project: NLEB R-9999		County: Onslow			Site# 5		Night # 1	Site name: Magnolia Ln			Date: 5/2/18		
Time	Species*	Net	Age (A/JV)	Sex (M/F)	Repro NR/PG/L/PL/SCR	Forearm length	Weight + bag	Bag weight	Bat weight	Wing cond^	Band	# wing punches	Comments
2010	LABO	C	A	F	NR	43	23	10	13	0	30AKS NC 0407	-	1mm hole in tail membrane pine hole in right wing
2020	LASE	E	A	M	NR	39	20	10	10	0	0174	-	
2048	LASE	A	A	F	PG	40	21	10	11	0	30AKS NC 0190	-	
2048	LABO	B	A	M	NR	40	18	7.5	10.5	0	30AKS NC 0170	-	hole in the propageum near elbow injury on side - photo
2110	EPFU	E	A	M	NR	46	22	7.5	16.5	0	30AKS NC 0911	-	#1 bat fly present
2129	EPFU	D	A	F	PG	46	26.5	7.5	19	0	30AKS NC 0903	-	#1 bat fly present
2129	EPFU	E	A	M	NR	43	21.5	8.0	13.5	0	30AKS NC 0907	-	
2205	LASE	A	-	-	-	-	-	-	-	-	-	-	EFN
2207	LASE	D	A	F	PG	41.0	20.25	9.5	21.25	0	30AKS NC 0186	-	PG or well fed
2335	EPFU	C	A	M	NR	47	24.5	10	14.5	0	0943	-	a few pinholes in wings
2340	LASE	D	A	M	NR	40	18	7	11	0	0198	-	on Peterson @ 23:46
2400	EPFU	B	-	-	-	-	-	-	-	-	-	-	
2350	EPFU	D	A	F	PG	46	25	7.5	16.5	0	30AKS NC 0977	-	#1 bat fly present on both wings
2350	EPFU	D	A	F	P	49	-	-	-	0	30AKS NC 0926	-	recapture from April 30th band was chewed on
2440	LABO	D	A	F	NR	42.0	18.25	7.25	10.0	0	30AKS NC 0165	-	
2450	LASE	D	A	M	NR	41	18.5	8	10.5	0	30AKS NC 0196	-	

*SPECIES: big brown=EPFU, Pip/tricolor=PESU, little brown=MYLU, northern long-eared=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU
 red=LABO, hoary=LACI, silver=LANO, Seminole=LASE yellow=LAIN, evening=NYHU, Rafbat=CORA, VA big-eared=COTO, Brazilian free-tail=TABR

^WING condition damage: 0=none; 1=less than 50% pigment loss; 2=greater than 50% scarring/splotching, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage
 TAKE PICTURE!

Bat Survey Data Form

NCDOT

Project: NLEB R-9999	County: Onslow	Site #: 5	Night #: 2	Site name: off Magnolia Lane	Date: 3 May 2018
Directions to site:		Latitude: 35 34.669 249	Longitude: -83 77.40108		Elevation:
Directions, cont. Dirt Road off Magnolia Ln.					
ID person(s): Frazer, Grakas Parks			Observers: Craig Tenbrink, Mallory, Dewreck	Net open time: 20:00	Net close time: 1:00
Sky:	DUSK-time, temp, description 20:00 66°F Clear	MID-SAMPLE-time, temp, description 23:30 clear 61°F	END-time, temp, description 00:40 clear 61°F		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0-2	4=small branches in motion 5=small trees sway 6=large branches in motion 0-2	7=hard to walk 8=twigs break from trees, go home, this is a gale! 0-1		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) Moonrise in 23:40 84% full					
Number/type of nets: (label & include size) A: 6m Single, B: double 9, C: double 12, D: Double 6, E: Triple 6					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Road corridor w/ patches of open, then more dense understory, large upland pond near nets - not accessible; trees are mixed pine and hardwoods Sweet Gum, Laurel Oak, Elm, Red Oak, Yellow Poplar, Red Maple, Water Hickory					
Disturbance: (List 3 most signif. disturbances within 500m) dirt Road road noise sporadic: brief artillery fire			<p>The sketch shows a horizontal road with five net locations marked A, B, C, D, and E. Above the road is a large pond labeled 'POND'. Trees are drawn around the pond and along the road. An arrow on the right points towards 'Magnolia Lane'.</p>		
ANABAT file name: @ table					
ANABAT location(s): Peterson on					
Remarks: (rain events, other wildlife, etc.) calls on Anabat a bit more sparse than on S12.					
A few beetles in net. 1 luna moth 10 moth					
Distant coyotes, 1 barred owl			Site sketch (net labels, north arrow, landmarks)		

GPS battery

Bat Survey Data Form

Camp Lejeune

NCDOT

Project: R9999 NLEB	County: Onslow	Site #: 7	Night #: 1	Site name: Mills Run	Date: 5/7/18
Directions to site: survey (TL2 Parrot)	Latitude: 35 34 664383	Longitude: -83 71.449689	Elevation:		
Directions, cont. Dirt road off the northern part of Verona Loop Rd.					
ID person(s): M. Frazer, C. Parks	Observers: S. Moody, E. Willman, C. Hodder	Net open time: 20:00	Net close time: 1:00		
Sky:	DUSK-time, temp, description 21:00 62°F clear	MID-SAMPLE-time, temp, description 22:45 59°F mostly clear	END-time, temp, description 23:30 51° partly cloudy		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0-2	4=small branches in motion 5=small trees sway 6=large branches in motion 0-2 humid	7=hard to walk 8=twigs break from trees, go home, this is a gale! 0-1		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) None					
Number/type of nets: (label & include size) A - double 9m, B - double 9m, C 9m single, D 6m triple, E - 6m double					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Bottomland hardwood forest					
loblolly, Hickory sp., sweet gum (many), tulip poplar, wax myrtle, beech, American holly, water oak, red bay, vaccinium, horse sugar					
Disturbance: (List 3 most signif. disturbances within 500m) dirt road, wildlife food plots, distant helicopter					
ANABAT file name: @ table					
ANABAT location(s):					
Remarks: (rain events, other wildlife, etc.) very light mist before sunset					
red bellied water snake in puddle B					
dobson fly, a few smallish moths around, toad, luna moth (very ratty looking)					
<p>Site sketch (net labels, north arrow, landmarks)</p>					

Bat Survey Data Form

Lumber River S.P.

Flowers Swamp area

NCDOT

Project: R-9999 NLEB	County: Robeson	Site #: 1	Night #: 1	Site name: LURI Mill Run	Date: 5/8/18
Directions to site: Survey		Latitude: 35 34.392395	Longitude: -83 -78.999251		Elevation:
Directions, cont. NE of state park office where dirt road crosses creek (N.W. of Griffin's Whirl on river)					
ID person(s): Frazer, Parks			Observers: S. Moody, G. Price	Net open time: 20:00	Net close time: 01:00
Sky:	DUSK-time, temp, description 20:00 68°F Clear	MID-SAMPLE-time, temp, description 22:00 40°F Cloudy	END-time, temp, description 01:00 58°F Clear		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0	4=small branches in motion 5=small trees sway 6=large branches in motion 0	7=hard to walk 8=twigs break from trees, go home, this is a gale! 0		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) none					
Number/type of nets: (label & include size) A-double 4, B-double 2.6, C-double 12, D-double 4					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) swamp Chestnut oak, cypress, red maple, sweet gum, white oak avocado, water oak, American holly, laurel oak					
Dirt road running down into bottom land, crossing ^{blackwater} creek. Trail along creek.					
Disturbance: (List 3 most signif. disturbances within 500m) dirt roads, trails					
ANABAT file name: near table					
ANABAT location(s): Peterson					
Remarks: (rain events, other wildlife, etc.) Cape fear spatterdock hooped owls in distance - many - continuing					
<p>The sketch shows a creek labeled 'Mill Run' flowing from left to right. A 'trail' runs along the creek. A 'dirt road' crosses the creek and continues south. Another 'dirt road' branches off to the east, labeled 'to Lumber River'. A third 'dirt road' branches off to the south, labeled 'to park office'. A north arrow is at the top. Four net locations are marked: 'A' on the trail, 'B' on the dirt road crossing the creek, 'C' on the trail near the creek, and 'D' on the trail further south. A cloud is drawn on the left side of the creek.</p>					
Site sketch (net labels, north arrow, landmarks)					

Bat Survey Data Form

Project: R-9999 NLERB		County: Robeson				Site# 1	Night # 1	Site name: LURI Mill Run			Page of Date: 5/8/18		
Time	Species*	Net	Age (A/IV)	Sex (M/F)	Repro NR/ PGL/PL/SCR	Forearm length	Weight + bag	Bag weight	Bat weight	Wing cond [^]	Band	# wing punches	Comments
20:25	LABO	A	A	F	P	40mm	21g	8g	13g	0	0157		recap @ 23:45 ¹
20:30	LABO	C	A	F	P	42mm	20.5g	8g	12.5g	0	0106		recaptured @ 22:00 - band chewed ²
20:40	LABO	B	A	F	NR	40mm	19.0g	8g	11g	0	0052		on ³
20:45	LABO	A	A	M	NR	40mm	17.5g	8g	9.5g	1	0177		Missing some trailing edge Healed wound on RT wing ⁴
20:50	LABO	B	A	F	NR	40mm	19.5g	8g	11.5g	1	No Band		see picture - recapture @ 22:20 ⁴ A large section of wing missing appeared to be old damage? ⁶ bat flew off, but w/out much ⁷ elevation ⁸
21:10	MYAU	C	A	F	P	38mm	16.5g	8g	8.5g	0	0036		pin hole - Rt wing - Peterson ⁸
21:25	LABO	A	A	F	NR	39mm	19.0g	8g	11g	0	0144		healed blemish - Lt wing ⁹
21:30	LABO	C	A	F	P	41mm	20.5g	8g	12.5g	0	0150		small hole - Lt wing ¹⁰
21:35	MYAU	D	A	F	P	38mm	16.5g	8g	8.5g	0	0191		¹¹
22:20	LABO	B	A	F	P	40mm	8.5g	8g	10.5g	0	0155		small pinhole on left wing ¹²
23:15	CORA	D	A	F	P	42mm	16.0	8g	8.0g	0	---		Peterson? ¹³
23:45	LABO	C	A	F	NR	42mm	21g	8g	13g	0	0103		pinhole in Lt. wing ¹⁴
23:45	LABO	C	A	F	P	44mm	20g	8g	12g	0	0140		¹⁵
23:45	LASIURUS	B											Escaped ¹⁶
													¹⁷
													¹⁸
													¹⁹
													²⁰
													²¹
													²²

*SPECIES: big brown=EPFU, Pip/tricolor=PESU, little brown=MYLU, northern long-ear=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU
red=LABO, hoary=LACI, silver=LANO, Seminole=LASE yellow=LAIN, evening=NYHU, Rafbat=CORA, VA big-ear=COTO, Brazilian free-tail=TABR

[^]WING condition damage: 0=none; 1=less than 50% pigment loss; 2=greater than 50% scarring/splotching, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage
TAKE PICTURE!

Bat Survey Data Form

Lumber River S.P.

Near Flowery Swamp

NCDOT

Inter 4

Project: ^{NLEB} R-9999	County: Robeson	Site #: 1	Night #: 2	Site name: Luri Mill Run	Date: 5/9/18
Directions to site:		Latitude: 35 34.392395	Longitude: -83 78.999251		Elevation:
Directions, cont. NE of state park office					
ID person(s): Frazer, Parks			Observers: S. Moody	Net open time: 20:00	Net close time: 1:00
Sky:	DUSK-time, temp, description 20:00 72°F clear	MID-SAMPLE-time, temp, description 22:45 60° clear	END-time, temp, description 00:45 64° clear		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0	4=small branches in motion 5=small trees sway 6=large branches in motion 0-1	7=hard to walk 8=twigs break from trees; go home, this is a gale! 0		
Moon effect: waning crescent (moon phase, start/stop time visible, #nets illuminated)					
Number/type of nets: 4 (A-D) A-double 4, B-double 2.6, C-double 12, D-double 4 (label & include size)					
Site description: (see 5/8/18 for details) Dirt road, creek crossing + trail in bottom land forest. (net placement, stream data, Habitat description, dominant species, canopy cover)					
Disturbance: (List 3 most signif. disturbances within 500m) dirt road, trails					
ANABAT file name: (near table) bat detector pretty quiet					
ANABAT location(s): Peterson or					
Remarks: (rain events, other wildlife, etc.) great g created fly catcher, white eyed vireos, chuck wills widow, summer tanager, gar, possums, banded watersnake, red-bellied watersnake					
a few lightning bugs; some lots of fire bugs in net					
<p>Site sketch (net labels, north arrow, landmarks)</p>					

Bat Survey Data Form

Project: R-9999 NLEB		County: Robeson				Site# 1	Night # 2	Site name: Lum Mill Run					Date: 5/9/18
Time	Species*	Net	Age (A/JV)	Sex (M/F)	Repro NR/ PGL/PL/SCR	Forearm length	Weight + bag	Bag weight	Bat weight	Wing cond [^]	Band	# wing punches	Comments
21:20	MYAU	C	—	—	—	—	14.5g	8g	6.5g	—	—		Petterson ~ 21:29 1
21:20	CORA	D	A	F	P	43mm	18.5g	8g	10.5g	0	—		Flew off from hand 2
21:40	EPFU	B	—	—	—	—	—	—	—	—	—		Petterson 21:30-35 Escaped from Net 3
0:30	LABO	B	A	F	P	41mm	19g	7g	12g	0	—		4
0:47	CORA	C	—	—	—	—	—	—	—	—	—		CFN 5
													6
													7
													8
													9
													10
													11
													12
													13
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													18
													19
													20
													21
													22

*SPECIES: big brown=EPFU, Pip/tricolor=PESU, little brown=MYLU, northern long-eared=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU, red=LABO, hoary=LACI, silver=LANO, Seminole=LASE yellow=LAIN, evening=NYHU, Rafbat=CORA, VA big-eared=COTO, Brazilian free-tail=TABR

[^]WING condition damage: 0=none; 1=less than 50% pigment loss; 2=greater than 50% scarring/plotching, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage
TAKE PICTURE!

Bat Survey Data Form

LURI NCDOT

Project: <u>R-9999 NLEB</u>	County: <u>Robeson</u>	Site #: <u>2</u>	Night #: <u>1</u>	Site name: <u>Wildcat II</u>	Date: <u>7/25/18</u>
Directions to site: <u>state park road off</u>		Latitude: <u>35 34.39655</u>	Longitude: <u>-83 -78.98587</u>	Elevation:	

Directions, cont. Anne Rd (which is just off NC1304 near US 74)

ID person(s): <u>M. Frazer</u>	Observers: <u>P. Green, J. Rosemond</u>	Net open time: <u>20:30</u>	Net close time: <u>1:30</u>
--------------------------------	---	-----------------------------	-----------------------------

Sky: DUSK-time, temp, description <u>20:30 72°F Cloudy</u>	MID-SAMPLE-time, temp, description <u>23:30 71°F mostly clear</u>	END-time, temp, description <u>1:30 71°F Clear</u>
Wind: 0=no wind 1=snow drifts vertically 2=wind felt on face 3=hair disturbed <u>20:30 0</u>	4=small branches in motion 5=small trees sway 6=large branches in motion <u>humid</u>	7=hard to walk 8=twigs break from trees, go home, this is a gale! <u>0</u>

Moon effect: none, covered by clouds (full moon). Net c mostly illuminated @ midnight.
(moon phase, start/stop time visible, # nets illuminated)

Number/type of nets: 4 A) Triple 6 B) Double 6 C) Double 9 D) Double 6
(label & include size)

Site description: Mixed hardwood + Pine; Red maple, Loblolly, Sweet gum, young foliage in open areas (knee-waist high) Shingle, Overcup, Water Oaks, ash, Vaccinium arboreum, Arundinaria
(net placement, stream data, Habitat description, dominant species, canopy cover)

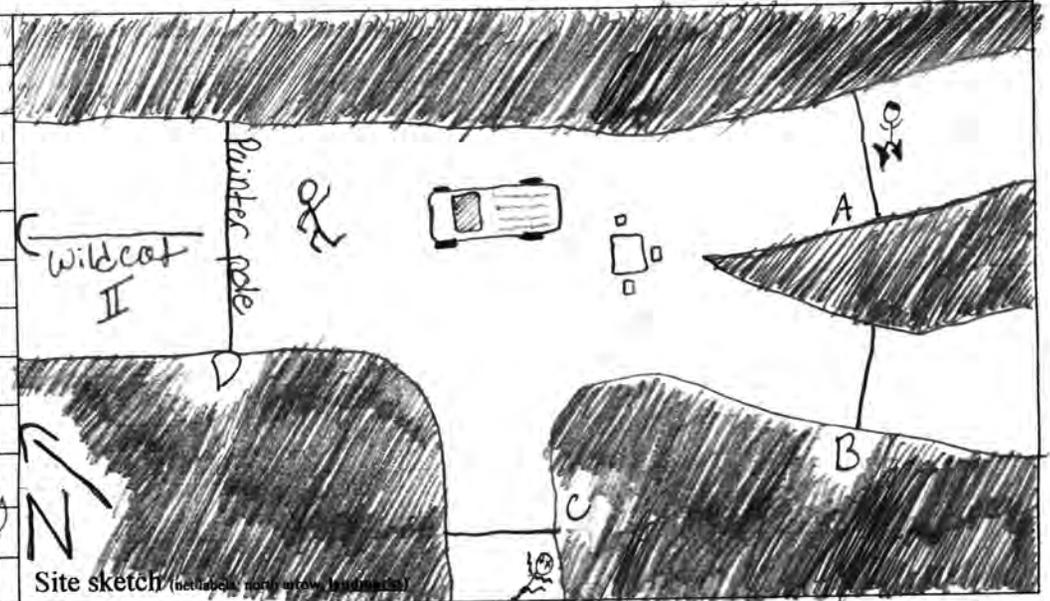
Disturbance: dirt road
(List 1 most signif. disturbances within 500m)

ANABAT file name: sonobat ~~rec~~ recording

ANABAT location(s):

Remarks: Barred owls in distance
(rain events, other wildlife, etc.)

1 bat seen flying @ dusk
Very few beetles in net + a couple moths
Intermittent rain until 20:30, Trees dripping afterwards.



Site sketch (net labels, north arrow, landmarks)

Bat Survey Data Form

LURI

NCDOT

Project: <u>R-9999NLEB</u>	County: <u>Robeson</u>	Site #: <u>3</u>	Night #: <u>1</u>	Site name: <u>RAF Tower</u>	Date: <u>7/26/18</u>
Directions to site: <u>North of Plum Creek</u>		Latitude: <u>35 34.393407°</u>	Longitude: <u>-83 -78.997381°</u>		Elevation:
Directions, cont. <u>+ Lumber River State Park office, near Raf tower.</u>					
ID person(s): <u>M. Frazer</u>		Observers: <u>P. Green J. Rosemond</u>		Net open time: <u>20:30</u>	Net close time: <u>1:30</u>
Sky:	DUSK-time, temp, description <u>20:00 79°F Partly Cloudy</u>	MID-SAMPLE-time, temp, description <u>23:22 75°F Partly cloudy</u>	END-time, temp, description <u>1:30 72°F Clear</u>		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed <u>0</u>	4=small branches in motion 5=small trees sway 6=large branches in motion <u>0</u>	7=hard to walk 8=twigs break from trees, go home, this is a gale!		
Moon effect: <u>Full moon; partial shining on net B ~23:00-1:15</u> <small>(moon phase, start/stop time visible, # nets illuminated)</small>					
Number/type of nets: <u>4 A) Triple 6 B) Double 9 C) Double 6 D) Double 6</u> <small>(label & include size)</small>					
Site description: <small>(net placement, stream data, Habitat description, dominant species, canopy cover)</small> <u>Mix of hardwood & pine; Red Maple, Sweet gum, Loblolly, Horse sugar Willow Oak, Water Oak, Wax myrtle, Clethra, Lyonia, Bald Cypress, Shingle Oak</u> <u>Intersecting dirt roads in mixed pine-hardwood bottom land forest.</u>					
Disturbance: <small>(List 3 most signif. disturbances within 500m)</small>		<p>Painter's pole</p> <p>to Raf tower</p> <p>13</p> <p>Not to scale</p> <p>← Road curves →</p> <p>To Plum Creek →</p> <p>Ann Rd</p> <p>Site sketch (net labels, north arrow, landmarks)</p>			
<u>Dirt roads</u>					
ANABAT file name: <u>sonobat recording</u>					
ANABAT location(s):					
Remarks: <small>(rain events, other wildlife, etc.)</small> <u>Barred owls @ dusk - 2 nearby</u> <u>(maybe) green tree frogs - distant</u> <u>Summer tanager before sunset</u> <u>A few beetles in nets; not much moth action</u> <u>1 luna moth, 1 imperial moth</u>					

Bat Survey Data Form

LUR1

NCDOT

Project: R-9999 NLEB	County: Robeson	Site #: 4	Night #: 1	Site name: Peters Lake	Date: 8/1/18
Directions to site: Dirt road in middle of		Latitude: 35 34.523120	Longitude: -83 -78.924564		Elevation:
Directions, cont. Peters Lake Tract, Lumber River State Park, off Willoughby Rd (to the west)					
ID person(s): Frazer, M	Observers: Scott, N; Stokes-Caley, L.		Net open time: 20:30	Net close time: 11:30	
Sky:	DUSK-time, temp, description 20:30, 75°F, mostly cloudy	MID-SAMPLE-time, temp, description 23:00 71° clear	END-time, temp, description 11:20 69° clean		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0-1	4=small branches in motion 5=small trees sway 6=large branches in motion 0 humid	7=hard to walk 8=twigs break from trees; go home, this is a gale! 0 humid		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) waning gibbous 76% Moonrise 11:09 behind trees until 00:41 - Not on nets					
Number/type of nets: (label & include size) A = triple high 9m, B = triple high 9m, C = double high 4m, D = triple high 4m					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Old, overgrown loblolly plantation in bottom land.					
Loblolly pine, sweet gum, water oak, ^{sand} live oak, wax myrtle, willow oak, Magnolia virginiana Rhexia, winged sumac, chasmanthum laxum, red maple, @ horse sugar					
Disturbance: (List 4 most signif. disturbances within 500m) dirt road					
ANABAT file name: Peterson recording					
ANABAT location(s):					
Remarks: (rain events, other wildlife, etc.) barred owls @ dusk whippoorwill, pine woods tree frogs, cape's gray tree frogs 3-4 bats circling overhead @ dusk long horn beetles ^{many} imperialis moths in nets - 3 moths multiple moths @ a time! at once w/ 2 bats					
		Site sketch (net labels, north arrow, landmarks)			

Bat Survey Data Form

LUR1

Page 1 of 1

Project: R-9999 NLER		County: Robeson				Site# 4	Night # 1	Site name: Peters Lake				Date: 8/1	
Time	Species*	Net	Age (A/JV)	Sex (M/F)	Repro NR/PGL/PL/SCR	Forearm length	Weight + bag	Bag weight	Bat weight	Wing cond [^]	Band	# wing punches	Comments
20:35	LABO	A	JV	M	NR	41	16.5	8	8.5	0	NA	N/A	
21:00	unknown	D											
21:10	CORA	C	A	F	PL	42	16	8	8.0	0	30065 1341	N/A	EFN Recording 9:23-9:30 Flu in Net B after being released
21:50	LABO	B											
22:20	PESU	D	A	M	NR	38	14.5	8	6.5	0	30065 0068	N/A	EFN Recorded at 10:57 distress call
22:52	CORA	C	A	F	PL	41	17	8	9	0	30065 1382	N/A	
22:52	CORA	C	A	M	NR	42	17	8	9	0	30065 1283	N/A	Found in net nearby recorder Recorded at 11:05 release
23:05	Lasianus	A											EFN
23:25	LASE	C	JV	M	SCR	40	16	8	8	0	NA	NA	Small balls visible
23:30	LABO	B	JV	F	NR	40	18.5	8	10.5	0	NA	NA	
23:35	LABO	B	JV	M	NR	39	16.5	8	8.5	0	NA	N/A	
23:50	PESU	A	A	M	NR	35	13.5	8	5.5	0	30065 1266	NA	11:50 distress recording 7 months in net too
23:50	LABO	B	A	F	NR	42	22	8	14	0	NA	NA	11:56 recording
00:07	CORA	B	JV	F	NR	41	16.5	8	18.5	0	30065 1306	NA	Recording @ 00:09
00:23	LASE	B	JV	F	NR	41	18.0	8	10.0	0	NA	NA	Recording 00:23 distress call
00:29	PESU	A	JV	M	NR	33	13.0	8	5.0	0	30065 1324	NA	Recording 00:29 distress call
1:15	Lasianus	D											EFN

*SPECIES: big brown=EPFU, Pip/tricolor=PESU, little brown=MYLU, northern long-eared=MYSE, smallfooted=MYLE, Indiana=MYSO, gray=MYGR, southeastern=MYAU
red=LABO, hoary=LACI, silver=LANO, Seminole=LASE yellow=LAIN, evening=NYHU, Rafbat=CORA, VA big-eared=COTO, Brazilian free-tail=TABR

*WING condition damage: 0=none; 1=less than 50% pigment loss; 2=greater than 50% scarring/spotting, holes <5mm; 3=holes ≥5mm, necrotic tissue, membrane loss; P=physical impact damage
TAKE PICTURE!

paper bags?

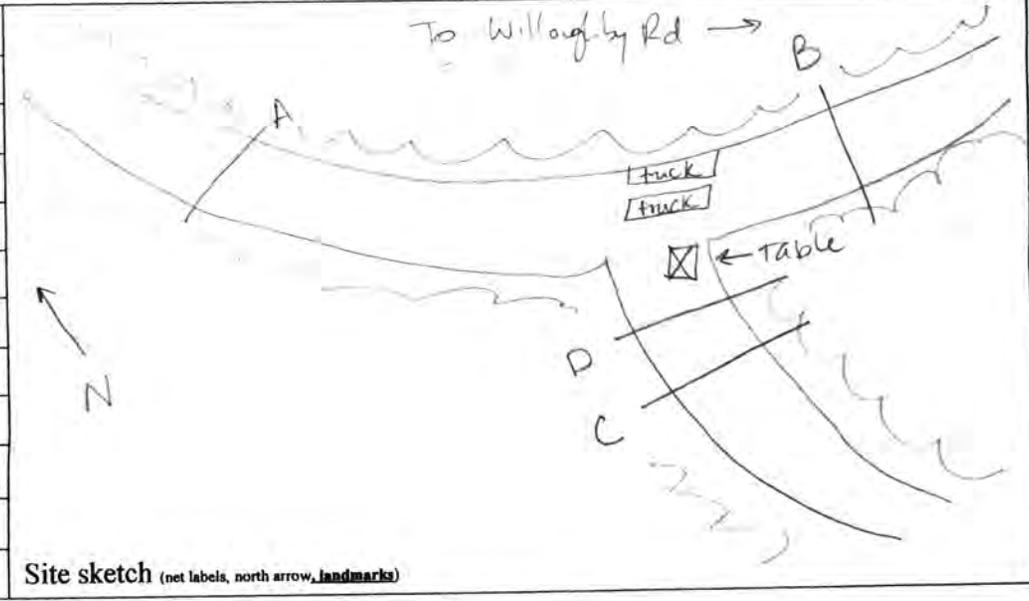
Bat Survey Data Form

LURI

NCDOT

Project: R-9999 NLEB	County: Robeson	Site #: 4	Night #: 2	Site name: Peters Lake	Date: 8/2/18
Directions to site: Dirt road in middle of		Latitude: 35° 34.523120	Longitude: -83° -78.924564	Elevation:	
Directions, cont. Peters Lake, Lumber River State Park, off Willoughby Rd (to the west)					
ID person(s): Frazer, M.			Observers: Scott, N; Stokes-Cawley, L; Cory, E.		Net open time: 20:20
Net close time: 01:20					
Sky:	DUSK-time, temp, description 20:15, 75°F, mostly cloudy	MID-SAMPLE-time, temp, description 22:58, 72°F, clear slightly hazy	END-time, temp, description 00:55 71°F hazy/overcast		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0	4=small branches in motion 5=small trees sway 6=large branches in motion 0-1 humid	7=hard to walk 8=twigs break from trees, go home, this is a gale! 0 humid		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) last quarter 67% moonrise 00:40 - behind trees					
Number/type of nets: (label & include size) A = triple high 9m, B = triple 9m, C = double 4m, D = triple 4m					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Dir. road in old overgrown loblolly plantation; bottomland					
See datasheet from 8/1/18 Night #1					

Disturbance: (List 1 most signif. disturbances within 500m)	dirt road
ANABAT file name:	Pettasson on
ANABAT location(s):	
Remarks: (rain events, other wildlife, etc)	copies gmy tree frogs, pine woods tree frogs, distant howled owls periodically Several imperial moths & a few beetles in nets. distant lightning flickering much of the night. Not many calls on Ed's Anabat. 2-3 bats seen @ dusk.



Site sketch (net labels, north arrow, landmarks)

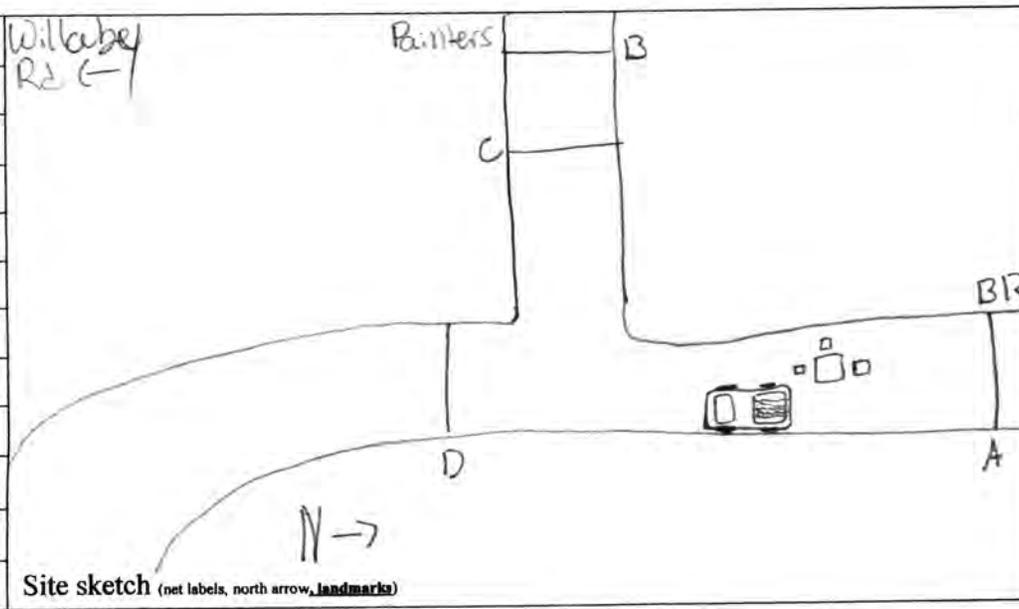
Bat Survey Data Form

LURI

NCDOT

Project: R-9999	County: Robeson	Site #: 5	Night #: 1	Site name: Peters Lake East	Date: 8/8/18
Directions to site: See directions		Latitude: 35 34.52064	Longitude: -83 78.97309	Elevation:	
Directions, cont. on 8/9/18 data sheet					
ID person(s): M Frazer		Observers: N. Scott, J. Rosemond		Net open time: 20:15	Net close time: 21:45
Sky:	DUSK-time, temp, description 20:10, 76°F, cloudy mostly	MID-SAMPLE-time, temp, description	END-time, temp, description		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0	4=small branches in motion 5=small trees sway 6=large branches in motion light rain/drizzle	7=hard to walk 8=twigs break from trees, go home, this is a gale!		
Moon effect: (moon phase, start/stop time visible, # nets illuminated) None visible (new moon)					
Number/type of nets: (label & include size) A: triple 9m B: double 4m C: triple 4m, D triple 6m					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) See 8/9/18 data sheet					

Disturbance: (List 4 most signif. disturbances within 500m)	dirt road
ANABAT file name:	
ANABAT location(s):	
Remarks: (run events, other wildlife, etc.)	one night jar in net A briefly
	Closed nets early due to incoming storm front
	Many pine woods tree frog
	Mosquitoes from HELL



Bat Survey Data Form

LURI

NCDOT

Project: R-9999 NLEB	County: Robeson	Site #: 5	Night #: 2	Site name: Petrus Lake East	Date: 8/9/18
Directions to site: Access point to site is		Latitude: 35 34.520664	Longitude: -83 78.923091		Elevation:
Directions, cont. just north of intersection of Willoughby Rd + Beulah ch. Rd. Site is @ 1st intersecting road to south.		ID person(s): M. Frazer	Observers: N. Scott, J. Rosemond	Net open time: 20:15	Net close time: 1:15
Sky:	DUSK-time, temp, description 20:10, 75°F, mostly cloudy	MID-SAMPLE-time, temp, description 23:00 70°F Clear	END-time, temp, description 1:15 69°F humid, cloudy		
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0	4=small branches in motion 5=small trees sway 6=large branches in motion 0	7=hard to walk 8=twigs break from trees, go home, this is a gale! 0		

Moon effect: (moon phase, start/stop time visible, # nets illuminated) new moon (3%) - not visible

Number/type of nets: (label & include size) A: triple 9m, B: double 4m, C: triple 4m, D: triple 6m, E: single 4m

Site description: (net placement, stream data, Habitat description, dominant species, canopy cover)
 Mixed hard woods; Water Oak, Red Maple, Loblolly pine, Magnolia, Sweet gum
 Horse Sugar, Rhenia, Chasmanthium laxum, winged sumac blue jay (Macbridea?)
 Overgrown loblolly plantation in bottomland w/ dirt roads. Lumber River flood plain?
 Ilex alabara, persimmon

Disturbance: (List 1 most signif. disturbances within 500m) dirt road

ANABAT file name: pettersen on

ANABAT location(s):

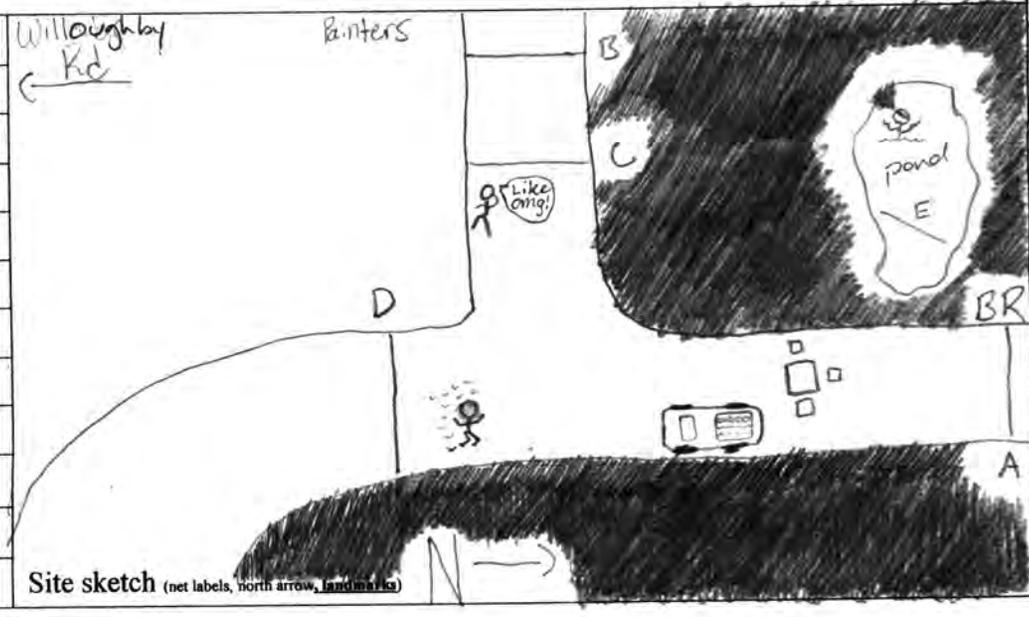
Remarks: Many imperial moths in net + a few beetles

Remarks: (rain events, other wildlife, etc.) Fiesty barred owls - distant

Unrelenting waves of flies + Psocoptera
 cuckoo after dark, whippoorwill before dark

Many many pinewood treefrogs, green frog

21:46 bat 1 - we playing MTHV social calls ~5ft from net A. Volume @ 2.
 played until 22:43.



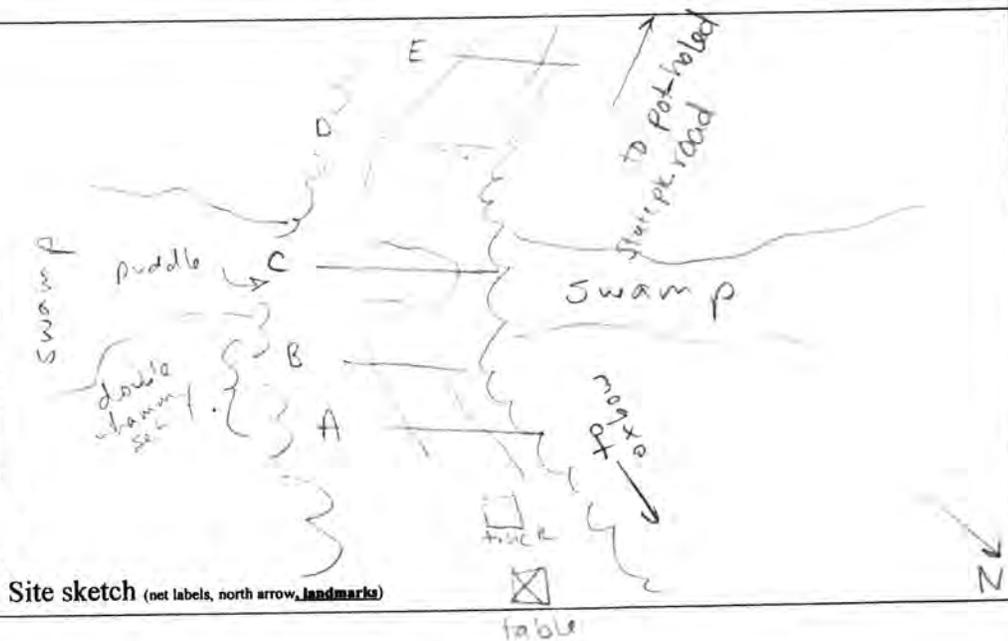
Site sketch (net labels, north arrow, landmarks)

Bat Survey Data Form

LURI

NCDOT

Project: NLEB R-9999	County: Robeson	Site #: 6	Night #: 1	Site name: Peters Lake Swamp	Date: 8/14/18
Directions to site: Form Willoughby Rd, turn		Latitude: 35 34.518272	Longitude: -83 78.927557		Elevation:
Directions, cont. onto State Park Rd, take 2 nd left and follow to large puddle/swamp					
ID person(s): M. Frazer	Observers: N Scott, L. Stokes-Cawley			Net open time: 20:10	Net close time: 1:25
Sky:	DUSK-time, temp, description 20:00, 76.5°F cloudy	MID-SAMPLE-time, temp, description 22:38, 70°F clear		END-time, temp, description 1:05, 69°F clear	
Wind:	0=no wind 1=smoke drifts vertically 2=wind felt on face 3=hair disturbed 0	4=small branches in motion 5=small trees sway 6=large branches in motion 0		7=hard to walk 8=twigs break from trees, go home, this is a gale! 0	
Moon effect: (moon phase, start/stop time visible, # nets illuminated) No nets illuminated, Waxing crescent moonrise 9:53am moonset 10:22 pm					
Number/type of nets: (label & include size) A: triple 9m, B: double 9m, C: single 6m, D: triple 9m, E: triple 6m					
Site description: (net placement, stream data, Habitat description, dominant species, canopy cover) Dirt road near Lumber River oxbow.					
loblolly pine, sweet gum, red maple, swamp chestnut oak, water oak, wax myrtle, Mixed pine/hardwood forest w/swamp running through it.					
Red bay dead from Laurel wilt. Access/park road very wet.					
More bridea patches in area					
Disturbance: (List 1 most signif. disturbances within 500m) dirt road					
ANABAT file name: Peterson recording, Anabat @ truck					
ANABAT location(s):					
Remarks: (rain events, other wildlife, etc) Dwelling hoard owls in distance, green tree frogs, narrow-mouth toads					
A few beetles & a couple moths in net					
Flying squirrel in net D @ 23:35. Tangled.					
Batlore in place ~ 21:30-22:20. PESU distress calls. @ Net B					

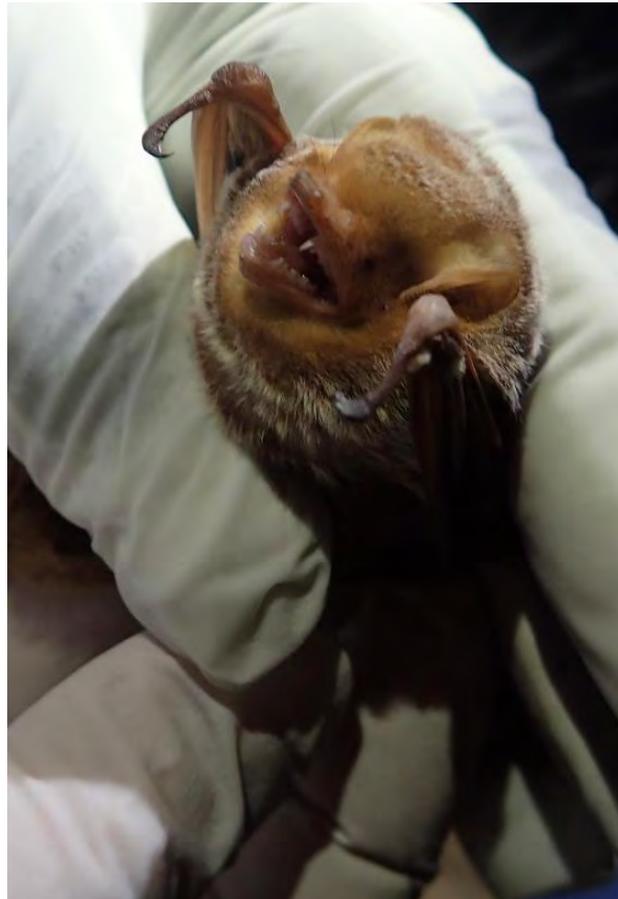


Site sketch (net labels, north arrow, landmarks)

Appendix C. Bat Photographs



5/14/18 LABO Onslow County



5/1/18 LABO Onslow County



7/18/18 LABO v. LASE Columbus County



4/30/18 LASE Onslow County



5/7/18 PESU Onslow County



5/7/18 PESU Onslow County



5/9/18 CORA Robeson County



6/12/18 NYHU Brunswick County



6/5/18 MYAU Columbus County



6/6/18 MYAU Columbus County



6/5/18 MYAU Columbus County



6/6/18 MYAU Columbus County



8/3/18 EPFU Robeson County