FEDERALLY PROTECTED BAT SURVEY REPORT

Eastern North Carolina
Northern Long-eared Bat (*Myotis septentrionalis*) Research Study
Beaufort, Bladen, Craven, New Hanover, Pamlico,
Pender, and Wayne Counties
North Carolina

Survey Phase 2: Summer 2016
TIP R-9999
WBS No. 34634.1.4

Prepared for

The North Carolina Department of Transportation
Project Development and Environmental Analysis Branch
Natural Environment Section
1598 Mail Service Center
Raleigh, NC 27699-1598
(919) 707-6000

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1.0 PROJECT DESCRIPTION

The North Carolina Department of Transportation (NCDOT) hired CALYX Engineers + Consultants, Inc. (CALYX) to assist in conducting portions of a research study of the northern long-eared bat (*Myotis septentrionalis*; NLEB) in eastern North Carolina. The objective of this summer study is to determine the distribution of NLEB in eastern North Carolina.

CALYX was tasked with sampling six pre-determined locations using mist netting techniques while simultaneously collecting acoustic data at or near each mist net site (grouping of mist nets). All field work was completed between July 6 and September 1, 2016. The six locations that were sampled are shown on Figure 1, and listed in Table 1. CALYX was assisted by permitted biologists from Civil and Environmental Consultants, Inc. (CEC) at Murrayville Mitigation Site and Holly Shelter Game Lands

Table 1. Eastern NC NLEB Research Study Locations Assigned to CALYX

Location	County
Goose Creek Game Lands	Beaufort and Pamlico
Bladen Lakes State Forest*	Bladen
Neuse River Game Lands	Craven
Holly Shelter Game Lands	Pender
Murrayville Mitigation Site (Corbett/Plantation)*	New Hanover
Old Waynesborough State Park*	Wayne

*2015 acoustic surveys were performed

2.0 SPECIES INFORMATION

The NLEB was officially listed by the United States Fish and Wildlife Service (USFWS) as a Threatened species in April of 2015. The listing became effective May 2, 2015. USFWS also established a final rule under the authority of section 4(d) of the Endangered Species Act that provides measures for the conservation of NLEB. The USFWS has tailored the final 4(d) rule to prohibit the take of NLEB from certain activities within areas where they are in decline. This incidental take protection applies only to known NLEB occupied maternity roost trees and known NLEB hibernacula. Effective February 16, 2016, incidental take resulting from tree removal is prohibited if it 1) occurs within a ¼ mile radius of known NLEB hibernacula; or 2) cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot radius from the known maternity tree during the pup season (June 1-July 31) (USFWS 2016a).

NLEB occurs widely across much of Canada and the southeastern United States, but is unevenly distributed and rarely found in large numbers. It is more common in the northern part of its range than in the southern portion. In North Carolina, NLEB have primarily been documented in the western portion of the state, with few records from the Piedmont and Coastal Plain. NLEB is listed by the USFWS as potentially occurring in eleven eastern NC counties: Wake, Lee, Bladen, New Hanover, Martin, Bertie, Washington, Dare, Gates, Camden, and Currituck (USFWS 2016d).

Winter hibernacula for the NLEB in western North Carolina includes caves and mines. Hibernacula/winter roosts in central and eastern North Carolina may include other landscape features. Suitable summer habitat for the NLEB is generally characterized as forested areas

with trees over 3 inches in DBH. Summer roost sites include tree cavities or crevices, the loose bark of live or dead trees, and abandoned buildings (USFWS 2016a).

3.0 METHODS

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

No caves, mines, abandoned structures, bridges or other potential roost sites were investigated as part of this study.

3.1 Acoustic Survey

Acoustic surveys were performed to determine the potential presence and/or absence of NLEB. Acoustic data was collected in 2015 by NCDOT biologists and/or consultants at the Old Waynesborough, Murrayville, and Bladen Lakes locations. These pre-determined sites were sampled again as part of this study whenever possible. At Holly Shelter, Neuse River, and Goose Creek, where acoustic data had not been previously collected by NCDOT, new acoustic sites were located by CALYX biologists.

A variety of community types were selected for acoustic sampling (e.g. bottomland hardwoods, pine savannas, agricultural edges, ponds, cypress gum swamps, pocosins, pine plantations, regenerating stands, etc.). All acoustic sites were located in high quality NLEB habitat within these community types. One detector was placed in close proximity to each mist net location. When available, a second detector was placed in a nearby suitable location. Per the NCDOT Standardization for NLEB Research 2016, detectors were placed in locations where NLEB would likely be foraging (forest interiors or edges), and where detectors could record calls from relatively uncluttered habitat (such as small canopy gaps) in order to obtain high quality, search phase echolocation calls. Whenever possible, detectors were placed in an effort to not block flyways and blend in with surrounding vegetation while keeping surrounding vegetation at least 10 feet from the detector. The specific physical location and orientation of each bat detector was determined by CALYX biologists in the field. The natural community type was determined per Schafale and Weakley (1990) for each acoustic location.

Titley Scientific ANABAT SD2 detectors using the latest firmware version (v4062g) with stainless-steel, omni-directional microphones were used to record calls. These detectors were serviced by Titley Scientific during the spring of 2016 to ensure proper functioning. All bat detector microphones were placed approximately 12 feet above the ground. For weatherproofing, detectors were placed in a hard plastic ammo box or similar container, and microphones were enclosed in a Titley-scientific weatherhead or equivalent, (PVC tube, with a 45 degree bend), which meet the requirements outlined in the USFWS 2016 Range-wide Indiana Bat Summer Survey Guidelines. Detectors were generally programmed to record nightly beginning 15 to 30 minutes prior to sunset, and were collected at the end of the night. NCDOT acoustic data forms were completed each night for all acoustic survey locations (Appendix A), and digital photographs were taken of each acoustic survey site and microphone

placement (Appendix B). Coordinates of each detector location were also recorded with a Trimble GPS unit. Upon placing a bat detector in the field, verification was made that it was functioning properly by performing a test of the system per the ANABAT SD2 Compact Flash Bat Detector User Manual (Titley Scientific 2016).

3.2 Acoustic Analysis - Autoclassifier

All recorded call files were processed with EchoClass version 3.1 and BCID East version 2.7d, both USFWS approved automated identification programs. If a large number of files were recorded per night (>100), calls were processed by two software programs (EchoClass and BCID East) in order to narrow down an extensive manual file search, then each NLEB call identified by either program was qualitatively vetted individually. The latest version of each program was used (Echoclass v3.1 and BCID East 2.7d). Calls identified as NLEB by both programs, as well as any Myotis calls recorded within 5 minutes before and after an identified NLEB call were manually reviewed. If fewer than 100 calls were recorded, all calls were analyzed manually, and were also processed with at least one AutoClassifier in order to provide standardized reporting. Processing with BCID East utilized a species set chosen to mirror the species set utilized by EchoClass. Maximum likelihood estimates (MLE), identifications by file, and identifications by night were output by both programs.

3.3 Acoustic Analysis - Qualitative

For each file tentatively identified as NLEB by either program or by qualitative means, team members provided manual identification of the species suspected of making the call, as well as the rationale for the identification. Representative sonograms of each manually vetted call file were prepared to illustrate call characteristics, including pulse spacing, characteristic frequency, slope, and changes over time through the call file. Sonograms were prepared in AnalookW, version 4.1z.

3.4 Mist-net Surveys

CALYX biologists sampled six pre-determined locations (Table 1) using mist netting techniques. Phase 3 (USFWS 2016c) mist-netting was conducted with the goal of catching the target species, NLEB. A maximum of six calendar nights of mist netting were performed at each location. After three nights of netting at a given location, the CALYX biologist contacted NCDOT to report the results. At that time, it was determined whether additional netting would be conducted at the site.

The highest quality foraging/roosting habitat for NLEB within each location was targeted for this study. The CALYX biologist determined how many nets to set per calendar night using best professional judgement at each location. Actual mist net placement varied from night to night within a location. The specific location and orientation of each net was determined in the field by the permitted biologist. Net sites were located using a handheld Trimble GPS unit. Digital photographs were taken of each net site and net set placement (Appendix E).

Nets were checked for bats every ten minutes, and sometimes more frequently. Data were recorded on pre-printed waterproof data sheets (provided by NCDOT; Appendix D), including bat captures, weather, and habitat type. For each bat capture, data collection included a variety of parameters, including (but not limited to) time of capture, species, age, sex, reproductive condition, weight, and right forearm length. Per the request of NCWRC all species were banded with a uniquely-numbered, custom-fitted Porzana band on the right forearm. Prior to release, all Myotis were photographed following techniques provided by USFWS in the 2016 Indiana bat

survey guidelines (Appendix E). The natural community type for each mist net site was determined per Schafale and Weakley (1990).

Nets remained open at least five hours a night, unless the target species (NLEB) was captured. Netting and acoustic surveys were immediately discontinued at the location if a NLEB was captured. Surveys were repeated if the following occurred: winds move the nets more than 50 percent of the time; and rain or fog that persists for 30 minutes or continues intermittently throughout the survey period.

3.5 Habitat Assessments

Prior to performing field surveys, a desktop-GIS assessment using the latest orthoimagery was performed to determine availability of potentially suitable summer habitat for NLEB within each location. This information was utilized to aid in scouting for mist netting sites.

The natural community types were characterized using the *Classification of the Natural Communities of North Carolina, Third Approximation* (Shafale and Weakley (2009) where acoustic and mist net surveys were conducted. In addition, habitat in the survey area was scored using the following (circling one for each, 1-6):

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

For each site where NLEB were captured, an assessment of forest basal area (m^2/ha) of each mist net site was conducted using a 10- factor prism and canopy cover was determined 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). This detailed habitat data was collected in the growing season when leaves were are on the trees to provide a better idea of how much clutter is around when bats are most active.

4.0 FINDINGS

This section describes the results of acoustic surveys, mist net surveys, and habitat analysis. Field acoustic surveys were performed between July 6 and September 1, 2016. In general, nets and detectors were placed to sample potential travel corridors such as ATV trails, utility corridors, or streams. Edge habitat was utilized when other potential travel corridors were not available.

4.1 Acoustic Surveys

Twenty-eight (28) calendar nights (which equated to 54 acoustic nights) of surveys were completed at 24 sites. A comprehensive list of acoustic survey locations and relevant data is provided in Tables 2-7. Data forms and photos for each acoustic setup are provided in Appendices A and B.

After processing all the call files through BCID East and Echoclass, these software programs identified three of the same files as NLEB. These calls were recorded at Goose Creek and Neuse River Game Lands. In addition, both software programs attributed three additional calls within 5 minutes of these NLEB calls as a Myotis species (Appendix C, Table 1).

Appendix C shows representative sonograms of each call file qualitatively determined to belong to a NLEB which were prepared to illustrate call characteristics, including pulse spacing, characteristic frequency, slope, and changes over time through the call file. In addition, a representative sonogram for each rationale used to qualitatively justify files as not belonging to NLEB for each survey night was also prepared. Sonograms were prepared in AnalookW, version 4.1z. Two screen shots of each file are shown, the first at the F2 or F3 time scale, uncompressed, in the “frequency only” view and the second at the F7 time scale, compressed, in the “frequency and slope” view. The uncompressed screen shots are shown with filtering turned off. The F7/compressed screen shots are shown after filtering (filters used are listed in the caption under each screen shot) and selected manual cleaning in order to isolate the most representative pulses for measuring. A scan was then run on the measures in the F7/compressed view in order to output characteristics of the pulses shown. These parameters are provided as a third screen shot for each file.

Table 2. Acoustic Site Summary – Bladen Lakes State Forest

Site	Night	Lat/Long	Community Type	Date	Start/End Time*	Hours	Weather Conditions	No. Both Autoclassifier MYSE	No. Files Qualitatively MYSE
1 – Singletary Lake Gate 8	1**	34.57283/ -78.48589	Coastal Plain Bottomland Hardwood	07/19/2016	20:00/02:00	6.0	Light wind, few clouds	0	n/a
2 – Tatum Millpond East	1**	34.71071/ -78.52111	Bay Forest	07/20/2016	20:30/01:15	4.25^	Clear, calm	0	n/a

* = times are approximate.
** = two detectors were collecting data on this night
^ = NLEB captured this night, so detectors were detectors shut down early

Table 3. Acoustic Site Summary - Goose Creek Game Lands

Site	Night	Lat/Long	Community Type	Date	Start/End Time*	Hours	Weather Conditions	No. Both Autoclassifier MYSE	No. Files Qualitatively MYSE
1 –Pintail Rd	1**	35.291888/ -76.6486	Wet Pine Flatwood	07/12/2016	20:00/02:00	6.0	Calm, few clouds	0	n/a
	2**	35.291888/ -76.6486	Wet Pine Flatwood	07/27/2016	20:00/22:45	2.75	Rain	0	n/a
	3**	35.291888/ -76.6486	Wet Pine Flatwood	07/28/2016	20:00/02:45	6.75	Light wind, clear	0	n/a
2 – Parker Tract	1	35.24762/ -76.73246	No equivalent	07/13/2016	20:45/02:00	5.25	Clear, calm	1	n/a
3 – Pintail Rd Spur	1**	35.19167/ -76.6455	Wet Pine Flatwood	07/14/2016	20:30/03:15	6.75	Clear, calm	0	n/a
	2**	35.19167/ -76.6455	Wet Pine Flatwood	07/26/2016	20:00/01:45	5.75	Clear, calm	0	n/a

* = times are approximate.
** = two detectors were collecting data on this night

Table 4. Acoustic Site Summary – Holly Shelter Game Lands

Site	Night	Lat/Long	Community Type	Date	Start/End Time*	Hours	Weather Conditions	No. Both Autoclassifier MYSE	No. Files Qualitatively MYSE
1 – Tram Rd Creek/Plow Line	1	34.42998/ -77.730344	Pine Savanna	08/22/2016	19:45/01:45	6.0	Clear, calm	0	n/a
2 - Pond	1	34.601956/ -77.82003	Coastal Plain Small Stream Swamp	08/23/2016	19:45/02:30	6.75	Clear, calm	0	n/a
3 – Swamp Ridge	1	34.601956/ -77.82003	Cypress Gum Swamp and Loblolly Plantation	08/24/2016	19:45/01:55	6.0	Clear, calm	0	n/a
4 – Bannerman Rd Left Gate	1**	34.59168/ -77.801266	Mesic Mixed Hardwood (Coastal Plain Subtype)	08/25/2016	19:30/01:45	6.25	Clear, calm	0	n/a
5 – Lodge Rd Pond	1	34.42428122/ -77.69048457	Pine Savanna	08/24/2016	19:45/00:45	5.0	Clear, calm	0	n/a
6 – Tram Rd	1	34.44163708/ -77.66624074	Pine Savanna and Wet Pine Flatwood	08/25/2016	19:45/00:45	5.0	Clear, calm	0	n/a

* = times are approximate.
** = two detectors were collecting data on this night

Table 5. Acoustic Site Summary – Murrayville Mitigation Site

Site	Night	Lat/Long	Community Type	Date	Start/End Time*	Hours	Weather Conditions	No. Both Autoclassifier MYSE	No. Files Qualitatively MYSE
1 - Corbett	1**	34.31237651/ -77.8528532	High Pocosin, Pond Pine Wetland	08/20/2016	19:50/00:50	5.0	Light breeze, partly to mostly cloudy	0	n/a
	2**	34.31237651/ -77.8528532	High Pocosin, Pond Pine Wetland	08/21/2016	19:50/00:50	5.0	Calm, partly cloudy	0	n/a
2 – Pond	1**	34.30590902/ -77.79386918	Bay Forest	08/22/2016	19:50/00:50	5.0	Clear, calm	0	n/a
	2**	34.30590902/ -77.79386918	Bay Forest	08/23/2016	19:50/00:50	5.0	Breezy, clear	0	n/a
3	1	34.325307/ -77.854268	Pond Pine Pocosin	8/23/2016	19:40/07:10	11.5	Clear, calm	0	n/a
	2	34.325307/ -77.854268	Pond Pine Pocosin	8/24/2016	19:40/07:10	11.5	Breezy, partly cloudy	0	n/a
4	1	34.31315192/ -77.85066382	High Pocosin	8/23/2016	19:20/07:10	12.0	Clear, calm	0	n/a
	2	34.31315192/ -77.85066382	High Pocosin	8/24/2016	19:20/07:10	12.0	Breezy, partly cloudy	0	n/a
	3	34.31315192/ -77.85066382	High Pocosin	8/25/2016	19:20/07:10	12.0	Breezy, partly cloudy	0	n/a
5	1	34.30774435/ -77.81074484	High Pocosin	8/23/2016	19:20/05:45	8.25	Clear, calm	0	n/a
	2	34.30774435/ -77.81074484	High Pocosin	8/24/2016	19:20/05:45	8.25	Breezy, partly cloudy	0	n/a
	3	34.30774435/ -77.81074484	High Pocosin	8/25/2016	19:20/05:45	8.25	Breezy, partly cloudy	0	n/a

* = times are approximate.
** = two detectors were collecting data on this night

Table 6. Acoustic Site Summary - Neuse River Game Lands

Site	Night	Lat/Long	Community Type	Date	Start/End Time*	Hours	Weather Conditions	No. Both Autoclassifier MYSE	No. Files Qualitatively MYSE
1 – Duck Creek Rd	1	35.10322/ -76.99165	Mesic Pine Flatwood	08/15/2016	20:00/02:00	6.0	Clear, calm	0	n/a
2 – Food Plot	1**	35.126141/ -76.972364	Wet Pine Flatwood	08/16/2016	19:45/02:00	6.25	Clear, calm	2	n/a
	2	35.126141/ -76.972364	Wet Pine Flatwood	08/30/2016	19:40/12:40	5.0	Clear, calm	0	n/a
3 – Swamp	1**	35.122115/ -76.972394	Wet Pine Flatwood	08/17/2016	19:45/01:45	6.0	Light wind, clear	0	n/a
	2	35.122115/ -76.972394	Wet Pine Flatwood	08/31/2016	19:30/01:00	5.5	Cloudy, light wind	0	n/a
4 – Creek	1	35.126868/ -76.973711	Coastal Plain Small Stream Swamp (Blackwater Subtype)	08/18/2016	19:45/01:15	5.5	Clear, calm	0	n/a

* = times are approximate.
** = two detectors were collecting data on this night

Table 7. Acoustic Site Summary - Old Waynesborough State Park

Site	Night	Lat/Long	Community Type	Date	Start/End Time*	Hours	Weather Conditions	No. Both Autoclassifier MYSE	No. Files Qualitatively MYSE
1 – Cemetery	1**	35.37445/ -78.019444	Coastal Plain Bottomland Hardwood (Blackwater Subtype)	07/06/2016	20:40/01:40	5.0	Partly cloudy, calm	0	n/a
2 – Parallel to River	1**	35.37445/ -78.02137	Coastal Plain Levee Forest	08/03/2016	20:20/01:20	5.0	Clam, mostly cloudy to clear	0	n/a
3 - Dump	1**	35.37554/ -78.01974	No equivalent	08/04/2016	20:30/02:30	6.0	Breexy, partly cloudy, to clear, calm	0	n/a
4 – Red Loop	1**	35.370144/ -78.017657	Coastal Plain Levee Forest	08/09/2016	20:00/01:45	5.45	Clear, calm	0	n/a

* = times are approximate.
** = two detectors were collecting data on this night

4.2 Mist Net Surveys

Netting was conducted between July 6 and September 1, 2016 from approximately sunset to five hours after sunset, Eastern Daylight Time. Mist net surveys were performed with the goal of capturing NLEB. Net deployments were individually tailored to flight corridors within the highest quality foraging/roosting habitat available within each survey location. Configurations utilized combinations of nets sized between 2.6 and 18 meters in length, stacked between one net panel (single high), two net panels (double high), and three net panels (triple high) in height. The number of net sets and individual net placement varied from site to site, and were determined in the field each night by experienced CALYX biologists. At least two net sets were deployed each night. However, an effort was always made to deploy as many net sets as possible, given the time available and while allowing for each net to be checked every ten minutes. Each mist net site was photographed, and a GPS point was recorded.

Clutter at mist net sites was characterized visually as an average percent cover of all strata for the forested area surrounding the netted corridor. Clutter was ranked from 1 to 4 based on a classification system modified from O'Keefe (2009) and Law (2002). Figures 2-7 depict the locations of mist-net sites at each of the six sampled project locations, and clutter scores are listed on individual data sheets included in Appendix D.

Mist-netting locations and number of bats per locations are presented in Table 8. Mist net captures were documented on data sheets provided by NCDOT which were designed to capture the same information as that contained in the USFWS Sample Data Sheet for Indiana Bat Surveys (USFWS 2016c). Twenty-seven (27) nights of netting were completed at 21 sites. The survey efforts resulted in the capture of 166 bats representing eight species. Photos and data sheets for each mist net site are provided in Appendices D and E.

Table 8. Mist Net Capture Summary

Location	Site No.	Night	Date	Community Type	CORA	EPFU	LABO	LASE	MYAU	MYSE	NYHU	PESU	Total	Notes
Bladen Lakes State Forest	1 – Singletary Lake Gate 8	1	07/19/2016	Coastal Plain Bottomland Hardwood			6	2	2		1	5	16	
	2 – Tatum Millpond East	1	07/20/2016	Bay Forest			7	1		1	2	2	13	Did not band PESU; too small. MYSE male Adult NR, wt.34, CALYX 0034
Goose Creek Game Lands	1 –Pintail Rd	1	07/12/2016	Wet Pine Flatwood		2	1						3	
		2	07/27/2016*	Wet Pine Flatwood				1				1	2	Closed early due to thunderstorm
		3	07/28/2016	Wet Pine Flatwood			4	2			1		7	Chuck-Wills-Widow and flying squirrel
	2 –Parker Tract	1	07/13/2016	No equivalent									0	
	3 – Pintail Rd Spur	1	07/14/2016	Wet Pine Flatwood		5	3						8	Flying squirrel
		2	07/26/2016	Wet Pine Flatwood		1	3				1		5	
Holly Shelter Game Lands	1 – Tram Rd Creek/Plow Line	1	08/22/2016	Pine Savanna			1	4					5	
	2 - Pond	1	08/23/2016	Coastal Plain Small Stream Swamp	1	2	5	9			1	1	19	CALYX0078 recapture; LABO
	3 – Swamp Ridge	1	08/24/2016	Cypress Gum Swamp and Loblolly Plantation	1	2	2		6			1	12	CALYX0093 recapture; MYAU

Table 8 Continued

Location	Site No.	Night	Date	Community Type	CORA	EPFU	LABO	LASE	MYAU	MYSE	NYHU	PESU	Total	Notes
Holly Shelter Game Lands	4 – Bannerman Rd Left Gate	1	08/25/2016	Mesic Mixed Hardwood (Coastal Plain Subtype)	1	1	6	4					12	
	5 – Lodge Rd Pond	1	08/24/2016	Pine Savanna			1	6			1		8	
	6 – Tram Rd	1	08/25/2016	Pine Savanna and Wet Pine Flatwood			1	2			1		4	
Murrayville Mitigation Site	1 - Corbett	1	08/20/2016	High Pocosin, Pond Pine Wetland				1					1	
		2	08/21/2016	High Pocosin, Pond Pine Wetland									0	
	2 – Pond	1	08/23/2016	Bay Forest			3	2			1		6	
		2	08/24/2016	Bay Forest							1		1	
Neuse River Game Lands	1 – Duck Creek Rd	1	08/15/2016	Mesic Pine Flatwood			2						2	
	2 – Food Plot	1	08/16/2016	Wet Pine Flatwood	3	2			13			1	19	
		2	08/30/2016	Wet Pine Flatwood			1		7				8	
	3 – Swamp	1	08/17/2016	Wet Pine Flatwood	1	7			1		1		10	CALYX0055 recapture; MYAU
		2	08/31/2016	Wet Pine Flatwood		1					1		2	
	4 – Creek	1	08/18/2016	Coastal Plain Small Stream Swamp (Blackwater Subtype)									0	

Table 8 Continued

Location	Site No.	Night	Date	Community Type	CORA	EPFU	LABO	LASE	MYAU	MYSE	NYHU	PESU	Total	Notes
Old Waynesborough State Park	1 – Cemetery	1	07/06/2016	Coastal Plain Bottomland Hardwood (Blackwater Subtype)			1						1	
	2 – Parallel to River	1	08/03/2016	Coastal Plain Levee Forest							1		1	
	3 - Dump	1	08/04/2016	No equivalent			1						1	
	4 – Red Loop	1	08/09/2016	Coastal Plain Levee Forest									0	
				TOTAL	7	23	48	34	29	1	13	11	166	

CORA = *Corynorhinus rafinesquii*, Rafinesque's Big-eared Bat; EPFU = *Eptesicus fuscus*, Big Brown Bat; LABO = *Lasiurus borealis*, Red Bat; LASE = *Lasiurus seminolus*, Seminole Bat; MYAU = *Myotis austroriparius*, Southeastern Myotis; MYSE = *Myotis septentrionalis*, Northern Long-eared Bat; NYHU = *Nycticeius humeralis*, Evening Bat; PESU = *Perimyotis subflavus*, Tricolored Bat.

* = netting not completed; rained out.

4.3 Habitat Analysis

Suitable summer habitat for NLEB is generally described as forested habitat, stream/riparian corridors, forest edges, and forested fence lines. A desktop-GIS assessment, using the latest orthoimagery was performed for each location prior to commencing field work. This was done to improve efficiency in the field, allowing CALYX biologists to focus their efforts on the most appropriate habitat for NLEB.

Habitat types found at each acoustic and mist net site were characterized per Classification of the Natural Communities of North Carolina, Third Approximation (Schafale and Weakley 1990). The habitat type for each mist net site, and acoustic site is included in Tables 2-8. In total, twelve habitat types were sampled.

On July 20, 2016 one healthy adult make NLEB (band number CALYX 0034) was captured in Bladen Lakes State Forest, at a site referred to as Tatum Millpond East. (Photos of this bat are included in Appendix F). This site is located at approximately 34.71071°, - 78.52111 °, at the edge of Bladen Lakes State Forest property along an unnamed gravel road south of Johnsontown Road (Figure 2b and 2c). Three net sets were deployed across and adjacent to the gravel road. The net set that captured the NLEB was configured like a triangle over a large puddle in the road. Nets in this triangle configuration were all double high sets in lengths of 4m, 6m, and 9m, with the NLEB captured in the 4m net approximately 2m above the ground (Appendix E, Photo 5). These nets were configured to not only potentially intercept bats trying to drink form the puddle, but also to block flyways through the forest midstory and understory. A braided stream flowed from the edge of the adjacent Carolina bay under the gravel road through a culvert very near the net set that captured the NLEB. Refer to the sketch on the datasheet for this site in Appendix D for more detail.

Land use surrounding this site is primarily forest. However, private land just to the east of this site is under cultivation, and some residences are also present. Although the vegetation at this site has been previously altered, the community type most closely resembles a Bay Forest (Schafale and Weakley 1990). The canopy is dominated by approximately 45 year old unmanaged loblolly pine and loblolly bay. While the canopy cover was low, the mid and understory were thick, resulting in a “high” clutter score overall. A complete list of identified plant species is included below in Table 9.

Table 9. Vegetation at Tatum Millpond East

Strata	Species	Common Name
Canopy	*Pinus taeda*	Loblolly pine
	Gordonia lasianthus	Loblolly bay
Subcanopy	*Quercus nigra*	Water oak
	Juniperus virginiana	Red cedar
	Acer rubrum	Red maple
	Liquidambar styraciflua	Sweetgum
	Sassafras albidum	Sassafras
	Ilex opaca	American holly
Shrub	*Ilex coriacea*	Large gallberry
	Arundinaria gigantean	Giant cane
	Clethra alnifolia	Seet pepperbush
	Cyrilla racemiflora	Titi
	Myrica cerifera	Wax myrtle
	Vaccinium corymbosum	Highbush blueberry

Table 9 Continued

Strata	Species	Common Name
Shrub	*Nyssa sylvatica var. biflora*	Black gum
	Lyonia lucida	Coastal doghobble
	Gaylussacia frondosa	Dangleberry
Vine	*Vitis rotundifolia*	Muscadine grape
	Smilax laurifolia	Laurel greenbrier
	Smilax rotundifolia	Common greenbrier
	Gelsemium sermpervirens	Carolina jessamine
Herb	*Osmundastrum cinnamomeum*	Cinnamon fern
	Microstegium vimineum	Bamboo grass
	Sphagnum sp.	Sphagnum moss

Forest basal area and canopy cover were calculated per Cook et al. (1995) and Ford et al. (2006) on July 21, 2016. The basal area for the site is 21.812 m^2/ha and the canopy cover is 80%.

5.0 REFERENCES

Cook, J.G., Stutzman, T.W., Bowers, C.W., Brenner, K.A., Irwin, L.L., 1995. Spherical densiometers produce biased estimates of forest overstory canopy cover. Wildl. Soc. Bull. 23, 711–717.

Ford, W.M., F.O. Sheldon, J.W. Edwards, J.L. Rodrigue. 2006. *Robinia pseudoacacia* (Black Locust) as day-roosts of male *Myotis septentrionalis* (Northern Bats) on the Fernow Experimental Forest, West Virginia. Northeast. Naturalist, Number 13, pp. 15–24

Law, B., Chidel, M. 2002. Tracks and riparian zones facilitate the use of Australian regrowth forest by insectivorous bats. Journal of Applied Ecology, 39:605-617.

North Carolina Department of Transportation (NCDOT). 2015. Programmatic Biological Assessment for Northern Long-eared Bat (Myotis septentrionalis) in Eastern North Caroline.

North Carolina Department of Transportation (NCDOT). 2016. Standardization for NLEB Research 2016.

North Carolina Wildlife Resources Commission (NCWRC). 2013. North Carolina's White-nose Syndrome Surveillance and Response Plan. Available at: https://www.whitenosesyndrome.org/sites/default/files/resource/nc_wns_surveillance_reponse_plan_with_appendices_10dec2013.pdf

O'keefe, Joy, "Roosting and Foraging Ecology of Forest Bats in the Southern Appalachian Mountains" (2009). *All Dissertations.* Paper 333.

Schafale, M.P. and A.S. Weakley. 1990. Classification of the Natural Communities of North Carolina: Third Approximation. North Carolina Natural Heritage Program, Division of Parks and Recreation. Raleigh, North Carolina.

Titley Scientific. ANABAT SD2 Compact Flash Bat Detector User Manual, Version 1.8. http://www.titley-scientific.com/us/index.php/downloads/dl/file/id/17/product/0/anabat_sd2_user_manual_v1_8.pdf. (Accessed July 5, 2016)

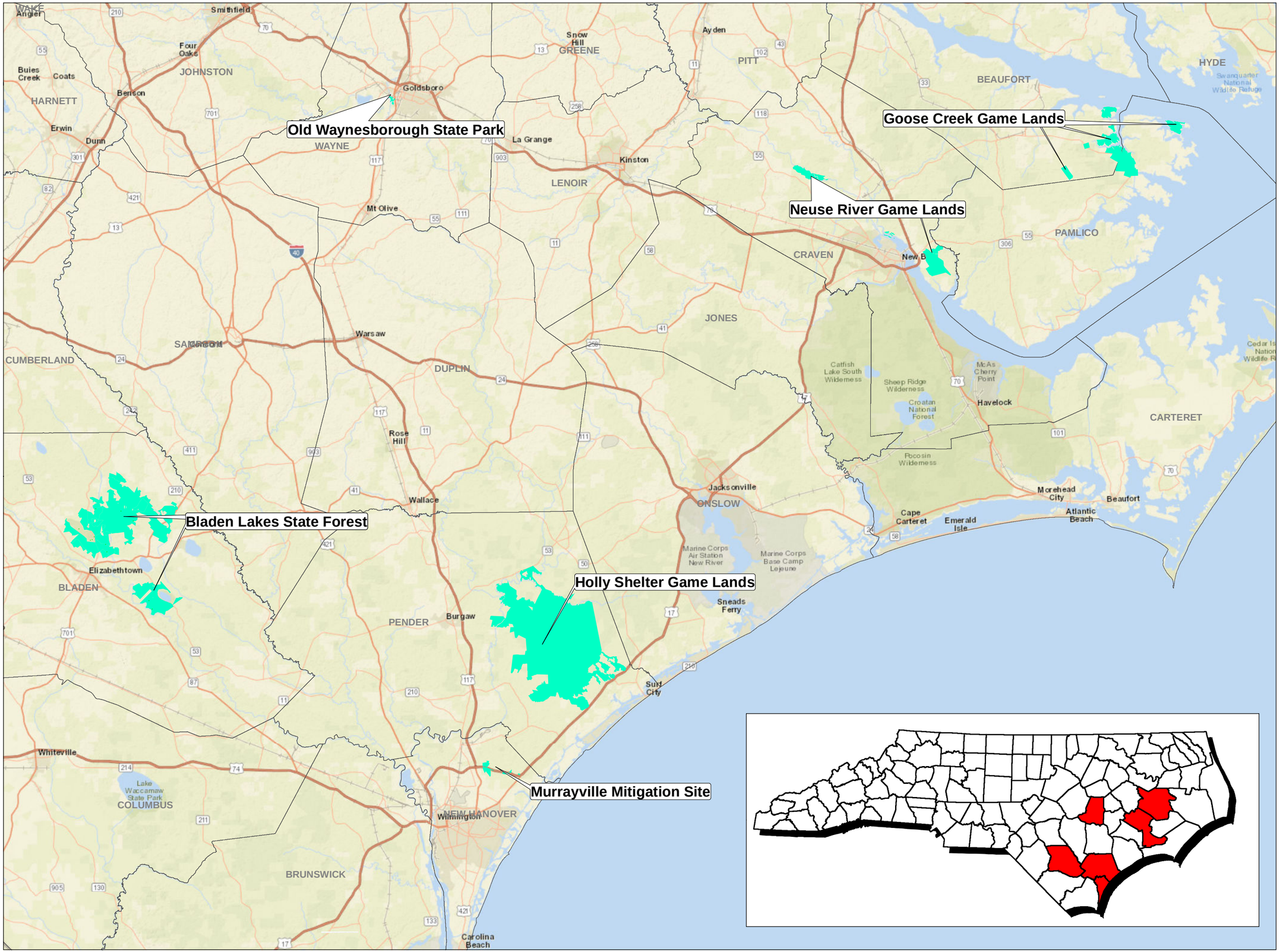
United States Fish and Wildlife Service (USFWS). 2016a. 4(d) Rule for the Northern Long-Eared Bat; Final rule. Federal Register 81 (9): 1900-1922.

United States Fish and Wildlife Service (USFWS). 2016b. National White Nose Syndrome Decontamination Protocol. https://www.whitenosesyndrome.org/sites/default/files/resource/national_wns_decon_protocol_04.12.2016.pdf

United States Fish and Wildlife Service (USFWS). 2016c. Range-wide Indiana Bat Summer Survey Guidelines. Available at: http://www.fws.gov/midwest/endangered/mammals/inba/surveys/pdf/2016IndianaBatSummerSurveyGuidelines11April2016.pdf

United States Fish and Wildlife Service (USFWS). 2016d. The Northern long-eared bat (NLEB) - What it means for your project. https://www.fws.gov/raleigh/NLEB_RFO.html (Accessed September 9, 2016).

FIGURES



Legend

Study Locations

FIGURE 1

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study Summer 2016

Beaufort, Bladen, Craven,
New Hanover, Pamlico, Pender,
and Wayne Counties, NC

Map Date:09/07/2016

N

GRAPHIC SCALE

0 8 16

Miles

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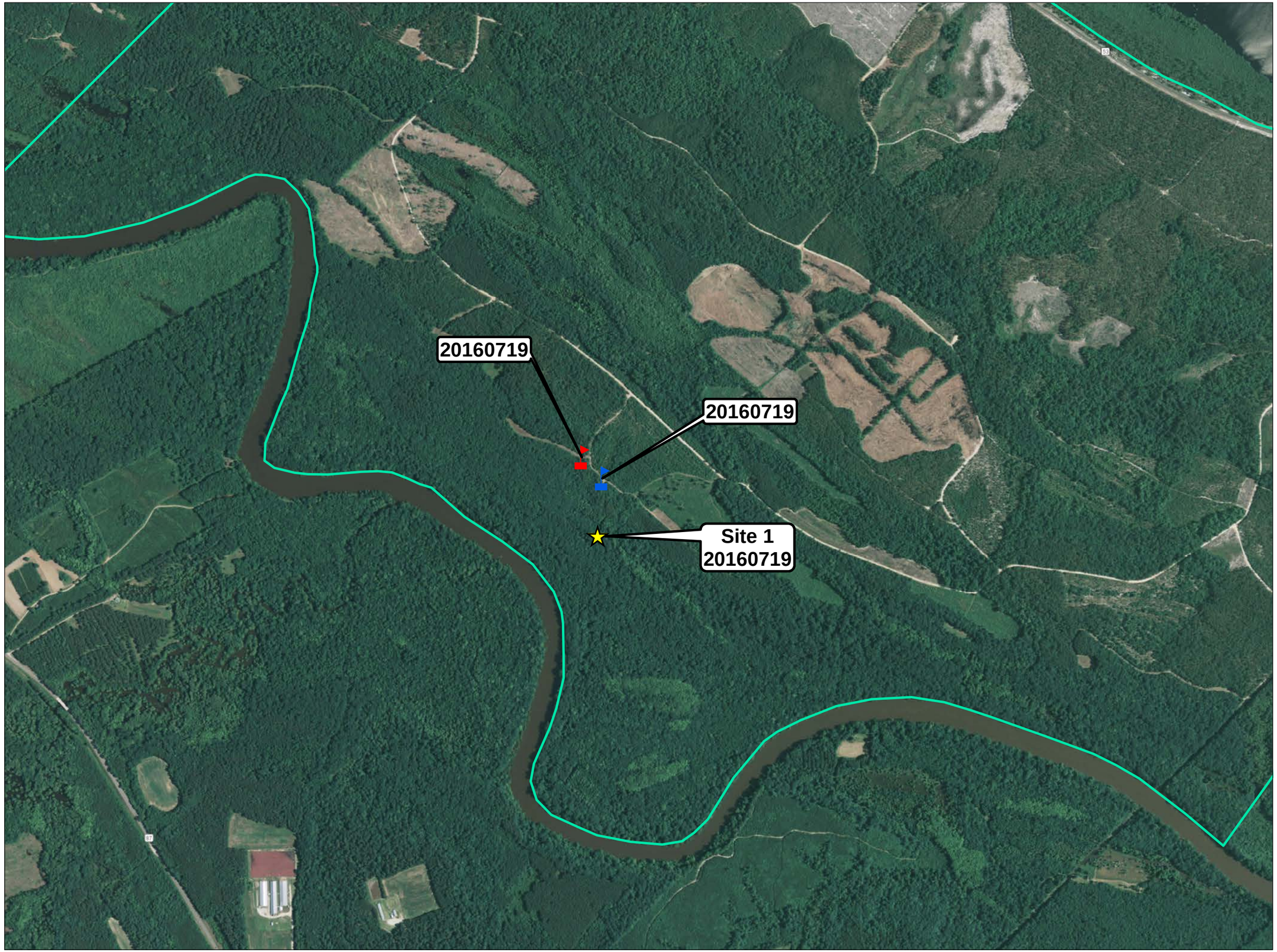
Sources:
County Data: NC One Map
Aerial Mapping: ESRI Imagery



Legend

- Study Locations
- Detector A - Date
- Detector B - Date
- Net Sites - Date

FIGURE
2a

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Bladen Lakes State Forest
Bladen County, NC

Map Date:09/07/2016

N

GRAPHIC SCALE

1 in = 1,000 ft

0 1,000 2,000
Feet

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Sources:
County Data: NC One Map
Aerial Mapping: ESRI Imagery

Legend

- Study Locations
- Detector A - Date
- Detector B - Date
- Net Sites - Date

FIGURE
2b

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Bladen Lakes State Forest
Bladen County, NC

Map Date:10/12/2016

N

GRAPHIC SCALE

1 in = 1,500 ft

0 1,500 3,000
Feet

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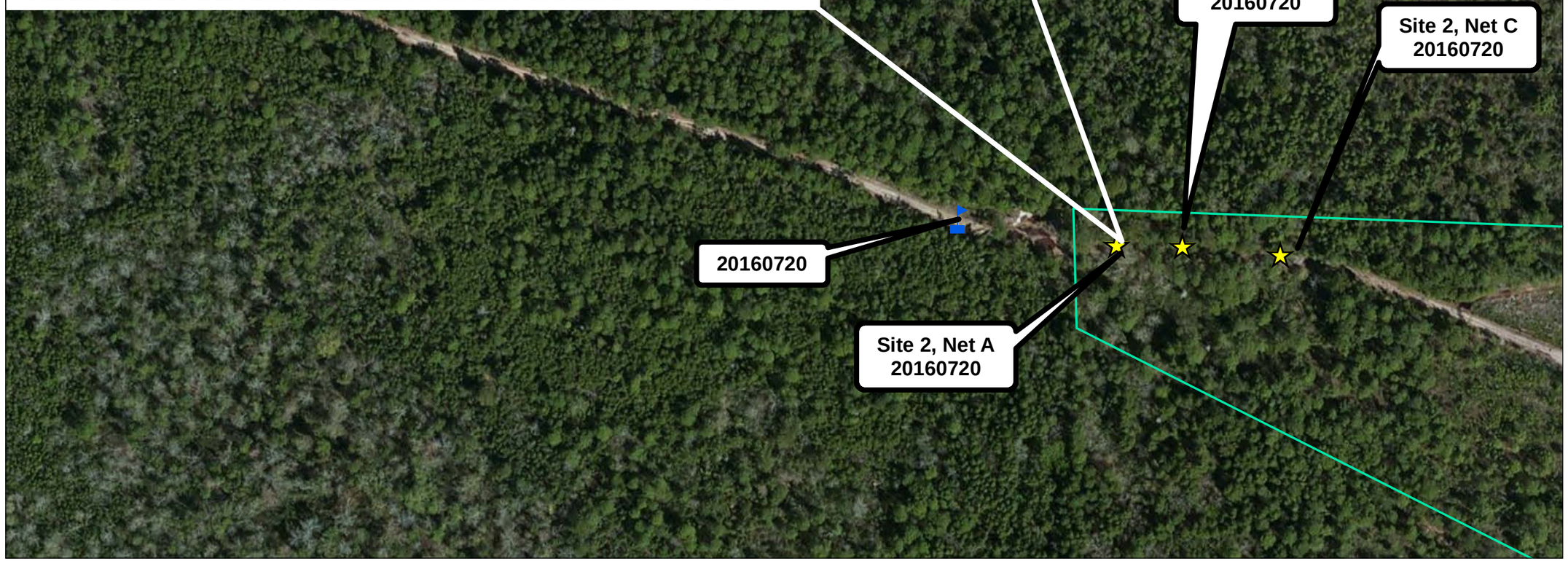
Sources:
County Data: NC One Map
Aerial Mapping: ESRI Imagery



Legend

- Study Locations
- Detector A - Date
- Detector B - Date
- Net Sites - Date

FIGURE
2c

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Bladen Lakes State Forest
Bladen County, NC

Map Date:10/12/2016

N

GRAPHIC SCALE

1 in = 150 ft

0 150 300
Feet

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Sources:
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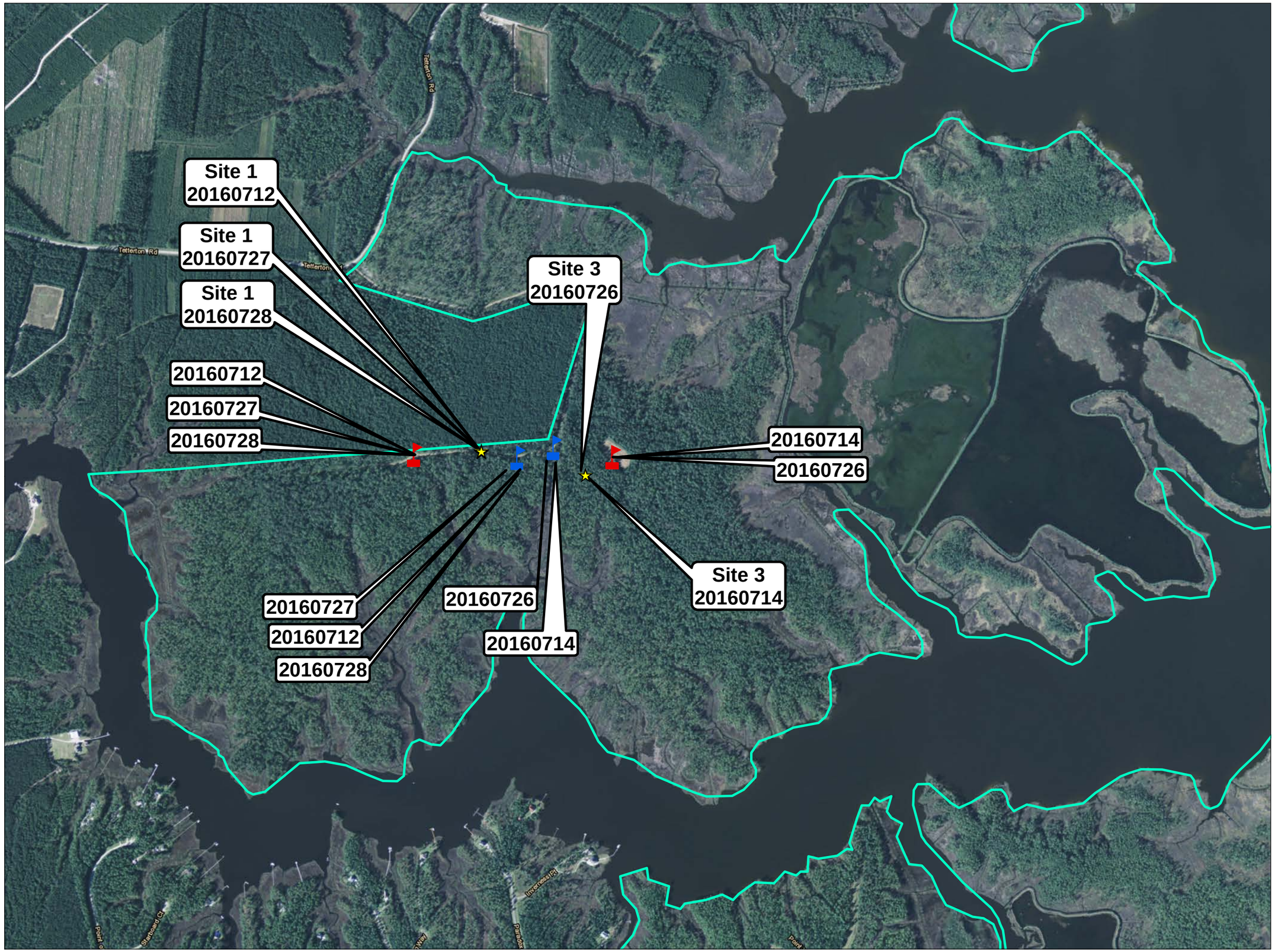

Legend

- Study Locations
- Detector A - Date
- Detector B - Date
- Net Sites - Date

FIGURE

3a

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Goose Creek Game Lands
Beaufort County, NC

Map Date:10/12/2016

N

GRAPHIC SCALE

1 in = 1,000 ft

0 1,000 2,000

Feet

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Sources:
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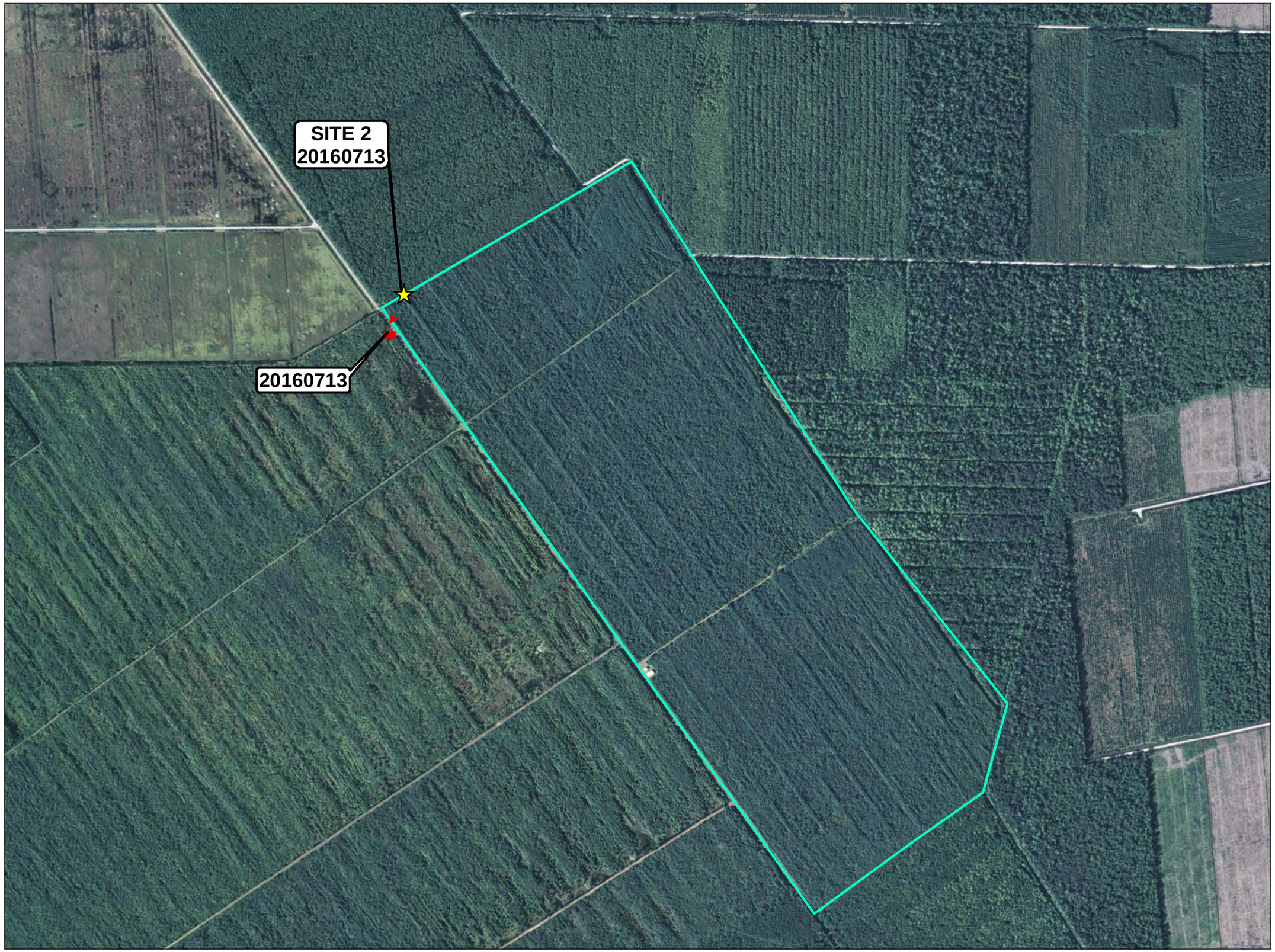
Aerial Mapping: ESRI Imagery



Legend

- Study Locations
- Detector A - Date
- Detector B - Date
- Net Sites - Date

FIGURE
3b

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Goose Creek Game Lands
Beaufort County, NC

Map Date:10/12/2016

N

GRAPHIC SCALE

1 in = 1,000 ft

0 1,000 2,000
Feet

This Exhibit is for planning purposes only and information shown hereon does not meet The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600). The Exhibit was compiled from available information obtained from the sources listed below. Streams and Wetlands: All features located in the field were recorded using a mapping grade Trimble GeoXT or GeoXH GPS receiver with supposed sub-meter accuracy.

Sources:
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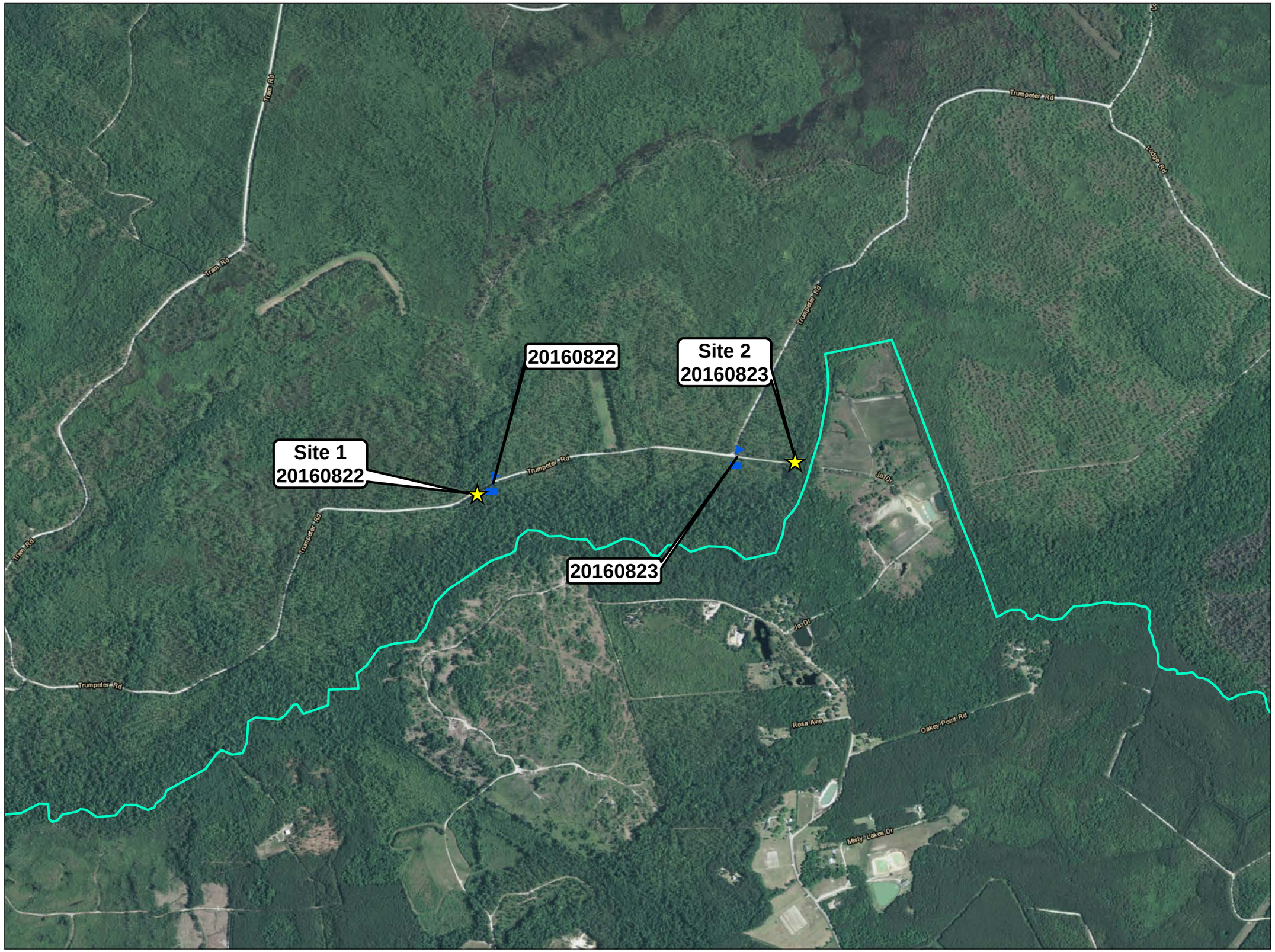
Aerial Mapping: ESRI Imagery



Legend

- Study Locations
- Detector A - Date
- Detector B - Date
- Net Sites - Date

FIGURE

4a

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Holly Shelter Game Lands
Pender County, NC

Map Date:10/12/2016

N

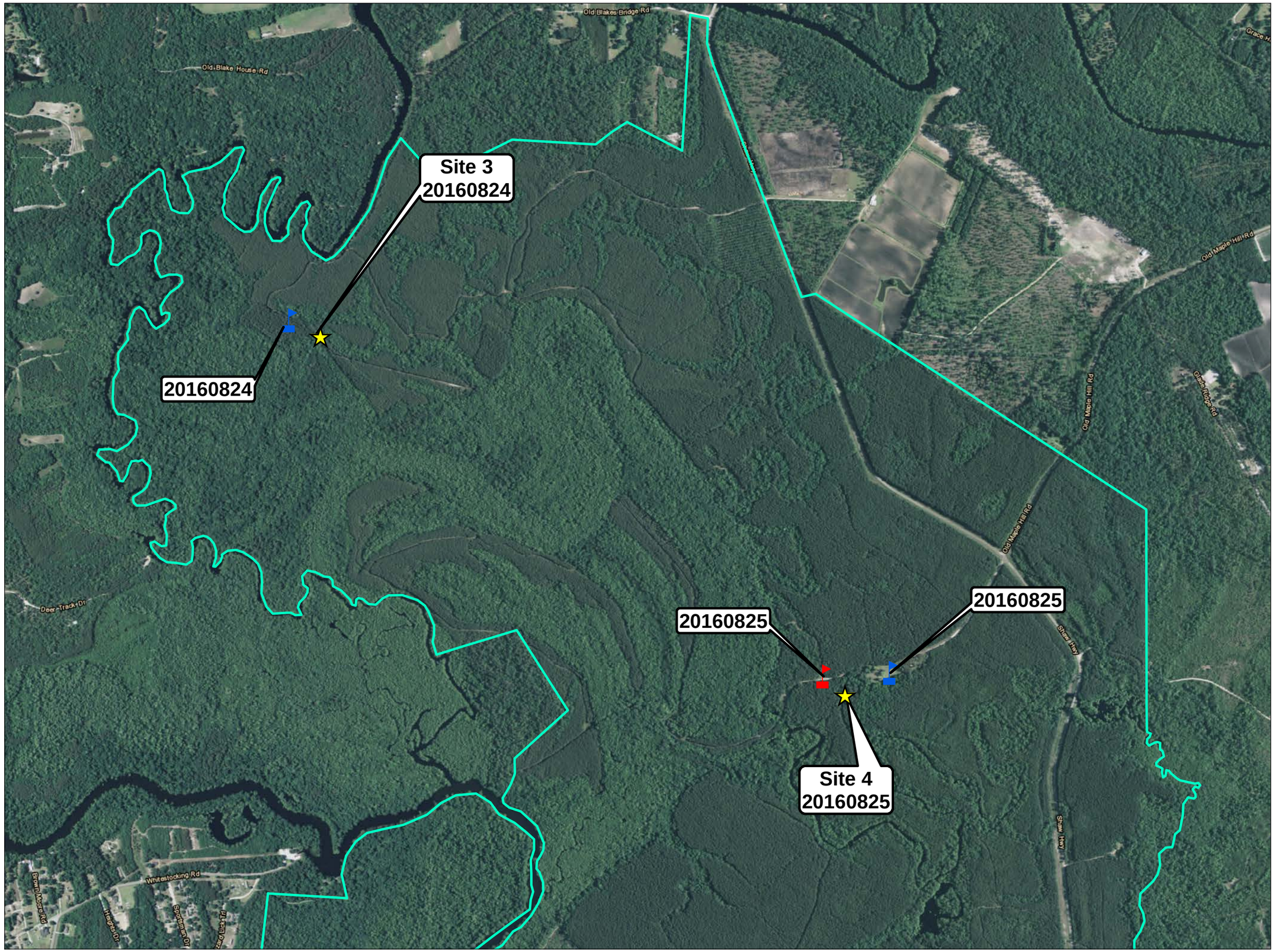
GRAPHIC SCALE

1 in = 1,000 ft

0 1,000 2,000
Feet

This Exhibit is for planning purposes only and information shown hereon does not meet The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600). The Exhibit was compiled from available information obtained from the sources listed below. Streams and Wetlands: All features located in the field were recorded using a mapping grade Trimble GeoXT or GeoXH GPS receiver with supposed sub-meter accuracy.

Sources:
County Data: NC One Map
Aerial Mapping: ESRI Imagery



Legend

- Study Locations
- Detector A - Date
- Detector B - Date
- Net Sites - Date

FIGURE
4b

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Holly Shelter Game Lands
Pender County, NC

Map Date:10/12/2016

N

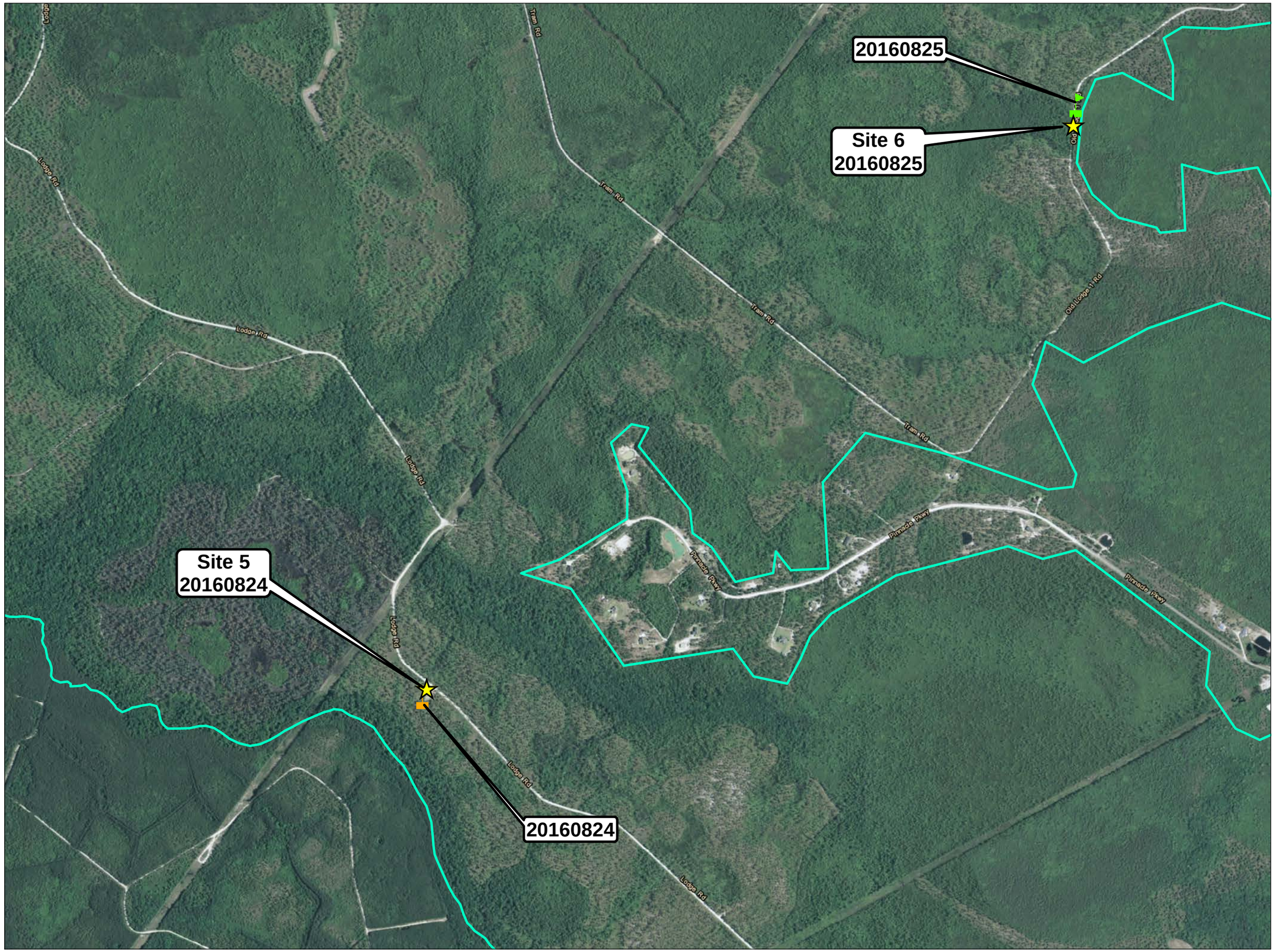
GRAPHIC SCALE

1 in = 1,000 ft

0 1,000 2,000
Feet

This Exhibit is for planning purposes only and information shown hereon does not meet The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600). The Exhibit was compiled from available information obtained from the sources listed below. Streams and Wetlands: All features located in the field were recorded using a mapping grade Trimble GeoXT or GeoXH GPS receiver with supposed sub-meter accuracy.

Sources:
County Data: NC One Map
Aerial Mapping: ESRI Imagery



Legend

- Study Locations
- Detector 17 - Date
- Detector 35 - Date
- Net Sites - Date

FIGURE

4c

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Holly Shelter Game Lands
Pender County, NC

Map Date:10/12/2016

N

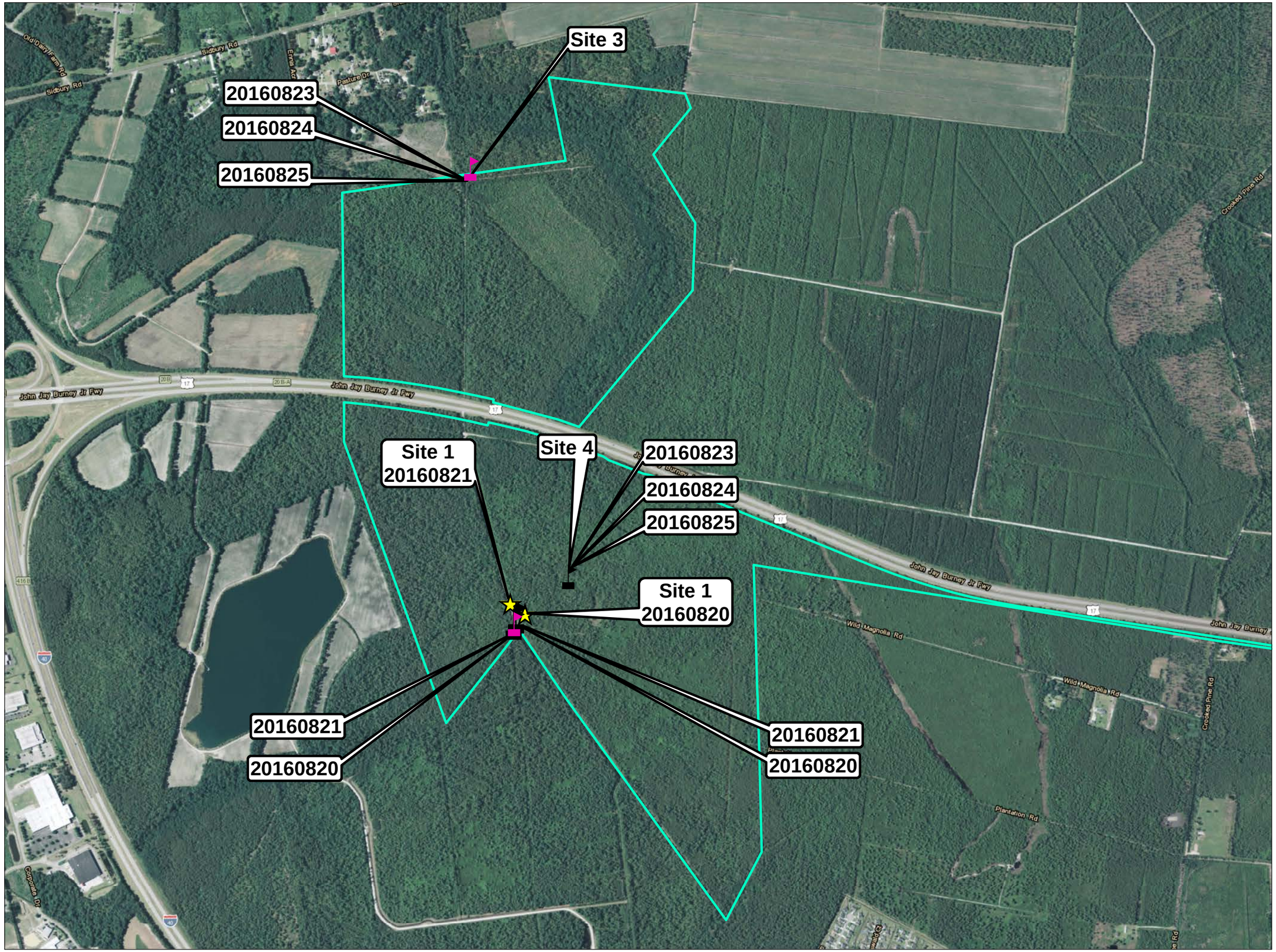
GRAPHIC SCALE

1 in = 1,000 ft

0 1,000 2,000
Feet

This Exhibit is for planning purposes only and information shown hereon does not meet The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600). The Exhibit was compiled from available information obtained from the sources listed below. Streams and Wetlands: All features located in the field were recorded using a mapping grade Trimble GeoXT or GeoXH GPS receiver with supposed sub-meter accuracy.

Sources:
County Data: NC One Map
Aerial Mapping: ESRI Imagery



Legend

- Study Locations
- Detector 16 - Date
- Detector 35 - Date
- Net Sites - Date

FIGURE

5a

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Murrayville Mitigation Site
New Hanover County, NC

Map Date:10/12/2016

GRAPHIC SCALE

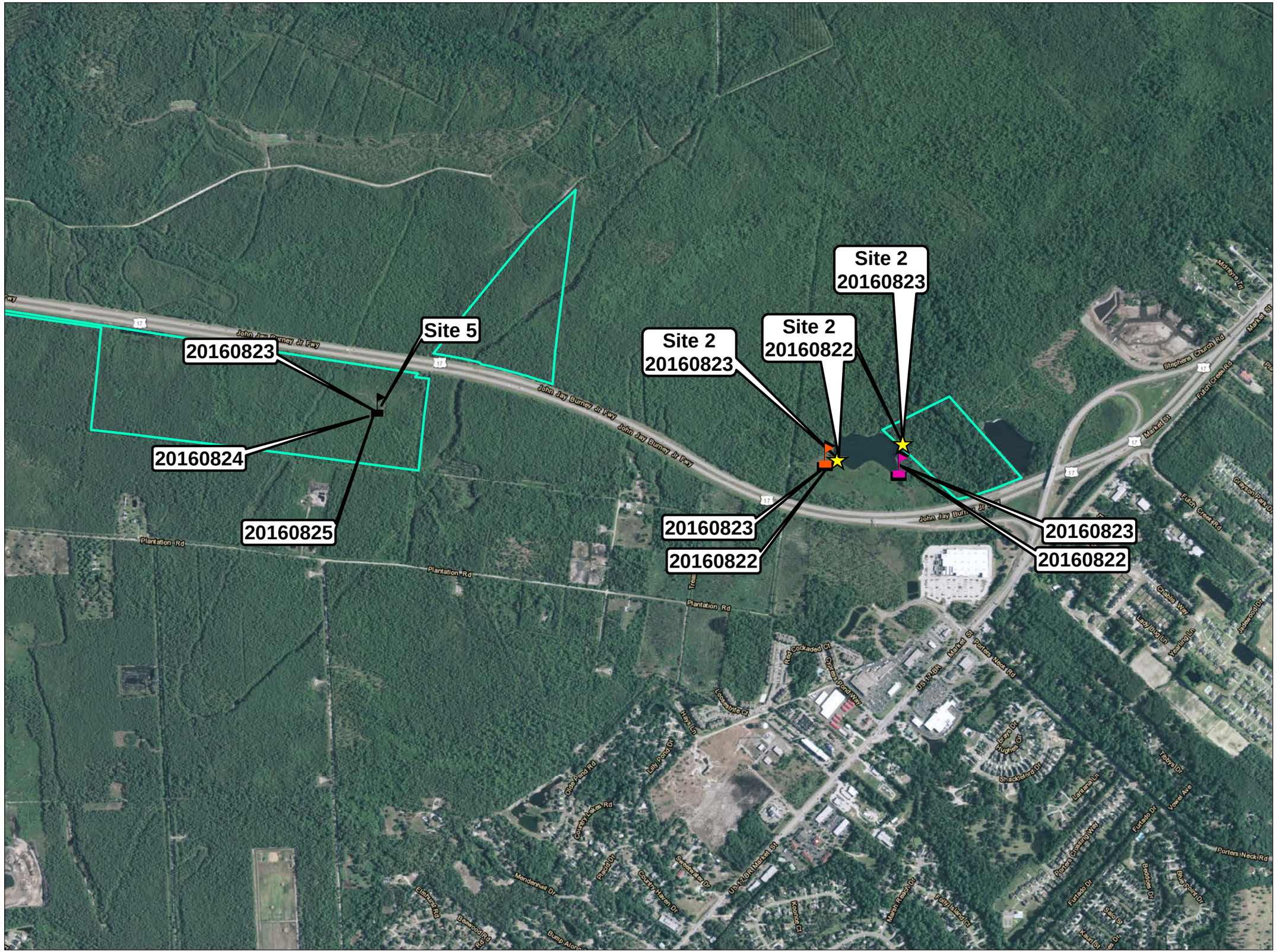
N

1 in = 1,000 ft

0 1,000 2,000
Feet

This Exhibit is for planning purposes only and information shown hereon does not meet The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600). The Exhibit was compiled from available information obtained from the sources listed below. Streams and Wetlands: All features located in the field were recorded using a mapping grade Trimble GeoXT or GeoXH GPS receiver with supposed sub-meter accuracy.

Sources:
County Data: NC One Map
Aerial Mapping: ESRI Imagery



Legend

- Study Locations
- Detector 23 - Date
- Detector 31 - Date
- Detector 28 - Date
- Net Sites - Date

FIGURE 5b

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Murrayville Mitigation Site
New Hanover County, NC

Map Date:10/12/2016

GRAPHIC SCALE

N

1 in = 1,000 ft

0 1,000 2,000
Feet

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Sources:
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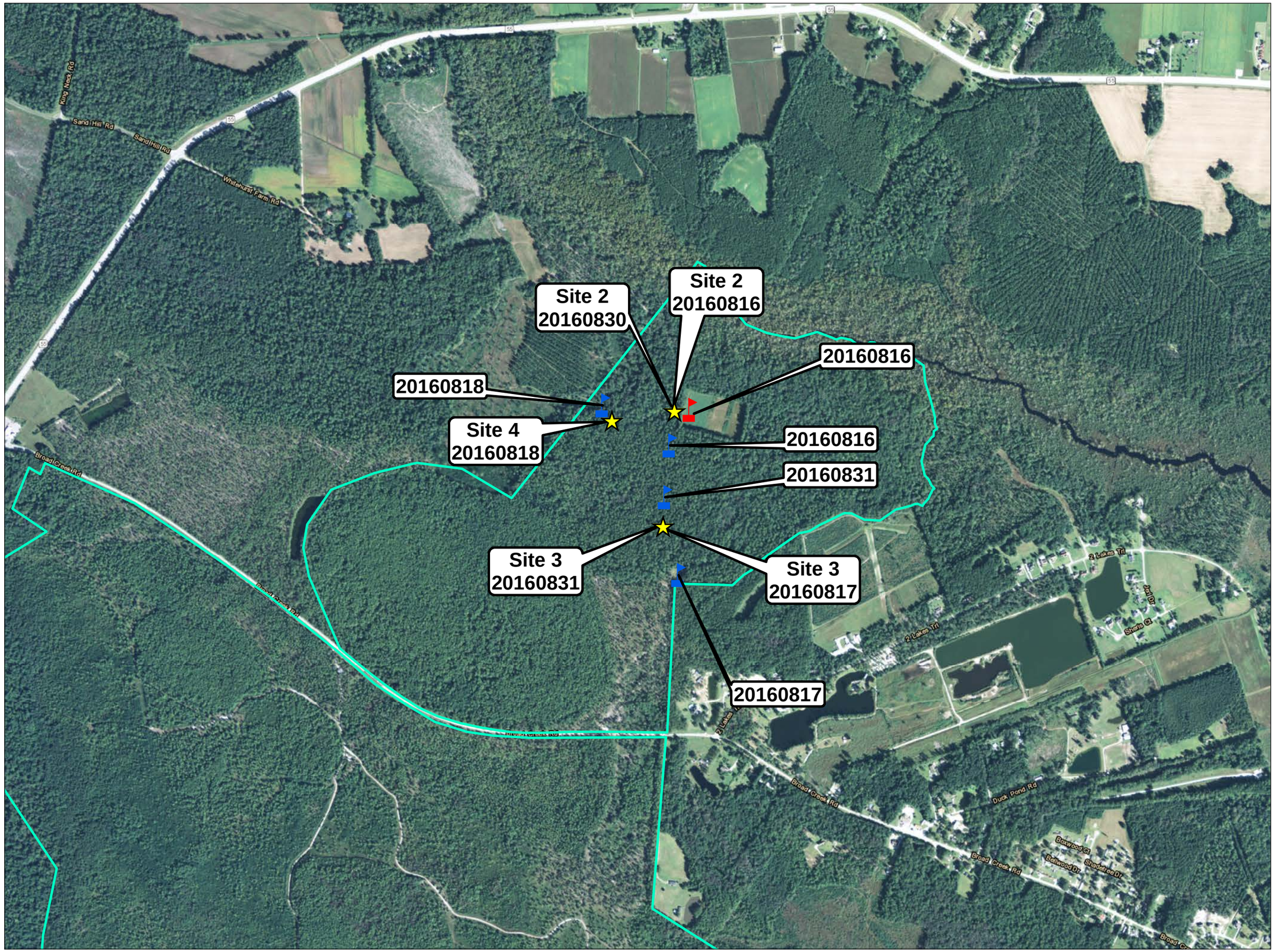
Aerial Mapping: ESRI Imagery



Legend

- Study Locations
- Detector A - Date
- Detector B - Date
- Net Sites - Date

FIGURE

6a

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Neuse River Game Lands
Craven County, NC

Map Date:10/12/2016

GRAPHIC SCALE

N

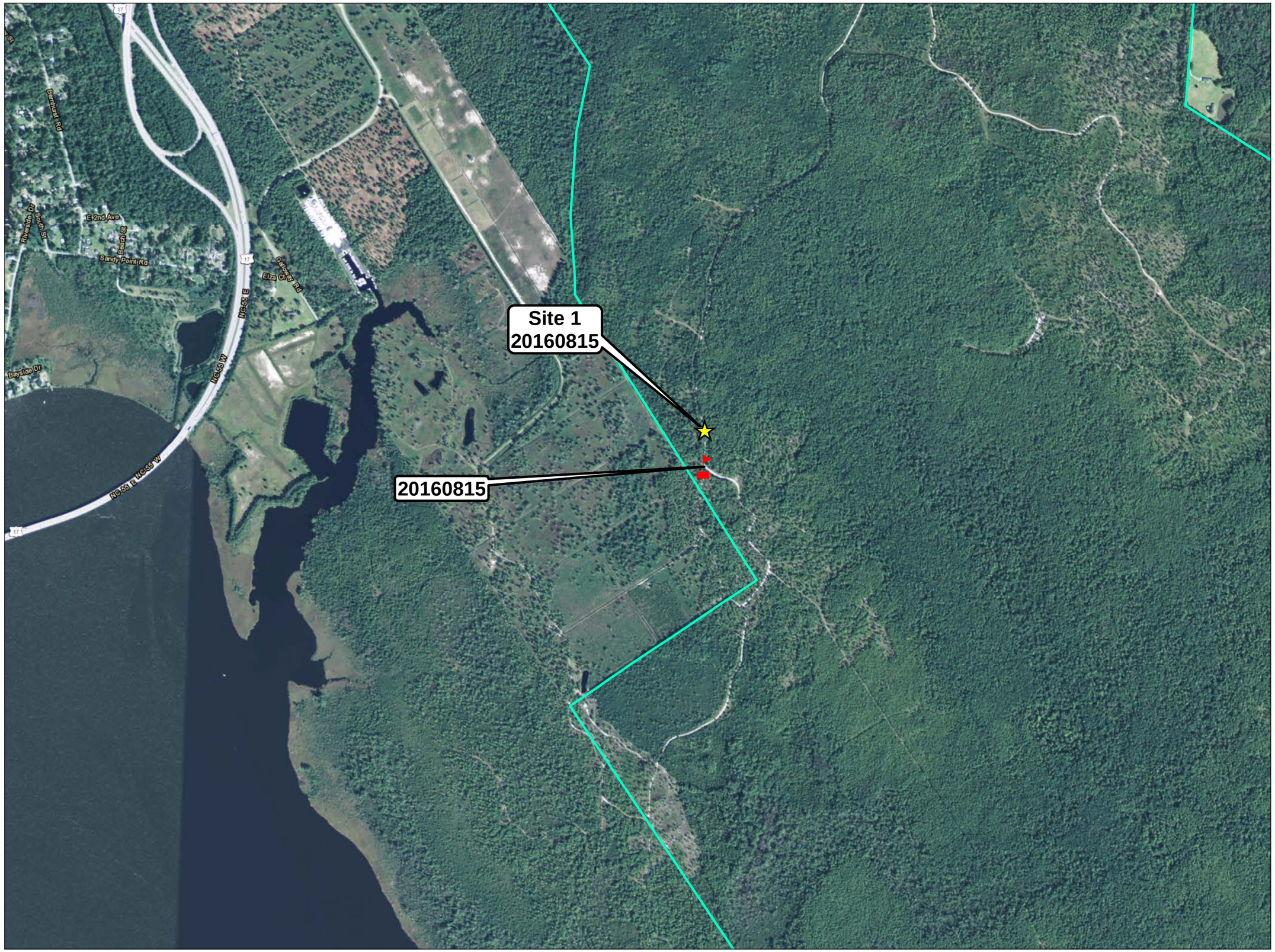
1 in = 1,000 ft

0 1,000 2,000

Feet

This Exhibit is for planning purposes only and information shown hereon does not meet The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600). The Exhibit was compiled from available information obtained from the sources listed below. Streams and Wetlands: All features located in the field were recorded using a mapping grade Trimble GeoXT or GeoXH GPS receiver with supposed sub-meter accuracy.

Sources:
County Data: NC One Map
Aerial Mapping: ESRI Imagery



Legend

- Study Locations
- Detector A - Date
- Detector B - Date
- Net Sites - Date

FIGURE
6b

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Neuse River Game Lands
Craven County, NC

Map Date:10/12/2016

N

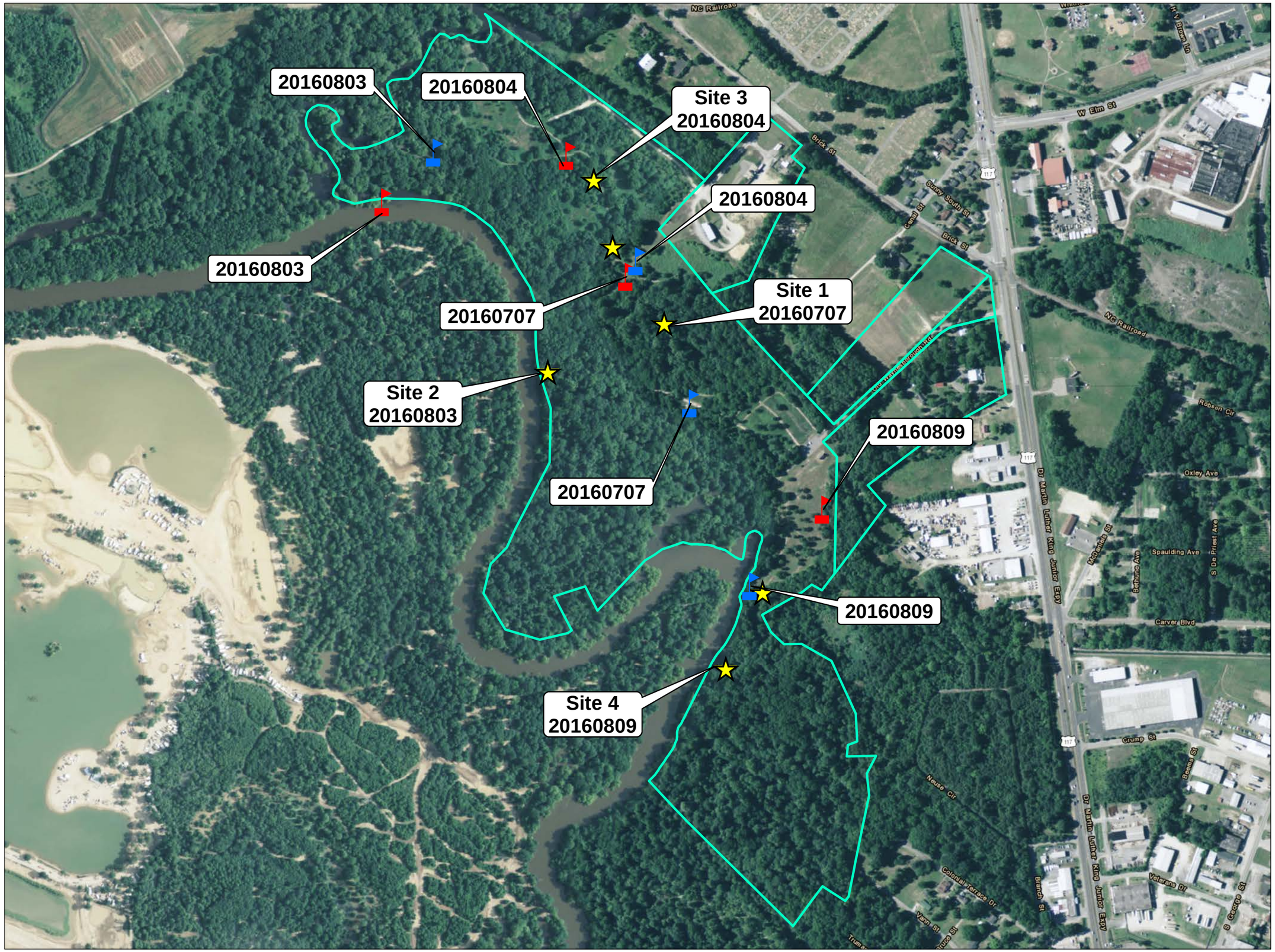
GRAPHIC SCALE

1 in = 1,000 ft

0 1,000 2,000
Feet

This Exhibit is for planning purposes only and information shown hereon does not meet The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600). The Exhibit was compiled from available information obtained from the sources listed below. Streams and Wetlands: All features located in the field were recorded using a mapping grade Trimble GeoXT or GeoXH GPS receiver with supposed sub-meter accuracy.

Sources:
County Data: NC One Map
Aerial Mapping: ESRI Imagery



Legend

- Study Locations
- Detector A - Date
- Detector B - Date
- Net Sites - Date

FIGURE

7

NCDOT
Eastern North Carolina
Northern Long-eared Bat
(Myotis septentrionalis)
Research Study

Old Waynesborough State Park
Wayne County, NC

Map Date:10/12/2016

N

GRAPHIC SCALE

1 in = 500 ft

0 500 1,000
Feet

This Exhibit is for planning purposes only and information shown hereon does not meet The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600). The Exhibit was compiled from available information obtained from the sources listed below. Streams and Wetlands: All features located in the field were recorded using a mapping grade Trimble GeoXT or GeoXH GPS receiver with supposed sub-meter accuracy.

Sources:
County Data: NC One Map
Aerial Mapping: ESRI Imagery

APPENDICES

Appendix A

NCDOT Acoustic Survey Data Forms

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	Proj #:	County: Bladen	Site#:	Night#: 1	Site Name: Bladen Lakes SP Singletary Lake Gate 8
Start Date: 7/19/16		End Date: 7/20/16		Start Time: ~~2030~~ 2000	End Time: ~0200
Nearest town: White Lake		Biologists/observers Present: H. Wallace, B. Dustin, S. Beavens			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2030	78	1	0	90%	2358	73	1	2	99%

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren / Other (describe):
	Stop:	43 61

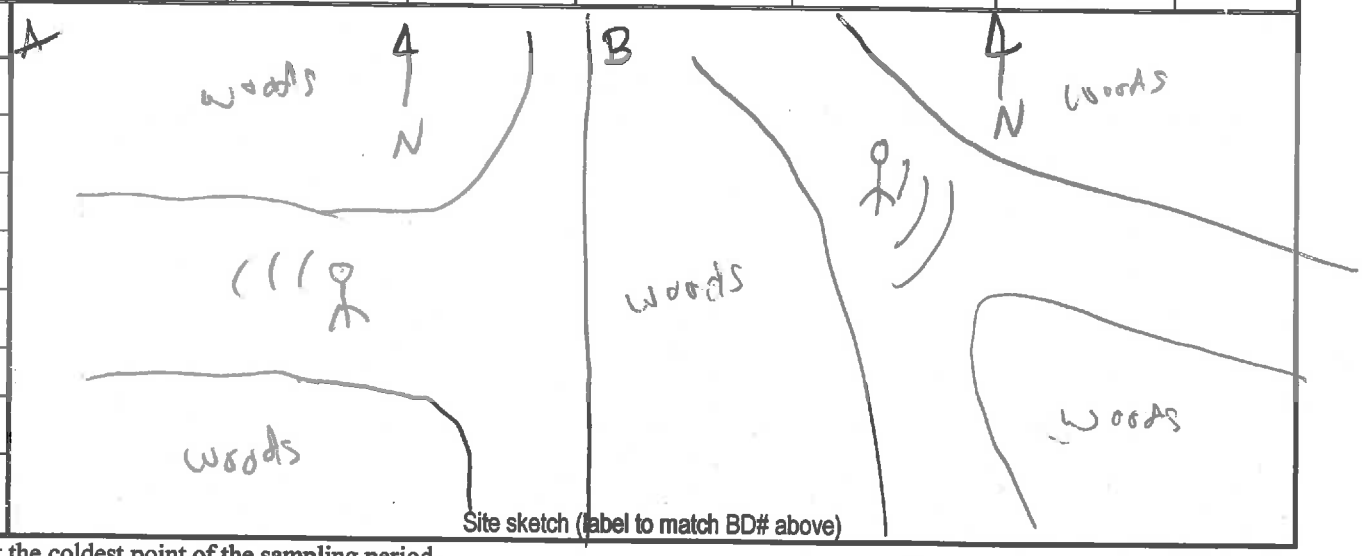
Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062g	Titley Ext. stainless	Titley Weatherhead	-78.486691	34.574361	30'
B	ANABAT SD2	"	"	Titley Weatherhead	-78.485902	34.573712	30'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	294°	45°	12	no	5.4	8/16	—	Y
B	Y	140°	45°	12	lo	4.7	8/16	—	Y

Habitat & Site Description: A located in small field / wide road B at intersection of two forest roads

Coastal Plain Bottomland HW and managed loblolly plantation

Remarks: light rain @ 0105 stopped by 0135



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes:

See acoustic data sheet

STW; Coastal Plain b. Hardwood HW

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	**Proj #:**	**County:** Bladen	**Site#:** 2	**Night#:** 1	**Site Name:** Bladen Lakes Tatum Millpond East
Start Date: 7/20/16		**End Date:** 7/21/16	**Start Time:** 2000		**End Time:** 0200
Nearest town: Elizabethtown		**Biologists/observers Present:** H. Wallace, B. Dutton, S. Beavans			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2028	83	0	0	77%	0115	73	0	0	77%

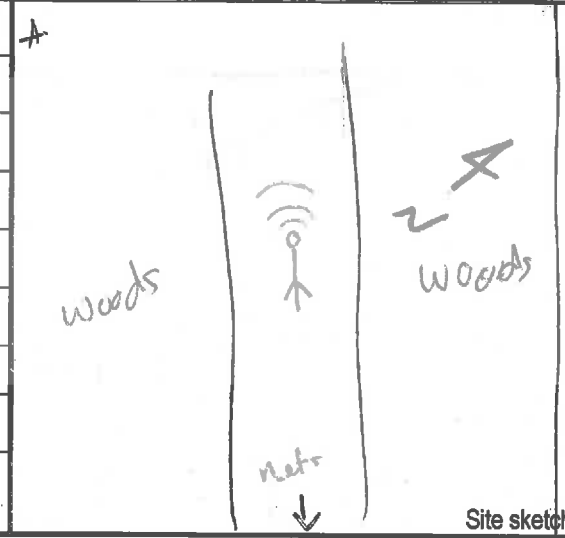
Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren/ Other (describe):
	Stop:	42143

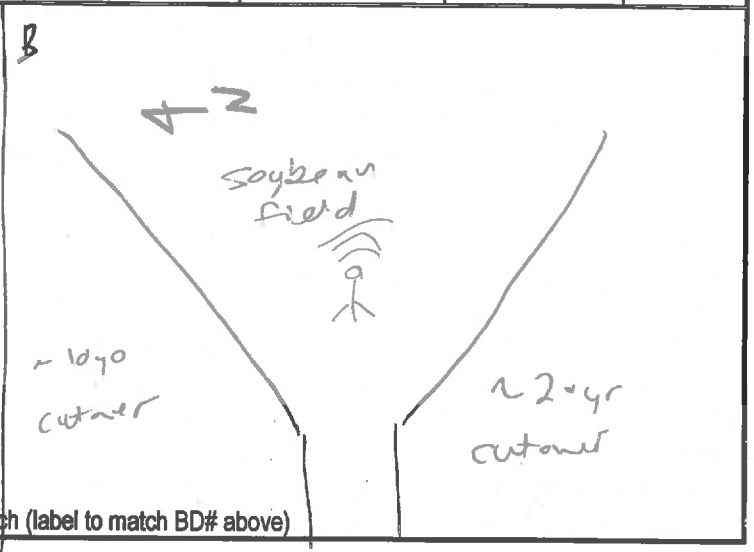
Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062q	Titley Jet stainless	Titley Woodhethead	-78.516636	34.709718	85
B	ANABAT SD2	"		"	-78.521443	34.71083	85

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	318°	45°	12'	NO	8/16 ↔	5.4	—	Y
B	Y	286°	45°	12'	med	8/16 ↔	4.7	—	Y

Habitat & Site Description: A set on forest road among 40yo pine/hardwood forest B in soybean field between ~10yo cutover and ~20yr cutover

Remarks: temp datalogger battery dead





Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: See acoustic datasheet and NLEB habitat assessment

S+W = Bay Forest

TEMP

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	Proj #:	County: Beaufort	Site#: 1	Night#: 1	Site Name: Goose Creek Gamelands Pintail Rd (Location)
Start Date: 7/12/16		End Date: 7/13/16	Start Time: ~2000		End Time: ~0200
Nearest town: Aurora		Biologists/observers Present: H. Wallace, B. Dustin, S. Beevers, G. Jordan			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	8:30	76°	Ø	20%	87%	0145	74%	Ø	Ø%	91%

Moon Effect: 1st quarter — Start: N/A — Stop: N/A

Land Use: Urban / Agriculture / Forest (43) / Water (54) / Wetland (61/62) / Barren/ Other (describe):

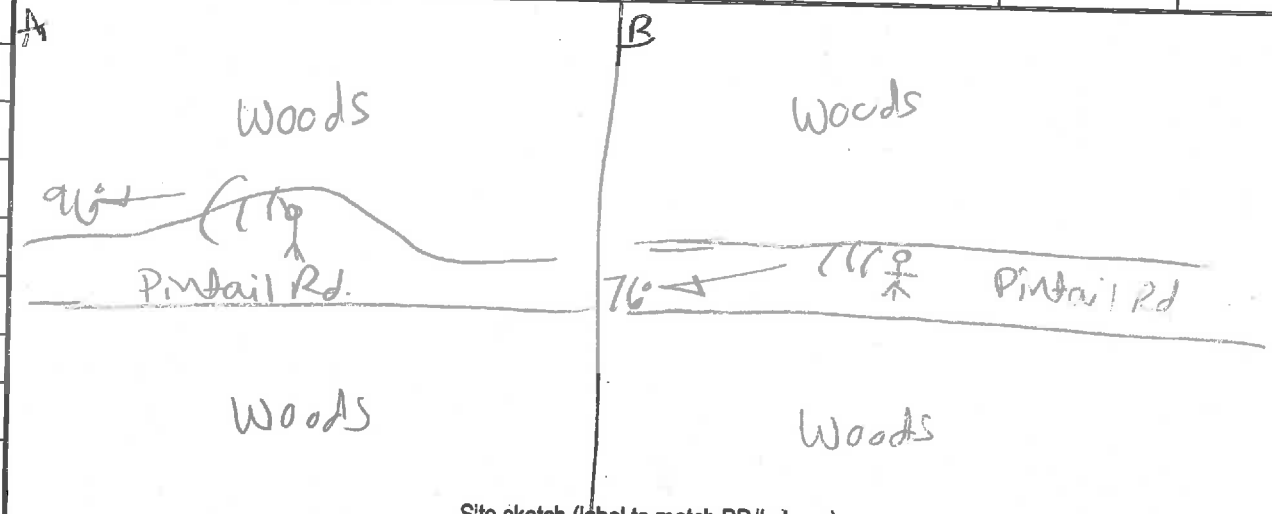
Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062g	Titley ext. stainless	Titley weatherhead	35.291839	-76.651011	5'
B	" "	"	"	"	35.291668	-76.647178	5'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	yes	45° ↔	96°	12'	low	6.7	Data=8, audio=[illegible]	—	Y
B	yes	45° ↔	76°	12'	low	9.2	"	—	Y

Habitat & Site Description: Detectors set along Pintail Rd, 30yr old mixed pine hardwood

roads through wet Pine Flatwood

Remarks:



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: See other datasheet for this site

NCDOT Acoustic Survey Data Form

Project Name: MLEB Fostering Research	Proj #:	County: Beaufort	Site#: 2	Night#: 1	Site Name: Goose Creek GL Porter Tract
Start Date: 7/13/16		End Date: 7/14/16	Start Time: 2040		End Time: ~0200
Nearest town: Bayboro		Biologists/observers Present: H. Wallace, B. Dustin, S. Beavers			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2030	87	Ø	Ø	78%	0135	81	Ø	Ø%	85%

Moon Effect: 1st quarter	Start: N/A Stop: N/A	Land Use: Urban / Agriculture (21) / Forest (41) / Water / Wetland (61) / Barren/ Other (describe):

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	Anabat SD2	V4062g	Titley det. Stainless	Titley Weatherhead	35.247306	-76.732165	10'
B	"	"	"	"	35.24821	-76.732985	10'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	170°	45°	12'	low	4.9	div=8 and a=16	—	Y
B	Y	270°	45°	12'	no	N/A	"	—	Y

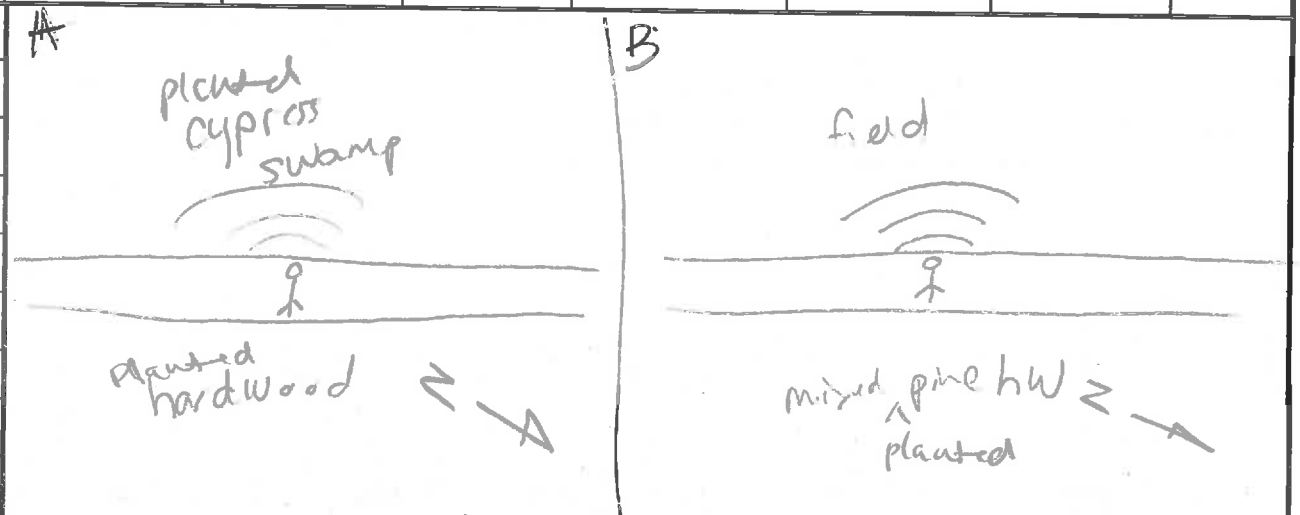
Habitat & Site Description:

unit A set on road facing ag field. Unit B set on road facing impoundment w/ Cypress

Remarks:

worst mosquitos ever!

unit B malfunctioned, No recording



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
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(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes:
planted hardwood to east and mixed pine/hw to west

no equivalent S+W community, ~~but~~ Planted pine, planted hw, planted cypress

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	**Proj #:**	**County:** Beaufort	**Site#:** 3	**Night#:** 1	**Site Name:** Goose Creek GL Pintail Rd Spur
Start Date: 7/14/16		**End Date:** 7/15/16	**Start Time:** 2035		**End Time:** 0315
Nearest town: Aurora		**Biologists/observers Present:** H. Wallace, B. Dustin			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2030	83	0	20%	88%	0142	81	Ø	Ø	87

Moon Effect: 1st Quart	Start: N/A Stop: N/A	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren/ Other (describe): 42

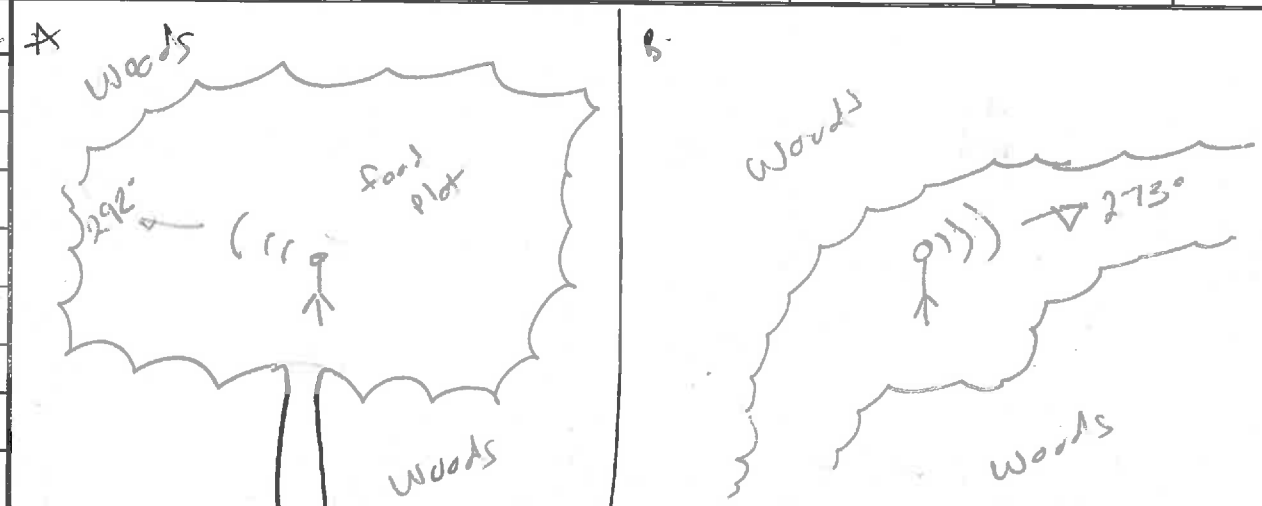
Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062q	Titley ext stainless	Titley weatherhead	35.291616	-76.643597	5'
B	"		Titley ext. stainless	"	35.291903	-76.645805	5'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	292°	45°	12'	no	5.3	Data = 8 audio = 16	—	Y
B	Y	213°	45°	12'	mid	4.2	"	—	Y

Habitat & Site Description: Loblolly/Longleaf Pine Forest approx 35yo. Also red maple and red and loblolly bay, ocuntinaria and wax myrtle, chestnut, bracken fern, blackgum Net set on Spur off Pintail Rd.

Remarks: Some overhang.

WH Pine Flatwood



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
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(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: See acoustic datasheet

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	**Proj #:**	**County:** Beaufort	**Site#:** 3	**Night#:** 2	**Site Name:** Goose Creek Pintail Rd. spur
Start Date: 7/26/16		**End Date:** 7/27/16	**Start Time:** 2000		**End Time:** 0144
Nearest town: Aurora		**Biologists/observers Present:** H Wallace, B. Dustin, S. Berwend			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2002	91°	Ø	Ø	69%	0113	81	1	Ø	81

Moon Effect: N/A	**Start:** / **Stop:**	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren/ Other (describe): 47

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062g	external stainless	Tilley Weatherhead	35.291675	-76.643631	5'
B	ANABAT SD2	"	external stainless	Tilley Weatherhead	35.291903	-76.645805	5'

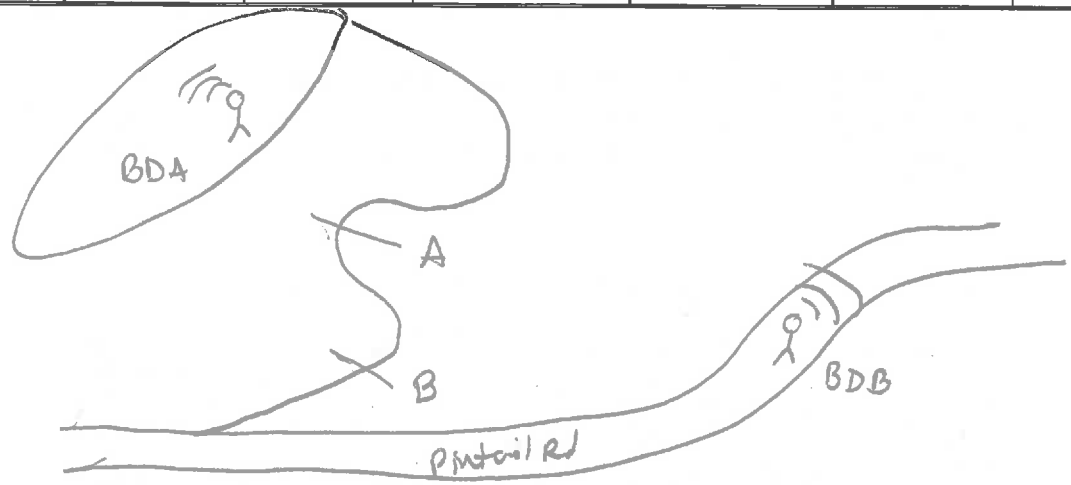
Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	61°	45°	12'	no	5.9	8/16	—	Y
B	Y	283°	45°	12'	mid	7.3	8/16	—	Y

Habitat & Site Description:

See form from night 1

Wet Pine Flatwood

Remarks:



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
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(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes:

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	Proj #:	County: Beaufort	Site#: 1	Night#: 2	Site Name: Grose Creek Gamelands Pintail Rd
Start Date: 7/27/16		End Date: ~~7/28/16~~ 7/27/16	Start Time: 2000		End Time: 2245
Nearest town: Aurora		Biologists/observers Present: H Wallace, B. Dustin, S. Beaulens			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2010	88	1	100%	72%	2245	86	3	100	160%

Moon Effect		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren/ Other (describe):
N/A	Start:	43 / 54 6/62
	Stop:	

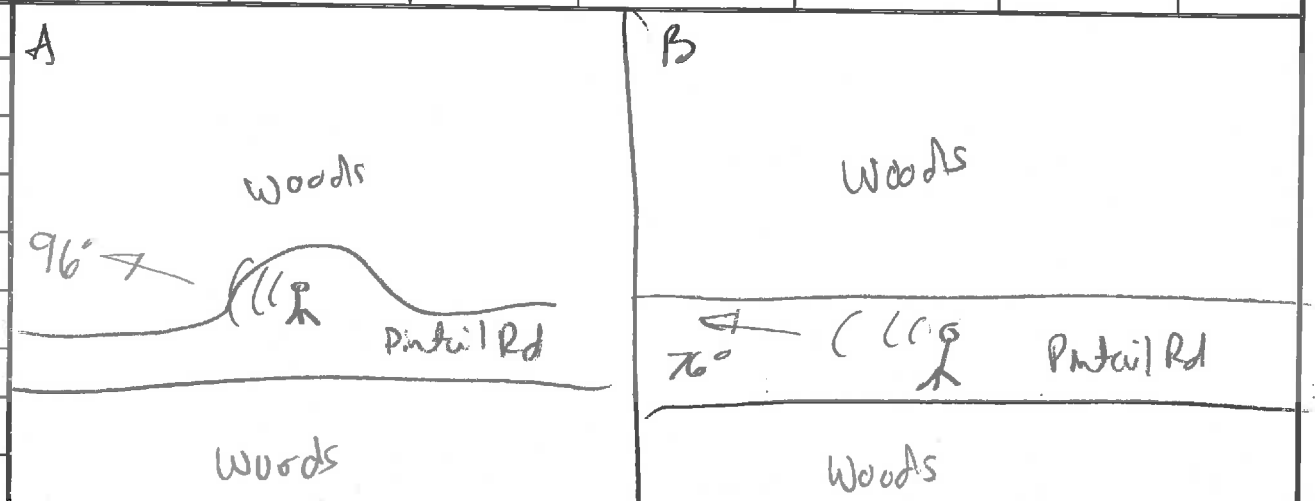
Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062g	Stainless extended	Titley weatherhead	35.291844	-76.651036	5'
B	"	"	"	"	35.291676	-76.647162	5'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	96'	45°	12'	low	4.8	8/16	—	Y
B	Y	76'	45°	12'	low	5.0	"	—	Y

Habitat & Site Description: detectors set along Pintail Rd. 30yr old mixed pine-hardwood

wet Pine Flatwood

Remarks: Rain began @ 2045



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
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Natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural)

Habitat Notes:

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	Proj #:	County: Beaufort	Site#: 1	Night#: 3	Site Name: Goose Cr. Pintail Rd
Start Date: 7/28/2016		End Date: 7/29/2016	Start Time: ~~2025~~ 2000		End Time: 0245
Nearest town: Aurora		Biologists/observers Present: H Wallace, M. Michley			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2013	85	1	0	72	0200	81	1	0	76

Moon Effect: N/A	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren/ Other (describe): 43 54 6162
	Stop:	

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V 4062g	stainless ext	Tipley Weatherhead	35.291844	-76.651036	5'
B	"	"	"	"	35.291676	-76.647162	5'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	237°	45°	12'	low	5.9	8/16	—	Y
B	Y	80°	45°	12'	low	6.4	8/16	—	Y

Habitat & Site Description:

See previous

Wet Pine Flatwood

Remarks:

See previous

Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
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(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes:

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	Proj #:	County: Pender	Site#: 1	Night#: 1	Site Name: Hilly Shelter; Tram Rd Creek and Plow line
Start Date: 8/22/16		End Date: 8/23/16	Start Time: ~~1950~~ 1945		End Time: 0140
Nearest town: Hampstead		Biologists/observers Present: H. Wallace, S. Beavens			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	1945	88	Ø	5	51	0105	77	Ø	5	74%

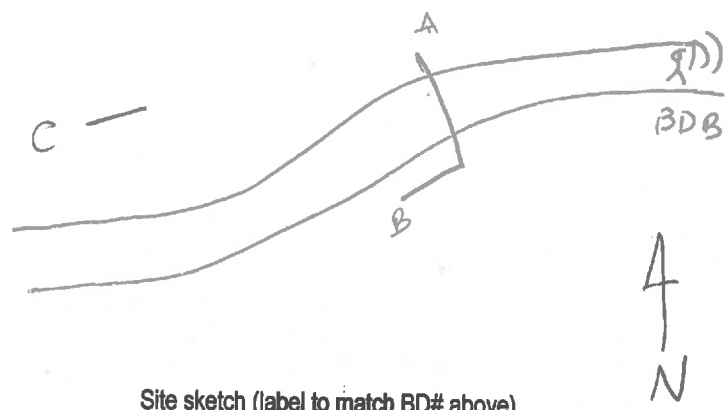
Moon Effect: N/A	Start:	Land Use: Urban / Agriculture / (Forest) / Water / (Wetland) / Barren/ Other (describe): 41, 42, 43 61
	Stop:	

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
B	ANABAT SD2	V4062q	omni directional stainless	Tilley Weatherhead	34.430585	-77.7288	30

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
B	Y	77°	445°	12	lo	6.9	8/16	—	Y

Habitat & Site Description: Set in middle of Tram Rd, on very slight bend; edge of pine forest and bottomland hw

Remarks:



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

pine

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: longleaf, sweetgum, water oak, titi, giant cane, wiregrass, red maple, tulip poplar, lespedeza, cypress, wax myrtle, V. rotundifolia, S. rotundifolia

— Coastal Plain Small Stream Swamp

— Net C on edge next to ~~Piedmont Low Yield Pine Forest~~ Pine Savanna and BDA

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	Proj #:	County: New Hanover	Site#: 2	Night#: 1	Site Name: Hollywood Pond
Start Date: 8/23/16		End Date: 8/24/16		Start Time: 1945	End Time: 0230
Nearest town: Hampstead		Biologists/observers Present: H. Wallace, B. Dustin, S. Beavens, G. Jordan			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	1955	80	Ø	5%	62%					

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

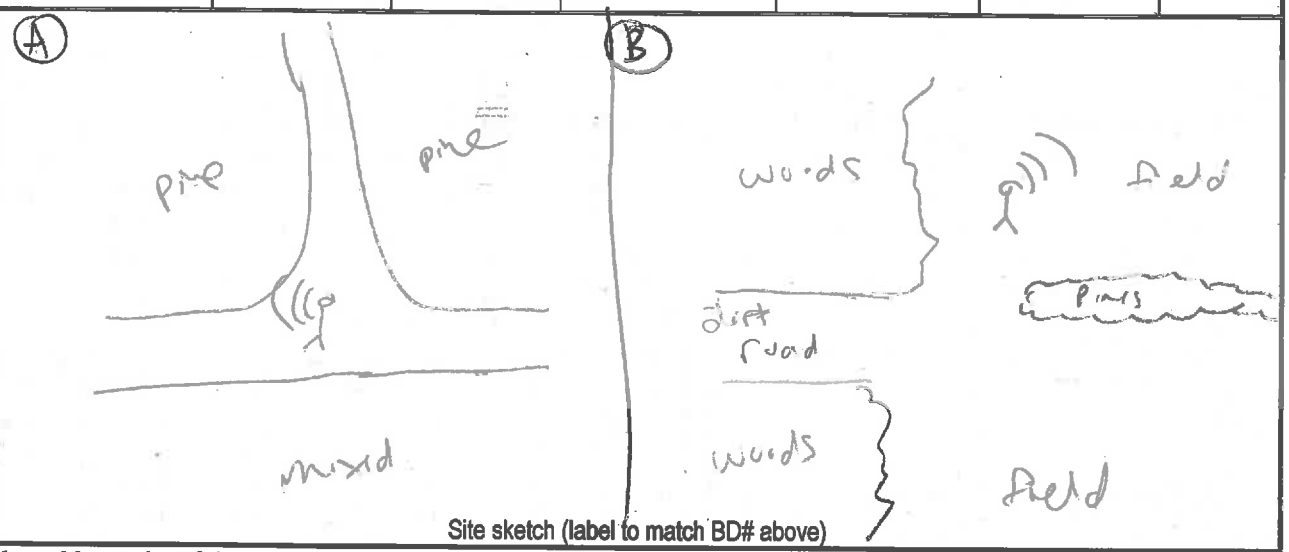
Land Use: Urban / Agriculture (21) / Forest (42, 43) / Water / Wetland (61) / Barren/ Other (describe):

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	v4062g	omnidirectional stainless	Tilley Weather Head			35
B	"	"	"	"	34.43292	-77.719722	35

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	70°	45°	12	no	—	8/16	—	Y
B	Y	296°	45°	12	no		8/16	—	Y

Habitat & Site Description: (A) w/i. Pine Savanna. (B) on field edge at Coastal Plain Small Stream Swamp (Blackwater)

Remarks: Detector A malfunctioned



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

pine, burned

hardwoods

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

Mature forest / <20 years old forest or cutover

Clutter

pine

hw

(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: Pine: longleaf, loblolly ~~loblolly~~, sweetgum, wiregrass, red bay, giant cane, wax myrtle, V. rotundifolia, ~~wax~~ bracken fern, Cin. fern, inkberry

Hardwood: red maple, sweetgum, clethra, Ilex lucida, red bay, loblolly bay, pin oak, titi, Cin. fern, smilax rotundifolia, S. bumelia,

JT Rd

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	Proj #:	County: Pender	Site#: 3	Night#: 1	Site Name: Swamp Ridge (Holly Shelter)
Start Date: 8/24/16		End Date: 8/25/16		Start Time: 1945	End Time: 0153
Nearest town: Maple Hill		Biologists/observers Present: H. Wallace, B. Dustin, S. Beavens, E. Corey			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	1945	80	Ø	Ø	64	0100	74	Ø	Ø	83%

Moon Effect		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren/ Other (describe):
WAN GIB	Start:	41 42 43 51 61
	Stop:	

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062cy	omnidirectional skinless	Tilley hightechhood	—	—	35'
B	ANABAT SD2	"	"	"	34.6029	-77.821802	35'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	300°	45°	12	lo	—	—	—	Y
B	Y	120°	45°	12	lo			—	Y

Habitat & Site Description: (A) set at end of Forest Rd where it bulbs out; (B) Set along Forest Rd.

Remarks:

(A) (B)

See other data sheet

Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

Managed (thinned, burned, pine plantation or otherwise disturbed) / unmanaged → pine, planted in rows

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: Swamp: cypress, Nyssa, cinn. fern, netted chain fern, S. laurifolia, loblolly bay

Upland: loblolly pine, sweetgum, white oak, V. rotundifolia, S. rotundifolia, wax myrtle, red maple, VA creeper, giant cane, water oak, bracken fern, elephant's foot, Microstegium, red bay, loblolly bay, gelseimium

net A on road in loblolly pine plantation. Band D on road w/ edge habitat.
net C in Cypress Gum Swamp (Blackwater)

NCDOT Acoustic Survey Data Form

Project Name: NCCB Eastern Research	Proj #:	County: Pender	Site#: 4	Night#: 1	Site Name: Hollow Shutter Bannerman Rd left gate
Start Date: 8/25/16		End Date: 8/26/16		Start Time: 1935	End Time: 0145
Nearest town: Maple Hill		Biologists/observers Present: H. Wallace, B. Dustin, E. Covey			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2300	79	Ø	Ø	74	0100	73	Ø	Ø	86

Moon Effect: WAX GIB — Start: N/A — Stop: N/A

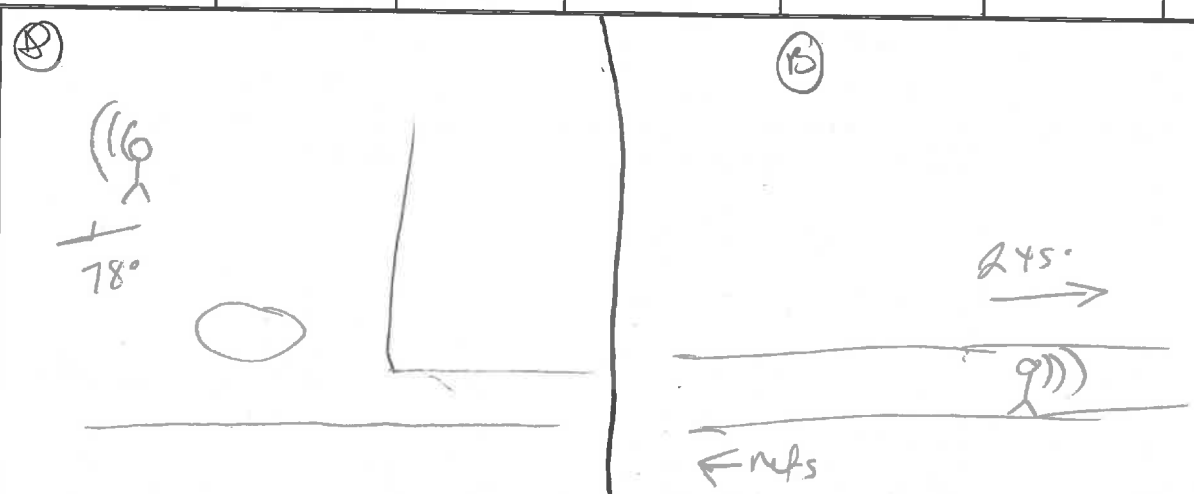
Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren/ Other (describe): 41, 42 61

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062q	omnidirectional stainless	Tilley Weatherhead	34.591892	-77.79972	19
B	"	"	"	"	34.591867	-77.802196	19

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	78°	45	12	no	6.2	8/16	—	Y
B	Y	245°	45	12	lo	7.7	8/16	—	Y

Habitat & Site Description: A set in large field near tree tower B set along Bannerman Rd beyond net B

Remarks:



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: loblolly, red maple, sweetgum, water oak, willow oak, wax myrtle, Aralia, red bay, beautyberry, Arundinaria, bracken fern, lespedeza, Smilax rotundifolia, S. laurifolia, v. r-hundifolia, Simplocus, fesche, Microstegium, Hypericum, Lycopodium, blackberry,

SAW = Music mixed hardwood (Coastal Plain Subtype)

NCDC Acoustic Survey Data Form

Project Name: Murrayville Mitigation	Proj #:	County: New Hanover	Site#: 3	Night#: 1-2	Site Name: Murrayville Site 3
Start Date: 23-AUG-2016		End Date: 25-AUG-2016		Start Time: 1938	End Time: 0710
Nearest town: Wilmington		Biologists/observers Present: C. Rockey; D. Fury; M. Kelly			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	1949	26° C	3	1	0	0049	24° C	2	0	0

Moon Effect: Waning Gibbous 67%	Start: 2334 Stop: —	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren/ Other (describe):

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
293935	Anabat SDII	V4062g	External	Lexan box w/ PVC elbow	34.325307	-77.854268	57 ft.

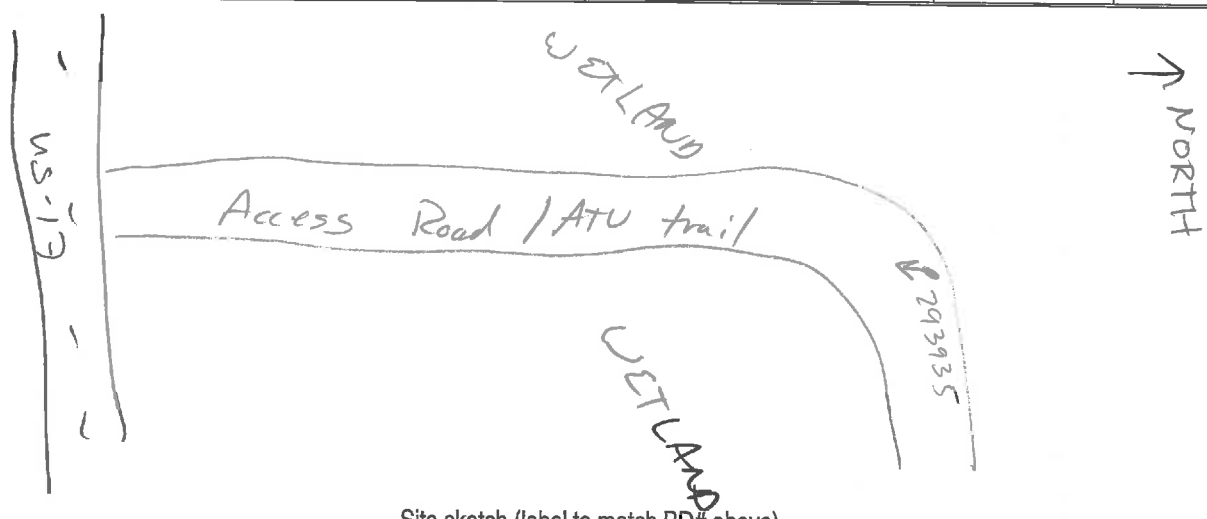
Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
293935	Yes	S	45°	1.5 m	Low	5	16	—	Acoustic 293935 1+2

Habitat & Site Description:

Access road through Pocosin wetland

S+W: Pond Pine Pocosin

Remarks: N/A



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: Mitigation wetland

NCDC Acoustic Survey Data Form

Project Name: Murrayville Mitigation	Proj #:	County: NEW HANOVER	Site#: 4	Night#: 1-3	Site Name: Murrayville Site 4
Start Date: 23-AUG-2016		End Date: 26-AUG-2016		Start Time: 1920	End Time: 0710
Nearest town: Wilmington		Biologists/observers Present: L. Rockey; J. Fury; M. Kelly			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	1949	26° C	3	1	0	0049	24°C	2	0	0

Moon Effect: Waning Gibbous 67%	Start: 2334 Stop: —	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren / Other (describe): ATV trail

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
293916	Anabat SD2	V4062g	External	Lexan box w/ PVC elbow	34.31315192	-77.85066382	50 ft.

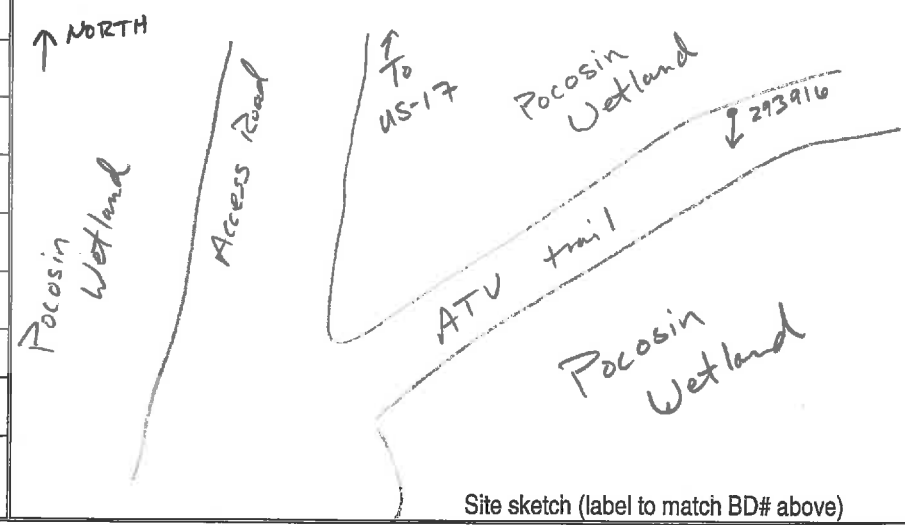
Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
293916	Yes	S	45°	1.5 m	Low	5	16	—	Acoustic 293916 1+2

Habitat & Site Description:

ATV trail through Pocosin wetland

S+W = High Pocosin

Remarks: N/A



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes:

NCDC Acoustic Survey Data Form

Project Name: Murrayville Mitigation	**Proj #:**	**County:** New Hanover	**Site#:** 5	**Night#:** 1-3	**Site Name:** Murrayville Site 5
Start Date: 23-AUG-2016		**End Date:** 26-AUG-2016	**Start Time:** 1920		**End Time:** 0544
Nearest town: Wilmington		**Biologists/observers Present:** C. Rockey; J. Fung; A. Kelly			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	1949	26°C	3	1	0	0049	24°C	2	0	0

Moon Effect: Waxing Gibbous 67%	Start: 2334 Stop: —	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren/ Other (describe): Early growth Pine

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
293928	Anabat SDII	V 4062g	External	Lexan box w/ PVC elbow	34.30774935	-77.81074984	212 ft.

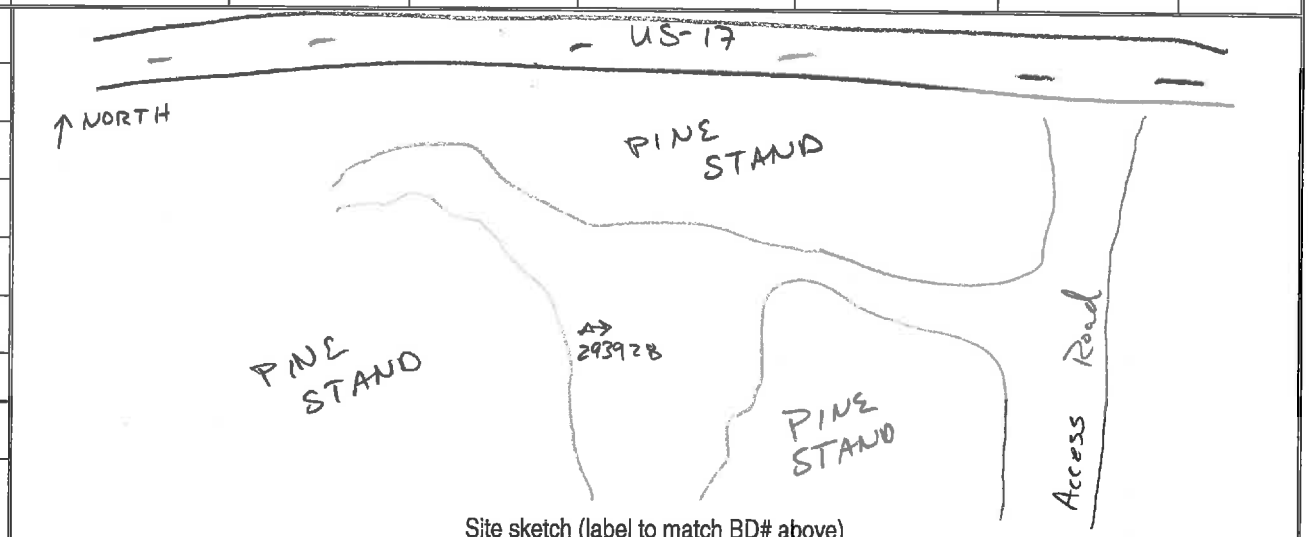
Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
293928	Yes	E	45°	1.5 m	Low	5	16	—	Acoustic 293928 1+2

Habitat & Site Description:

Open in early growth pine

S+W = High Pocosin

Remarks:



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes:

NCDOT Acoustic Survey Data Form

Project Name: NCEB Eastern Research	Proj #:	County: Craven	Site#: 1	Night#: 1	Site Name: Neuse River Duck Crk Rd.
Start Date: 8/15/16		End Date: 8/16/16	Start Time: 2000		End Time: 0202
Nearest town: Bridgeton		Biologists/observers Present: H. Wallace, B. Dustin			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2015	83	Ø	Ø	74%	0120	76	Ø	Ø	81%

Moon Effect: WAX GIB — Start: 2100 — Stop: —

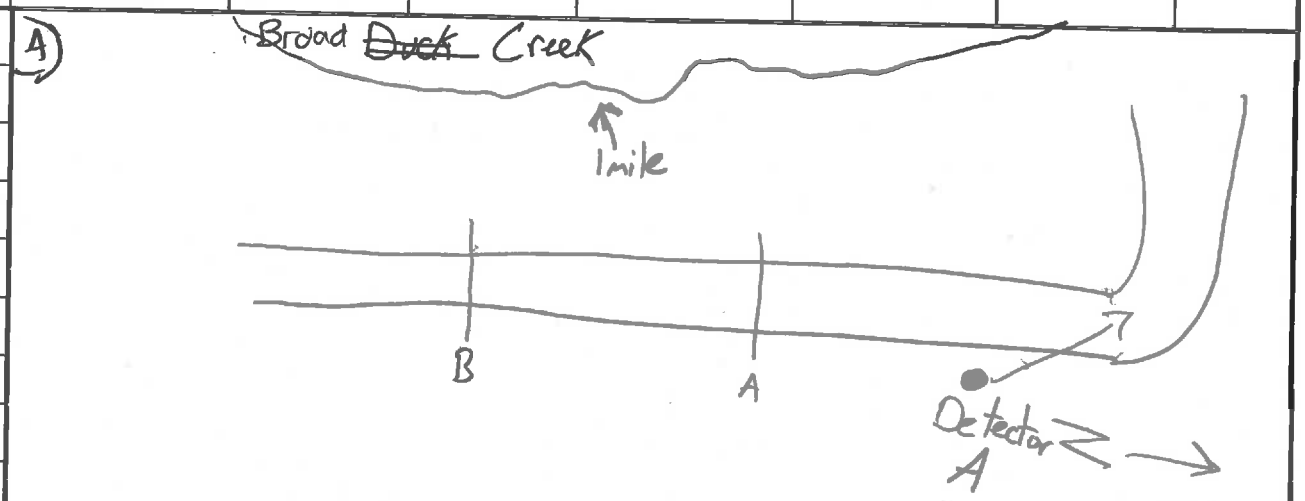
Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren/ Other (describe): CP

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V40629	stainless	Tilly Weatherhead	35.101063	-76.991391	9'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	SE 133	45°	12'	lo	5.9	8/16	—	Y

Habitat & Site Description: detector placed in curve of road.

Remarks:



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: Longleaf + loblolly pine dominate overstory w/ some red maple + water oaks in midstory
Understory consists of L. lucida, A. rubrum, L. styraciflua, S. laurifolia, D. virginiana, G. lasianthus

SW = Mesic Pine Flatwood but very near the Savannah

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	Proj #:	County: Craven	Site#: 2	Night#: 1	Site Name: Neuse River Food Plot
Start Date: 8/16/16		End Date: 8/17/16	Start Time: (B) 1945 / (A) 0001		End Time: (A) 0156 / (B) 0117
Nearest town: Bridgeton		Biologists/observers Present: H. Wallace, B. Dwyer, S. Beavers			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2005	84	Ø	Ø	71	0139	77	1	Ø	90%

Moon Effect: WAX GIB — Start: 2030 — Stop:

Land Use: (Urban) / Agriculture / (Forest) / Water / (Wetland) / Barren / Other (describe): 41 42/43 61/62

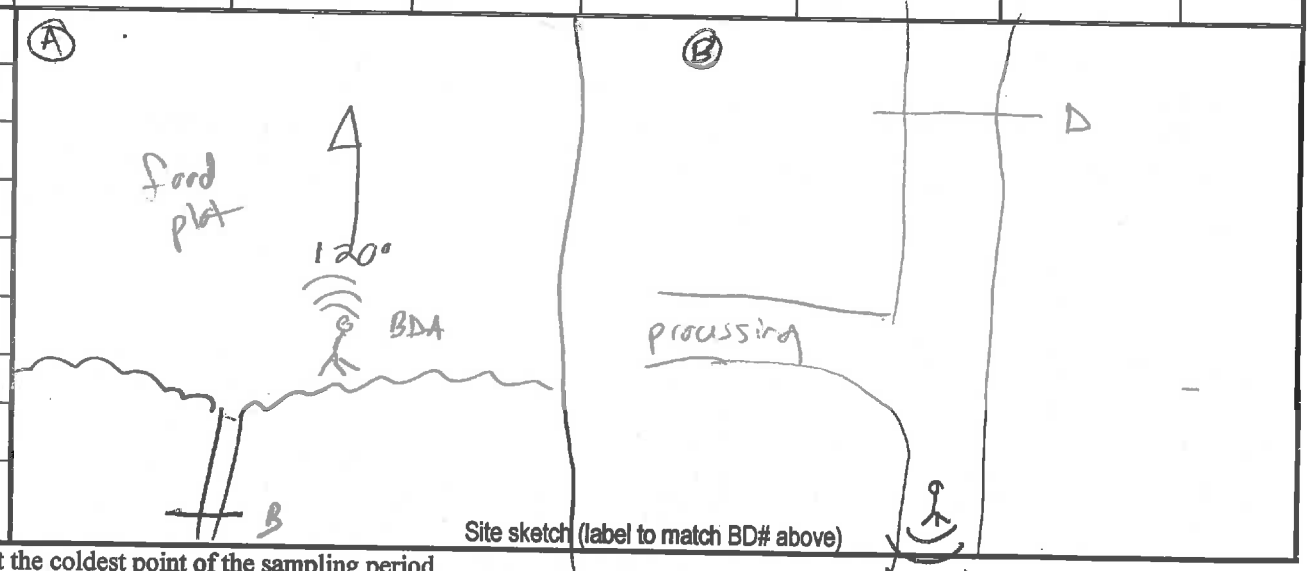
Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062g	Stainless	Tilley Weatherhead	35.122017	-76.971965	24'
B	"	"	"	"	35.125984	-76.972191	24'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	120°	45°	12'	no	5.5	8/16		Y
B	Y	220°	45°	12'	hi	5.5	8/16		Y

Habitat & Site Description: (A) set in a large (~40 ac) food plot. (B) set on road w/i woods near net sites

Wet Pine Flatwood

Remarks: moon shining on A. A not set correctly, began recording late; Det A malfunctioned



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: Black cherry, loblolly pine, red bay, red maple, horsesugar, sweet gum, Water Oak wax myrtle, titi, leucothoe ~~[illegible]~~ —, microstegia, holly, Dear berry, black gum, Ilex vomitoria Cinn fern, royal fern, Sourwood, x-mas fern, NY fern, yellow jasmine, Quercus mich, Quercus marilandica, giant cane

S+W = Wet pine flatwood

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	Proj #:	County: Craven	Site#: 3	Night#: 1	Site Name: ~~Neuse River~~ Swamp
Start Date: 8/17/19		End Date: 8/18/19		Start Time: 1945	End Time: 0147
Nearest town: Bridgeton		Biologists/observers Present: H. Wallace, B. Dustin, S. Beavens, G. Jordan			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2009	83	1	0	72	0140	77	1	10%	94%

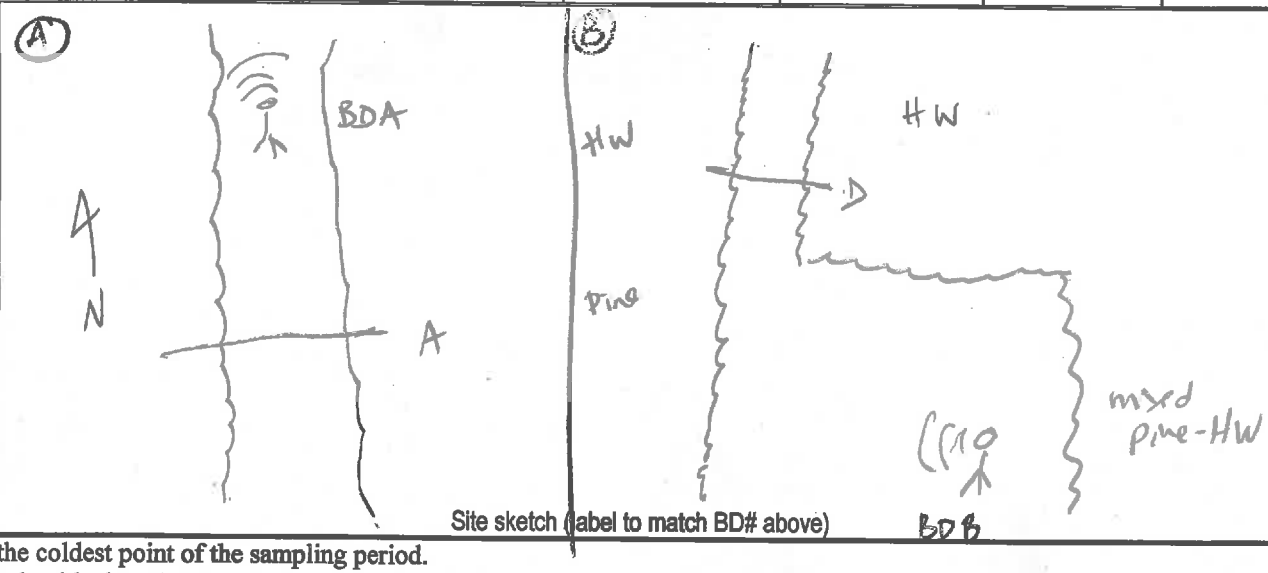
Moon Effect:	Start:	Land Use: Urban/ Agriculture/ Forest/ Water/ Wetland/ Barren/ Other (describe):
Full	2330	11 42/43 61/62
	Stop: —	

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062q	Stainless	Tilley Weatherhead	35.127255	-76.974665	15'
B	ANABAT SD2	"	"	"	35.122017	-76.971965	15'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	0°	45°	12'	high	9.2?	8/16	—	Y
B	Y	235°	45°	12'	no	6.4	8/16	—	Y

Habitat & Site Description: (A) set on forest road just beyond net A, facing away from nets. (B) set in field, facing over field toward pine forest.

Remarks: hard to set gain on A due to so many insects. (A) malfunctioned no calls recorded



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: Same veg as site 2, neg w 1

S+W = wet pine flatwood and Coastal Plain bottomland HW (Blackwater)

NCDOT Acoustic Survey Data Form

Project Name: NCEB Eastern Reach	Proj #:	County: Craven	Site#: 3	Night#: 2	Site Name: Neuse River Swamp
Start Date: 8/31/16		End Date: 9/1/16		Start Time: 1933	End Time: 0100
Nearest town: Bridgeton		Biologists/observers Present: B. Dustin, H. Wallace, S. Beavens			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2003	77	1	100%	78%	0045	75	Ø	40%	93%

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren / Other (describe):
N/A	Stop:	11 42/43 61/62

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
B	ANABAT SD2	V4062g	Titley Scientific omnidirect.	Titley weatherhead	35.124112	-76.97264	15'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
B	Y	358	45	12	med	6.2	8/16	—	Y
								—	

Habitat & Site Description:

See night 1 for habitat;
See night 2 for drawing

Remarks:

Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes:

NCDOT Acoustic Survey Data Form

Project Name: NLGB Eastern Research	Proj #:	County: Craven	Site#: 4	Night#: 1	Site Name: Neuse River Creek
Start Date: 8/18/16		End Date: 8/19/16	Start Time: 1945		End Time: 0111
Nearest town: Bridgeton		Biologists/observers Present: H. Wallace, B. Dustin			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	1955	76	Ø	Ø	91%	0100	76	1	10	94

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren/ Other (describe):
full	Stop:	11 42/43 61/62

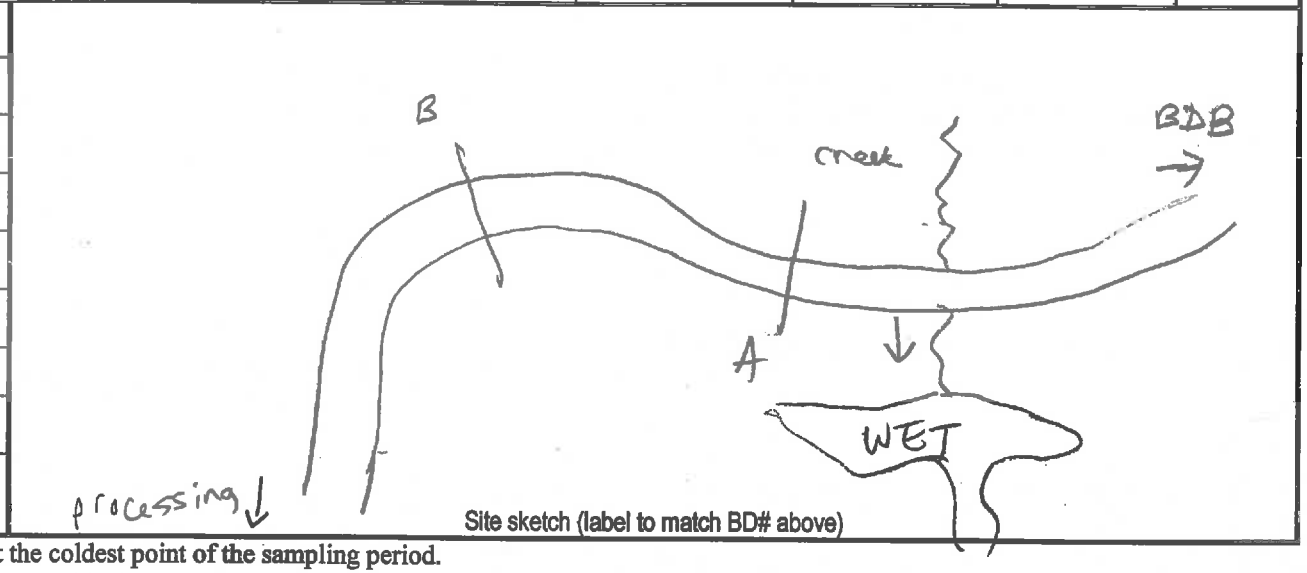
Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
~~A~~ B	ANABAT SD2	V4062q	omnidirectional Stainless	Titley Weatherhead	35.127255	-76.974665	30'
~~B~~			"				

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
~~A~~ B	Y	274°	45°	12	Med	5.8	8116	—	Y
~~B~~									

Habitat & Site Description: A set just before small creek, B set in curve of road

~~Will pine Flatwoods and~~ Coastal Plain Small Stream Swamp (blackwater)

Remarks:



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: see veg from site 2, night 1. Veg is identical, however pines are less dominant

S+W= Coastal Plain Small stream swamp (blackwater)

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	Proj #:	County: Wayne	Site#: 1	Night#: 1	~~Site~~ Location Name: Old Waynesboro Cemetary
Start Date: 7/6/16		End Date: 7/7/16	Start Time: 2040		End Time: ~~0145~~ 0324
Nearest town: Goldsboro		Biologists/observers Present: H. Wallace, M. Mickley, G. Jordan			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2040	79	0	80%	85%	0135	77	0	20%	75%

Moon Effect: WAX CRES	Start: — Stop: —	Land Use: Urban / Agriculture / ~~Forest~~ 43 / Water / Wetland / Barren/ Other (describe):

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
B	ANABAT SD2	V4062g	Tilley ext. stainless	Tilley weatherhead	35.373548	-78.018611	70'
A	"	"	"	"	35.375494	-78.019784	70'

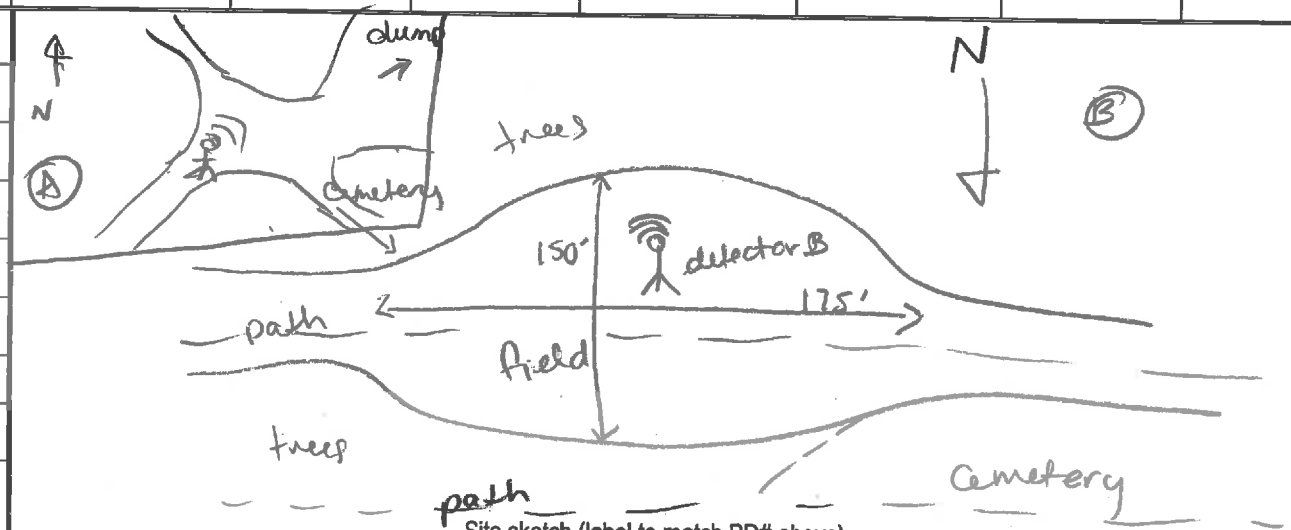
Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
B	yes	0°	45°	12'	~~lo~~ no	6.5	Data 8 Audio: 16	—	✓
A	"	45°	45°	12'	no	6.5		—	✓

Habitat & Site Description:

placed in center of mowed field (approx 150' x 175'). Surrounded by mature forest of mixed pine/hw.

detector (B) ~~Set in Coastal Plain Bottomland Hardwood~~

Remarks: ~~detector (A) set in mowed upland adjacent to~~ detectors set in upland areas



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes:
S+W Community = Coastal Plain Bottomland Hardwood (Brownwater Subtype) = not sites and detectors set in adjacent upland areas that are disturbed/maintained

NCDOT Acoustic Survey Data Form

Project Name: NLEB E. Research	Proj #:	County: Wayne	Site#: 2	Night#: 1	Site Name: Old Waynesboro Parallel to river
Start Date: 8-3-16		End Date: 8-4-16	Start Time: 20:20		End Time: 1:30
Nearest town: Goldboro		Biologists/observers Present: B. Dustin, S. Beavans, N. Mountcastle			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	8:15	79	0	80%	99%	23:50	73	0	Clear	95

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

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4.62g	titley ext stainless	titley weatherhead	35.376673	-78.024319	58
B	"	"	"	"	35.377422	-78.023348	58

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Yes	E	110 / 45	12	LOW	5.6	8+16	–	✓
B	Yes	SW	240 / 45	12	LOW	4.2	8+16	–	✓

Habitat & Site Description:

A is on peninsula of Neuse River
B is in 100x100 mowed field, surrounded by young hardwood/pine forest.

Remarks:

See mist net datasheet map

Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested B

Upland B / bottomland A

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

Mature forest / <20 years old forest or cutover

Clutter A+B
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: A = mic set over the Neuse River

B = Set in clearing surrounded by young mixed forest

S+W Community = ~~Piedmont/Mtn~~ Coastal Plain. Levee Forest

NCDOT Acoustic Survey Data Form

Old Waynesborough Park

Project Name: NLEB eastern research	**Proj #:**	**County:** Wayne	**Site#:** 3	**Night#:** 1	**Site Name:** dump
Start Date: 8/4/16		**End Date:** 8/5/16	**Start Time:** ~~2030~~ 2000		**End Time:** 0230
Nearest town: Goldsboro		**Biologists/observers Present:** H. Wallace, B. Dustin, Ed Corey, N. Mountcastle			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2030	79	2	2	88%	0140	73	Ø	Ø	98%

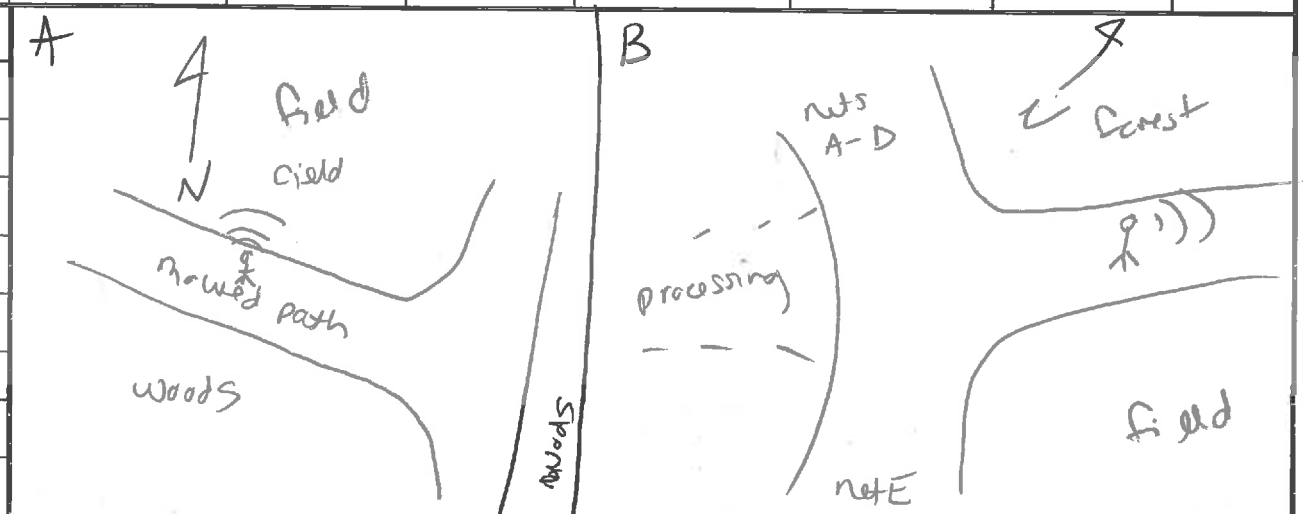
Moon Effect: N/A	Start:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren / Other (describe): 41 51 61
	Stop:	

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062g	Kitty stainless	Kitty weather-head	35.377352	-78.020876	75'
B	ANABAT SD2	V4062g	"	"	35.375731	-78.019589	75'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	Y	46°	45°	12'	med	5.4	8/16	—	Y
B	Y	48°	45°	12'	lo	5.0	8/16	—	Y

Habitat & Site Description: Unit A pointed toward a field with one year's growth. Unit B pointed down a mowed path w/ forest on one side and a 1-2yr field on the right.

Remarks: Detectors set on forest edges



Site sketch (label to match BD# above)

* Weather: record conditions at end of sampling period & at the coldest point of the sampling period.

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
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(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: Am. elm, sugarberry, black cherry, box elder, white ash, red cedar, chinaberry, privet, wisteria, trumpet creeper, Va creeper, microstegium,

field: Solidago sp., verbena, passionflower, solidago altissima,
S+W community = no equivalent; disturbed

NCDOT Acoustic Survey Data Form

Project Name: NLEB Eastern Research	Proj #:	County: Wayne	Site#: 4	Night#: 1	Site Name: Old Waynesboro Red Loop
Start Date: 08/09/2016		End Date: 08/09/2016		Start Time: 2000	End Time: 0140
Nearest town: Goldsboro		Biologists/observers Present: H. Wallace, S. Beavens, N. Mountcastle			

*Conditions:	Time	Temp	Wind	Clouds	Precip/humidity	Time	Temp	Wind	Clouds	Precip/humidity
	2003	82	Ø	10%	89	0110	77	Ø	Ø	100%

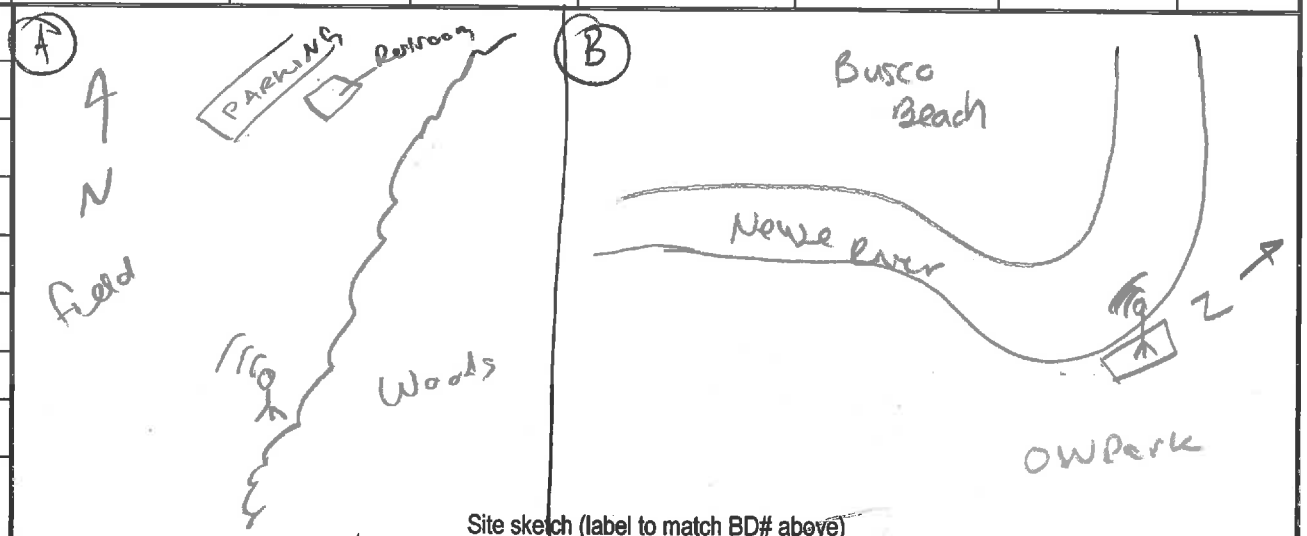
Moon Effect: Way crescent	Start: 2100 Stop:	Land Use: Urban / Agriculture / Forest (41) / Water (51) / Wetland (61) / Barren/ Other (describe):

Bat Detector #	Detector make & model	Firmware	Mic type	Weather-proofing type	Latitude	Longitude	Elevation
A	ANABAT SD2	V4062g	Stainless steel	Tifley weathered	35.371902	-78.016152	56'
B	ANABAS D2	V4062g	"	"	35.370738	-78.017523	56'

Bat Detector #	Functioning of detector verified?	Mic direction (N/S/E/W)	Mic orientation (degree of angle)	Mic height	Clutter** no/lo/med/hi	Sensitivity /gain	Div ratio/trigger	Interval	Photo?
A	yes	313°	45'	12'	no	5.6	8/16	–	yes
B	yes	269°	45'	12'	no	5.7	8/16	–	yes

Habitat & Site Description: B) Set on overlook/platform above river
A) Field edge set at NCDOT acoustic location 1

Remarks:



Site sketch (label to match BD# above)

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

Habitat Info – please **circle** the option that best fits

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

Clutter
(1) sparse/no, < 10% cover (ex: open for 40m in all directions)
(2) low, 10–39% cover (low clutter stands typically contain <6 or >95 year old trees, ex: microphone pointed outward from edge habitat)
(3) medium, 40–75% cover (medium clutter stands typically contain 70–100 year old trees, ex: at least 10-m wide travel corridor, fairly open above)
(4) high, > 75% cover (high clutter stands typically contain 10–25 year old trees, ex: closed canopy & travel corridor < 10-m wide)

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

Habitat Notes: Levee Forest: Cherrybark oak, water hickory, green ash, red maple
S. rotundifolia, prison ivy, River oats, privet, giant cane, carpinus, red mulberry
tulip p-plar, sweetgum, Am elm, winged elm

S+W Community = ~~Piedmont/Mountain~~ Coastal Plain Levee Forest

Appendix B

Acoustic Site Photographs

Bladen Lakes State Forest – Singletary Lake Gate 8

Photo 1 - Acoustic Site 1, Night 1, Detector A

Photo 2 - Acoustic Site 1, Night 1, Detector B

Bladen Lakes State Forest – Tatum Millpond East

Photo 3 - Acoustic Site 2, Night 1, Detector A

Photo 4 - Acoustic Site 2, Night 1, Detector B

Goose Creek Game Lands – Pintail Road

Photo 5 - Site 1, Nights 1, 2, and 3, Detector A

Photo 6 - Site 1, Nights 1, 2 and 3, Detector B

Goose Creek State Game Lands – Parker Tract

Photo 7 - Site 2, Night 1, Detector A

Goose Creek Game Lands – Pintail Road Spur

Photo 8 - Site 3, Nights 1 + 2, Detector A

Photo 9 - Site 3, Nights 1 + 2, Detector B

Holly Shelter Game Lands – Tram Road, Creek and Plow Line

Photo 10 - Site 1, Night 1, Detector A

Holly Shelter Game Lands – Pond

Photo 11 - Site 2, Night 1, Detector B

Holly Shelter Game Lands – Swamp Ridge

Photo 12 - Site 3, Night 1, Detector A

Holly Shelter Game Lands – Bannerman Road Left Gate

Photo 13 - Site 4, Night 1, Detector A

Photo 14 - Site 4, Night 1, Detector B

Holly Shelter Game Lands – Lodge Road Pond

Photo 15 - Site 5, Night 1, Detector 17

Holly Shelter Game Lands – Tram Road

Photo 16 - Site 6, Night 1, Detector 35

Murrayville Mitigation Site – Corbett

Photo 17 - Site 1, Nights 1 & 2, Detector 16

Photo 18 - Site 1, Nights 1 & 2, Detector 35

Murrayville Mitigation Site – Pond

Photo 19 - Site 2, Nights 1 & 2, Detector 23

Photo 20 - Site 2, Nights 1 & 2, Detector 31

Murrayville Mitigation Site – Site 3

Photo 21 - Site 3, Nights 1 and 2, Detector 35

Murrayville Mitigation Site – Site 4

Photo 22 - Site 4, Nights 1 and 2, Detector 16

Murrayville Mitigation Site – Site 5

Photo 23 - Site 5, Nights 1 and 2, Detector 16

Neuse River Game Lands – Duck Creek Road

Photo 24 - Site 1, Night 1, Detector A

Neuse River Game Lands – Food Plot, Site 2

Photo 25 - Site 2, Night 1, Detector A

Photo 26 - Site 2, Night 1, Detector B

Neuse River Game Lands – Swamp

Photo 27 - Site 3, Night 1, Detector B

Photo 28 - Site 3, Night 2, Detector B

Neuse River Game Lands – Creek

Photo 29 - Site 4, Night 1, Detector A

Old Waynesborough State Park – Cemetery

Photo 30 - Site 1, Night 1, Detector A

Photo 31 - Site 1, Night 1, Detector B

Old Waynesborough State Park – Parallel to River

Photo 32 - Site 2, Night 1, Detector A

Photo 33 - Site 2, Night 1, Detector B

Old Waynesborough State Park – Dump

Photo 34 - Site 3, Night 1, Detector A

Photo 35 - Site 3, Night 1, Detector B

Old Waynesborough State Park – Red Loop

Photo 36 - Site 4, Night 1, Detector A

Photo 37 - Site 4, Night 1, Detector B

Appendix C

Representative Sonograms and Call Parameters

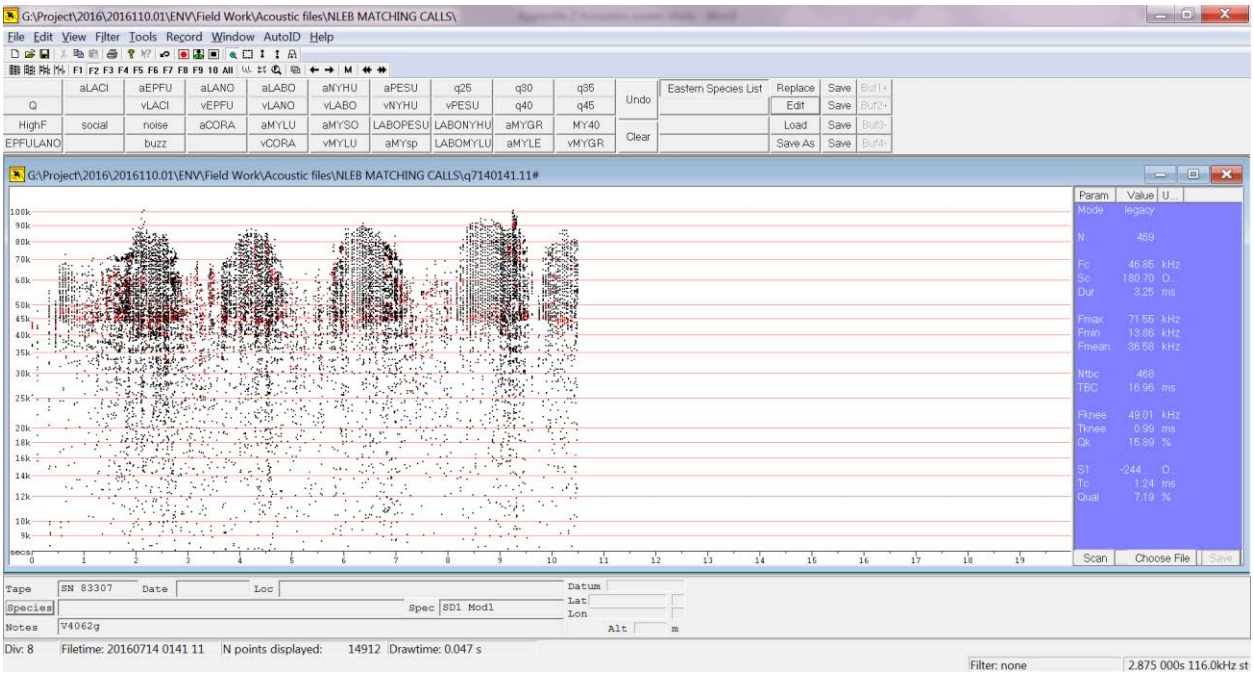
Table 1. Autoclassifier or Qualitatively Identified MYSE Call Files – 2016

Location	Site No.	Night	File Name	Date	EchoClass Species ID	BCID Species ID	Qualitative Species ID by Wallace	Rationale for Qualitative ID - Wallace	Qualitative Species ID by Dustin	Rationale for Qualitative ID - Dustin	Qualitative Species ID by Rockey	Rationale for Qualitative ID - Rockey
Goose Creek Game Lands	2 -Parker Tract	1	Q7140141.11	07/13/16	MYSE	MYSE	Lasiurus	"bouncy" frequency of pulses	LABO	Looks like a LABO call at start and moves in to an approach call.	Lasiurus at the start	after that… I'm as likely to call that noise as a bat. It may be something going from approach to feeding to approach to feeding, but the quality is poor, and the slope is extremely steep
Neuse River Game Lands	2 – Food Plot	1	Q8162134.36	08/16/16	MYSE	MYSE	Myotis	Poor quality call; could be MYAU	MYAU	Possibly MYAU; due to the change in "hi f"	Myotis	search phase call
Neuse River Game Lands	2 – Food Plot	1	Q8170035.17	08/16/16	MYSE	MYSE	Myotis	Search phase call in clutter; "toe" on some pulses indicative of Myotis rather than Lasiurus	LABO	The gestalt of the call appears to fall in line with a LABO	Lasiurus	
Neuse River Game Lands	2 – Food Plot	1	Q8162133.04	08/16/16	MYSE	No ID	MYAU	Search phase call in clutter; well-defined downward tail	Myotis	Call characteristics of both MYAU and MYSE	MYAU	pulse shape and drop-down
Neuse River Game Lands	2 – Food Plot	1	Q8162137.24	08/16/16	MYSE	No ID	Possible PESU	Low quality. Only four pulses, so not a lengthy call sequence, and pulses seem incomplete.	LABO	Poor quality, limited pulses, slightly "bouncy"	lean towards Lasiurus	Possible approach phase call; too low of quality to make a solid ID
Neuse River Game Lands	2 – Food Plot	1	Q8162137.30	08/16/16	MYSE	No ID	noise	Doesn't look like a bat call; noise	Noise	Too low frequency; after the filter was applied it removed all "calls"	Lasiurus or PESU	Low quality approach phase call

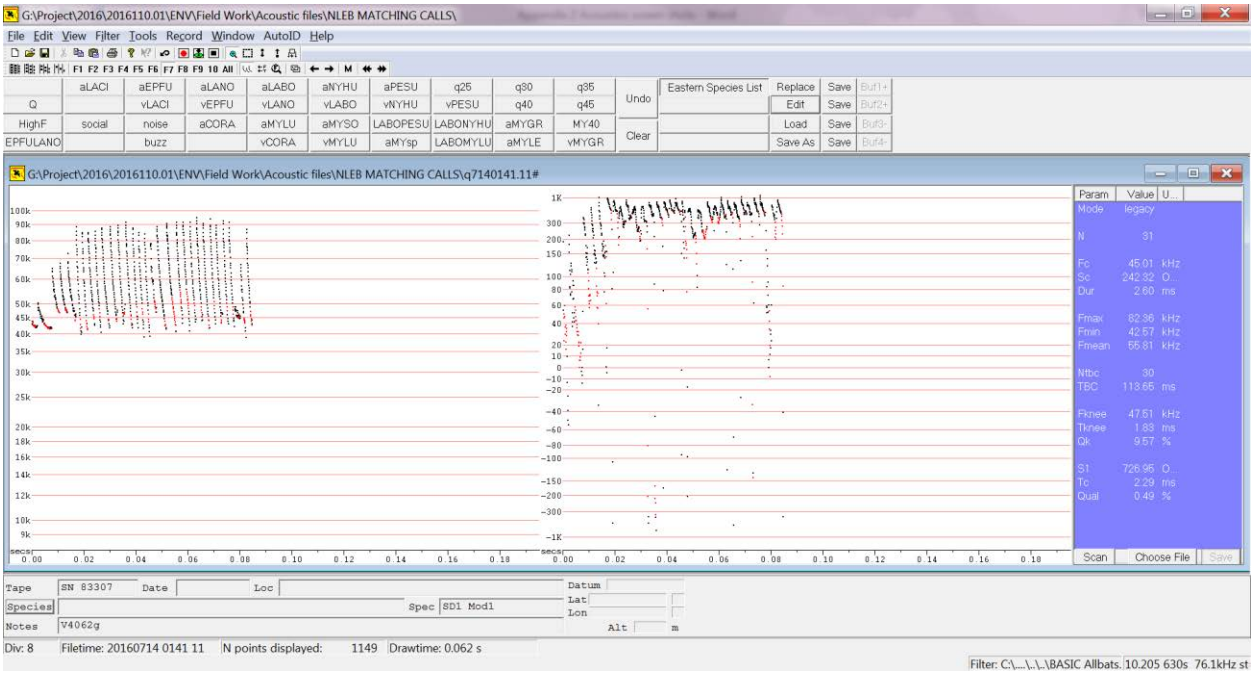
Representative Sonograms and Call Parameters – Goose Creek Game Lands

Rationale: CALYX (Wallace): "bouncy" frequency indicative of Lasiurus sp. CALYX (Dustin): Looks like a LABO call at start and moves into an approach call. .CEC: Lasiurus at beginning, and it may be a bat moving from approach to feeding, but the quality is poor and slope is extremely steep.

Site 2, Night 1, File Q7140141.11 – Echo ID: MYSE, BCID: MYSE, CALYX ID (Wallace): Lasiurus, CALYX ID (Dustin): LABO, CEC ID: Lasiurus



Typical frequency only view of pulses – F2, uncompressed, unfiltered



Frequency and slope view of all filtered pulses – F7, compressed, filtered with “Basic Allbats”

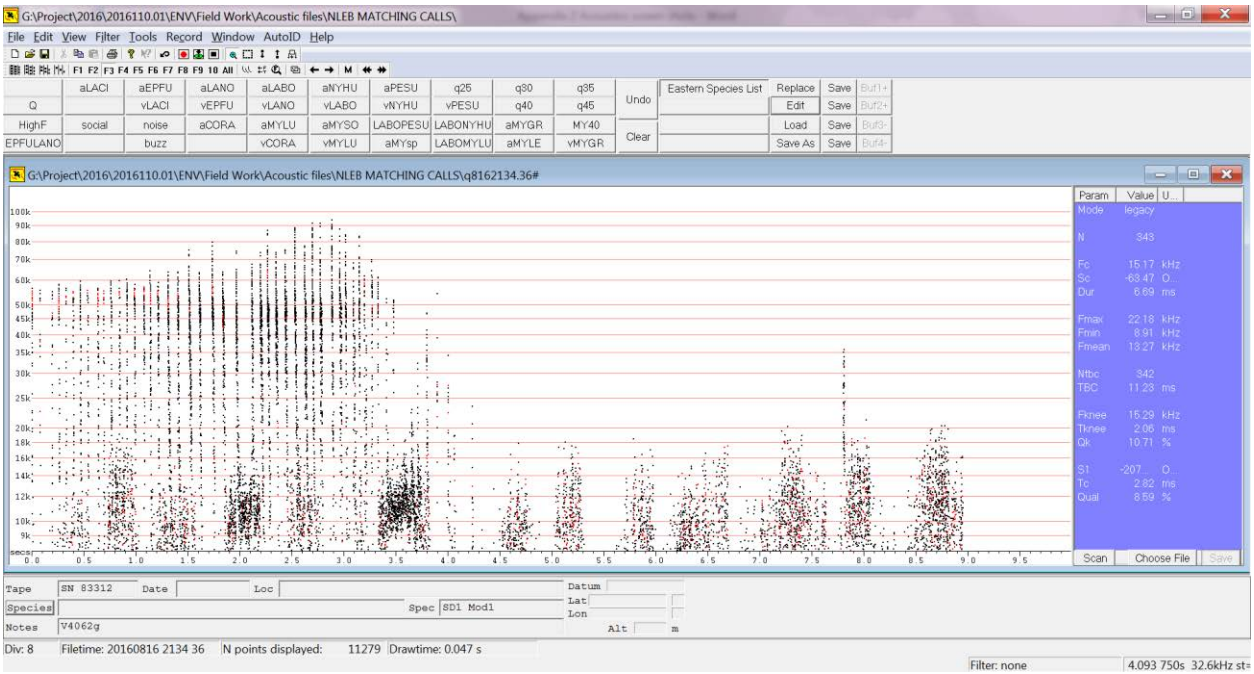
Filename	st	Dur	TBC	Fmax	Fmin	Fmean	Tk	Fk	Qk	Tc	Fc	Dc	S1	Sc	Qual	Pmc
q7140141.11#	0	2.07	0	43.96	41.88	42.59	0.28	43.96	0.31	1.5	41.88	1.22	330.15	57.03	0.42	4.9
q7140141.11#	127	5.38	454.08	50.31	41.45	43.83	2.35	43.24	3.82	4.71	41.45	2.37	286.73	25.82	0.38	21.4
q7140141.11#	199	2.84	82.36	65.04	46.78	52.2	1.99	48.48	6.63	2.84	46.78	0.84	413.75	61.2	0.6	39
q7140141.11#	276	2.88	60.42	67.8	46.78	52.8	2.12	47.9	7.68	2.79	46.78	0.67	593.77	50.74	0.55	44.9
q7140141.11#	349	3.19	52.1	72.73	44.2	52.58	2.67	45.98	9.18	2.85	44.44	0.18	1483.42	271.72	0.88	63.6
q7140141.11#	2624	2.13	1405.91	88.89	40	54.43	1.55	44.69	12.67	1.74	41.67	0.19	1006.51	526.81	0.65	113.3
q7140141.11#	9874	2.15	3989.18	85.11	41.24	55.76	1.68	44.2	11.98	2.15	41.24	0.47	528.69	210.67	0.66	106.4
q7140141.11#	9988	2.6	111.1	85.11	42.78	58.44	2.24	46.24	8.24	2.41	44.94	0.18	457.78	230.93	0.48	89.4
q7140141.11#	10036	2.35	37.59	86.02	40.61	56.19	1.7	48.19	9.34	1.87	45.45	0.18	934.77	479.5	0.4	89.2
q7140141.11#	10083	3.14	58.95	87.91	41.88	57.31	2.59	44.69	10.97	2.86	43.24	0.27	497.81	173.6	0.47	103.3
q7140141.11#	10143	2.88	54.98	88.89	43.96	58.43	2.44	44.69	12.46	2.71	44.94	0.27	417.13	-30.05	0.43	97.8
q7140141.11#	10205	2.78	42.84	89.89	43.24	57.47	2.36	46.51	16.88	2.62	46.51	0.26	696.98	0	0.44	93.3
q7140141.11#	10277	2.6	24.17	91.95	41.88	58.39	2.05	46.24	11.57	2.32	43.48	0.27	728.66	326.96	0.39	111.5
q7140141.11#	10389	2.07	56.66	87.91	41.88	57.94	1.53	49.08	8.39	1.7	45.71	0.17	737.35	585.62	0.42	92.3
q7140141.11#	10550	2.09	74.51	85.11	39.22	55.58	1.43	48.19	9.27	1.6	46.51	0.17	953.27	297.82	0.59	83
q7140141.11#	10758	2.1	119.56	84.21	39.41	55.26	1.52	46.51	8.15	1.71	43.72	0.18	915.39	488.72	0.32	92.6
q7140141.11#	12756	2.43	1669.11	78.43	47.06	57.64	1.53	50.96	5.55	2.18	47.06	0.65	-137.99	176.3	0.94	66.7
q7140141.11#	12816	3.6	73.06	88.89	41.45	56.67	3.04	43.96	14.09	3.41	43.01	0.37	689.32	83.86	0.5	106.7
q7140141.11#	12887	3.72	61.69	90.91	40.82	58.13	2.15	52.29	11.98	3.62	41.03	1.47	517.16	237.89	0.39	121.6
q7140141.11#	12980	2.44	46.39	91.95	43.48	60.68	1.45	55.56	9.58	2	49.08	0.55	803.2	328.08	0.32	87.4
q7140141.11#	13052	2.72	56.2	91.95	41.03	60.36	1.54	54.79	8.32	2.17	48.48	0.63	445.41	281.94	0.38	89.7
q7140141.11#	13115	2.29	43.19	91.95	43.72	59.49	1.68	50.31	10.41	1.84	47.9	0.17	1063.25	424.08	0.47	92
q7140141.11#	13164	2.4	51.4	95.24	44.2	61.54	1.88	49.08	9.62	2.05	46.78	0.17	861.77	404.24	0.37	103.6
q7140141.11#	13216	2.65	37.06	90.91	41.67	57.45	2.17	44.44	12.1	2.46	41.67	0.28	747.24	330.18	0.31	118.2
q7140141.11#	13274	2.1	52.23	94.12	43.24	60.87	1.58	50.96	9.93	1.74	48.19	0.17	1474.28	484.45	0.3	95.3
q7140141.11#	13326	2.56	57.28	89.89	43.48	57.81	2.03	44.44	14.54	2.3	46.51	0.27	696.98	-247.5	0.42	93.3
q7140141.11#	13489	2.01	104.25	93.02	43.24	59.76	1.48	50.31	10.42	1.65	47.62	0.17	1057.58	472.82	0.31	95.3
q7140141.11#	13589	2.04	68.52	91.95	42.33	58.74	1.5	49.08	10.61	1.67	46.51	0.17	1409.81	450.79	0.38	97.7
q7140141.11#	15373	2.16	805.73	49.08	44.94	46.25	1.28	45.2	2.38	1.63	46.51	0.35	317	-118.45	0.89	5.5
q7140141.11#	15873	2.03	366.37	67.23	39.02	49.19	1.27	45.2	7.9	1.73	43.48	0.45	615.92	123.25	0.73	54.6
q7140141.11#	15968	2.2	86.26	86.96	42.78	56.39	1.57	47.34	11.8	2.02	42.78	0.45	992.42	323.04	0.44	103.3

Parameters of all filtered pulses

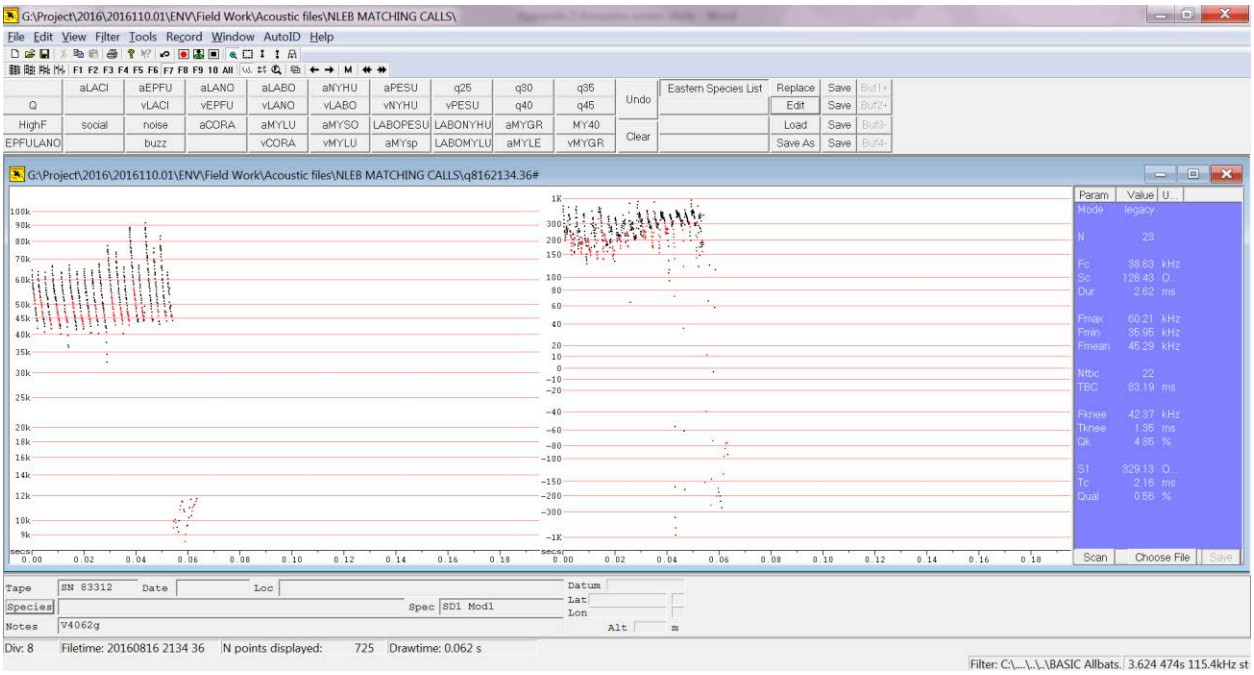
Representative Sonograms and Call Parameters – Neuse River Game Lands

Rationale: CALYX (Wallace): poor quality call that appears to be a Myotis search phase call. Could be MYAU CALYX (Dustin): Possibly MYAU; due to the change in "hi f"

Site 2, Night 1, File Q8162134.36 – Echo ID: MYSE, BCID: MYSE, CALYX ID (Wallace): Myotis, CALYX ID (Dustin): MYAU, CEC ID: Myotis



Typical frequency only view of pulses – F3, uncompressed, unfiltered



Frequency and slope view of all filtered pulses – F7, compressed, filtered with "Basic Allbats"

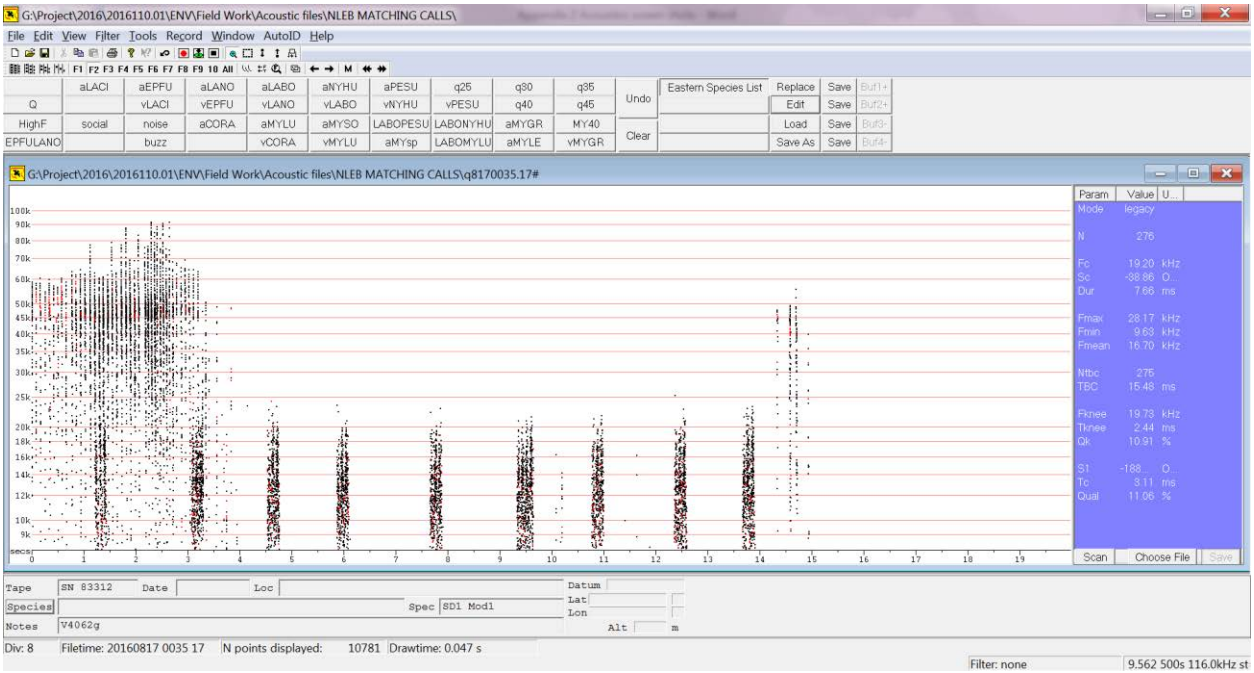
Filename	st	Dur	TBC	Fmax	Fmin	Fmean	Tk	Fk	Qk	Tc	Fc	Dc	S1	Sc	Qual	Pmc
q8162134.36#	660	2.34	0	8.94	6.62	6.83	0	8.94	0	1.14	7.05	1.14	362.55	301.97	1.52	26.8
q8162134.36#	1886	2.11	621.16	64.52	41.88	51.09	0.85	52.98	3.33	1.32	49.08	0.47	715.68	234.23	0.41	31.5
q8162134.36#	2304	2.7	171.97	64	40.82	50.31	0.91	52.98	3.63	2.06	45.45	1.14	534.62	193.71	0.47	40.8
q8162134.36#	2579	2.48	83.28	8.36	7.31	8.05	0	7.31	0	1.04	7.72	1.04	-147.46	-77.13	1.17	8.3
q8162134.36#	2599	2.58	9.05	63.49	41.67	49.59	1.84	45.45	5.33	2.58	41.67	0.74	693.66	170.1	0.64	52.4
q8162134.36#	2935	3.34	110.17	66.67	40.2	50.36	1.65	50.31	5.93	2.95	43.01	1.3	435.07	173.66	0.29	55
q8162134.36#	3227	2.78	99.16	63.49	36.53	48.85	1.57	46.78	5.14	2.36	43.72	0.8	375.61	122.62	0.56	45.2
q8162134.36#	3461	2.99	124.23	67.23	41.45	50.77	1.11	52.63	5.09	2.16	45.98	1.05	588.85	185.03	0.33	46.2
q8162134.36#	3692	2.74	99.79	64	41.67	49.64	1.65	46.24	5.41	2.64	41.88	1	422.17	142.94	0.51	52.8
q8162134.36#	4126	2.77	128.74	65.04	40.61	50.47	1.85	46.78	4.62	2.48	43.48	0.63	369.36	168.6	0.44	49.6
q8162134.36#	4643	2.52	150.56	64.52	40.4	50.73	1.37	50	3.92	2.14	44.69	0.77	442.1	209.16	0.79	44.4
q8162134.36#	4942	3.23	82.05	67.8	32.65	49.58	1.95	47.06	3.49	2.3	44.69	0.35	333.86	211.43	0.48	51.7
q8162134.36#	5229	3	69.43	77.67	43.01	55.93	1.58	53.69	7.16	3	43.01	1.43	390.75	224.24	0.35	80.6
q8162134.36#	5469	2.84	79.37	74.07	40.4	53.5	1.77	49.08	7.98	2.74	43.48	0.96	602.89	181.74	0.5	70.4
q8162134.36#	5740	2.25	90.33	66.12	43.01	51.58	1.45	47.62	5.01	2.25	43.01	0.8	483.58	184.24	0.34	53.7
q8162134.36#	6073	3.38	92	88.89	43.96	59.1	1.66	56.74	8.12	2.76	46.51	1.1	417.13	260.89	0.35	91.1
q8162134.36#	6473	2.4	96.89	67.23	44.2	51.75	1.36	48.19	4.89	1.97	44.2	0.61	440.97	203.93	0.4	52.1
q8162134.36#	6784	3.08	71.9	91.95	44.2	61.06	2.63	45.98	9.89	2.99	44.2	0.36	597.17	158.5	0.48	108
q8162134.36#	7073	2.33	74.19	76.19	43.24	54.98	1.7	48.19	3.67	2.05	43.96	0.35	-766.83	378.22	0.57	73.3
q8162134.36#	7337	2.5	113.5	83.33	44.2	57.55	1.9	47.9	10.79	2.32	47.34	0.42	985.81	40.6	0.69	76
q8162134.36#	7720	2	133	63.49	44.44	51.92	1.56	46.24	3.83	1.82	46.51	0.26	366.45	-32.29	0.9	36.5
q8162134.36#	8790	2.03	437.54	10.08	9.23	9.86	0	9.46	0	1.16	9.88	1.16	-203.6	-53.99	0.76	2
q8162134.36#	9026	2.16	80.94	11.58	10.01	11.11	0.36	10.85	2.87	1.05	11.58	0.69	-320.14	-134.56	1.32	0
q8162134.36#	9264	2.29	81.69	11.75	8.57	10.46	0	8.57	0	0.83	9.6	0.83	-197.04	-196.35	0.9	22.3
q8162134.36#	9276	2.11	4.95	11.78	10.38	11.37	0.37	10.75	1.46	1.78	11.54	1.41	-138.25	-72.81	0.36	2.1
q8162134.36#	12330	2.01	2736.53	6.02	4.92	5.97	0	6.02	0	1.52	5.28	1.52	-277.62	124.57	0.62	14
q8162134.36#	12516	2.34	113.17	6.94	4.98	5.12	0	6.94	0	1.5	5.32	1.5	303.21	255.29	1.41	30.5

Parameters of all filtered pulses

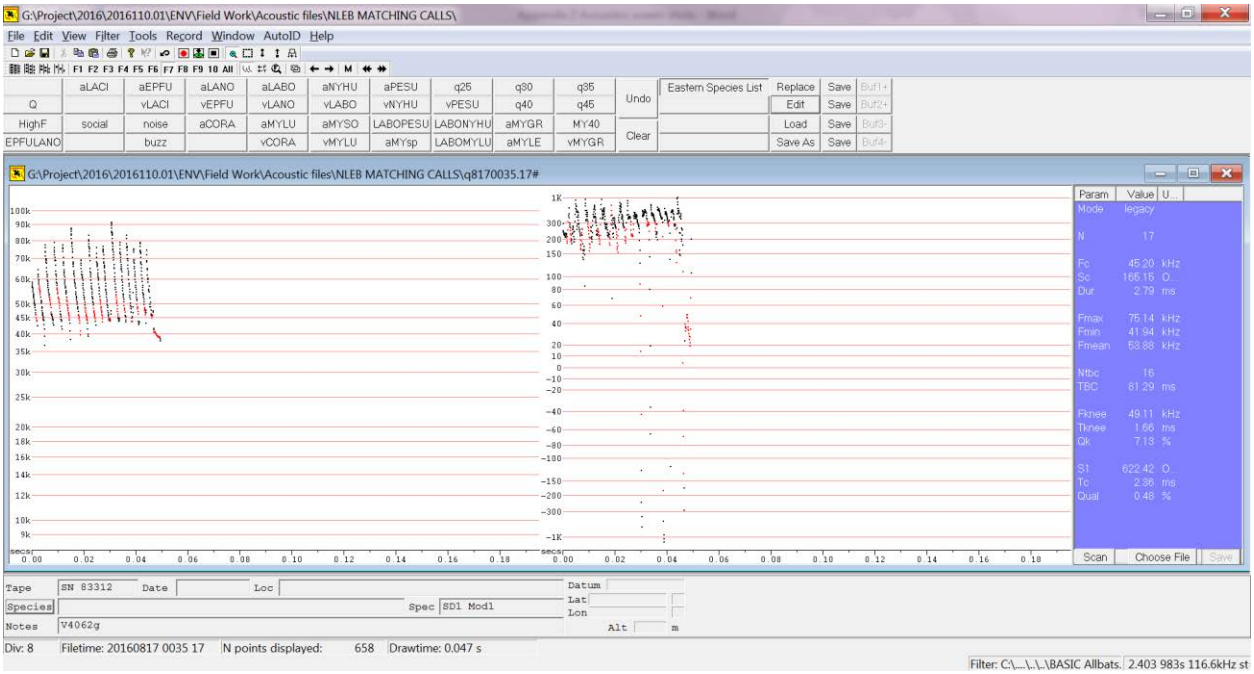
Representative Sonograms and Call Parameters – Neuse River Game Lands

Rationale: CALYX (Wallace): search phase call in clutter with "toe" on some pulses indicative of Myotis rather than Lasiurus. CALYX (Dustin): The gestalt of the call appears to fall in line with a LABO

Site 2, Night 1, File Q8170035.17 – Echo ID: MYSE, BCID: MYSE, CALYX ID (Wallace): Myotis, CALYX ID (Dustin): CEC ID: Lasiurus



Typical frequency only view of pulses – F2, uncompressed, unfiltered



Frequency and slope view of all filtered pulses – F7, compressed, filtered with "Basic Allbats"

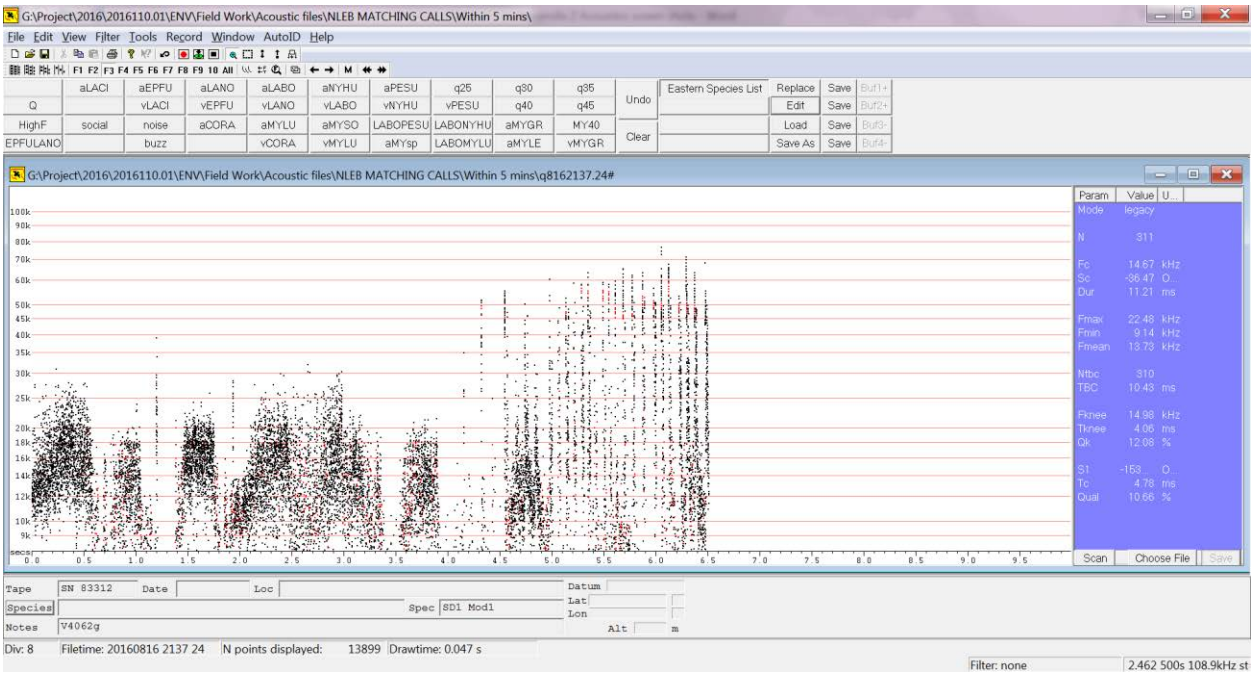
Filename	st	Dur	TBC	Fmax	Fmin	Fmean	Tk	Fk	Qk	Tc	Fc	Dc	S1	Sc	Qual	Pmc
q8170035.17#	0	2.01	0	58.82	42.55	49.73	1.47	46.24	1.91	1.92	43.96	0.45	300.88	164.42	0.26	33.8
q8170035.17#	795	2.72	932.15	64.52	36.87	49.96	0.54	57.14	2.4	1.05	52.63	0.52	715.68	230.38	0.38	22.6
q8170035.17#	1059	3.38	182.91	77.67	42.78	54.37	1.68	52.63	6.61	2.4	47.06	0.72	633.21	223.94	0.51	65
q8170035.17#	2219	2.03	301.12	11.75	5.52	5.92	0	11.75	0	1.15	6.93	1.15	714.07	659.37	2.23	69.5
q8170035.17#	2256	2.06	18.82	6.34	5.37	5.83	0	6.34	0	1.45	5.53	1.45	-1680.8	136.39	0.85	14.7
q8170035.17#	2487	3.07	101.7	79.21	41.45	54.67	1.17	56.34	8.21	2.17	48.48	1	1057.25	216.14	0.49	63.4
q8170035.17#	2847	3.04	179.91	77.67	38.46	54	1.64	51.61	9.33	2.65	45.2	1.01	533.56	190.34	0.44	71.8
q8170035.17#	3039	3.61	89.01	87.91	39.8	57.59	2.87	46.24	11.49	3.41	43.48	0.54	440.15	165.61	0.47	102.2
q8170035.17#	3262	2.94	78.99	69.57	39.41	51.74	1.67	48.78	5.25	2.54	44.2	0.87	350.76	162.99	0.43	57.4
q8170035.17#	3667	2.77	164.07	83.33	42.78	56.34	1.98	48.48	11.18	2.58	44.94	0.61	887.88	180.25	0.44	85.4
q8170035.17#	3863	2.47	125.26	76.19	43.72	55.11	1.37	51.61	7.93	2.47	43.72	1.09	1220.26	218.99	0.39	74.3
q8170035.17#	4097	3.1	55.75	76.92	43.96	54.14	2.49	44.2	8.93	2.75	43.96	0.27	518.51	29.66	0.41	75
q8170035.17#	4331	3.18	62.27	91.95	43.96	60.32	1.83	53.69	8.06	2.65	45.71	0.81	528.66	284.71	0.47	101.1
q8170035.17#	4569	2.49	66.26	79.21	43.72	56.27	1.71	49.38	6.76	2.04	47.06	0.34	683.06	206.97	0.31	68.3
q8170035.17#	4806	2.66	45.36	83.33	43.72	57.23	2.16	43.96	8.56	2.34	43.96	0.18	636.86	0	0.69	89.6
q8170035.17#	4945	2.26	60.03	75.47	43.01	54.82	1.47	50	6.21	1.89	46.51	0.42	695.68	248.42	0.58	62.3
q8170035.17#	5103	2.47	59.06	79.21	43.48	56.59	1.78	48.78	7.58	2.21	46.24	0.42	526.93	181.36	0.57	71.3
q8170035.17#	5422	2.62	119.44	74.77	45.2	53.35	2.11	45.2	11.35	2.46	45.71	0.35	1004.43	-47.11	1.12	63.6
q8170035.17#	12303	2.62	12058.61	41.67	38.1	39.69	0.2	40.61	0.88	2.41	39.22	2.21	-152.55	22.76	0.29	6.3

Parameters of all filtered pulses

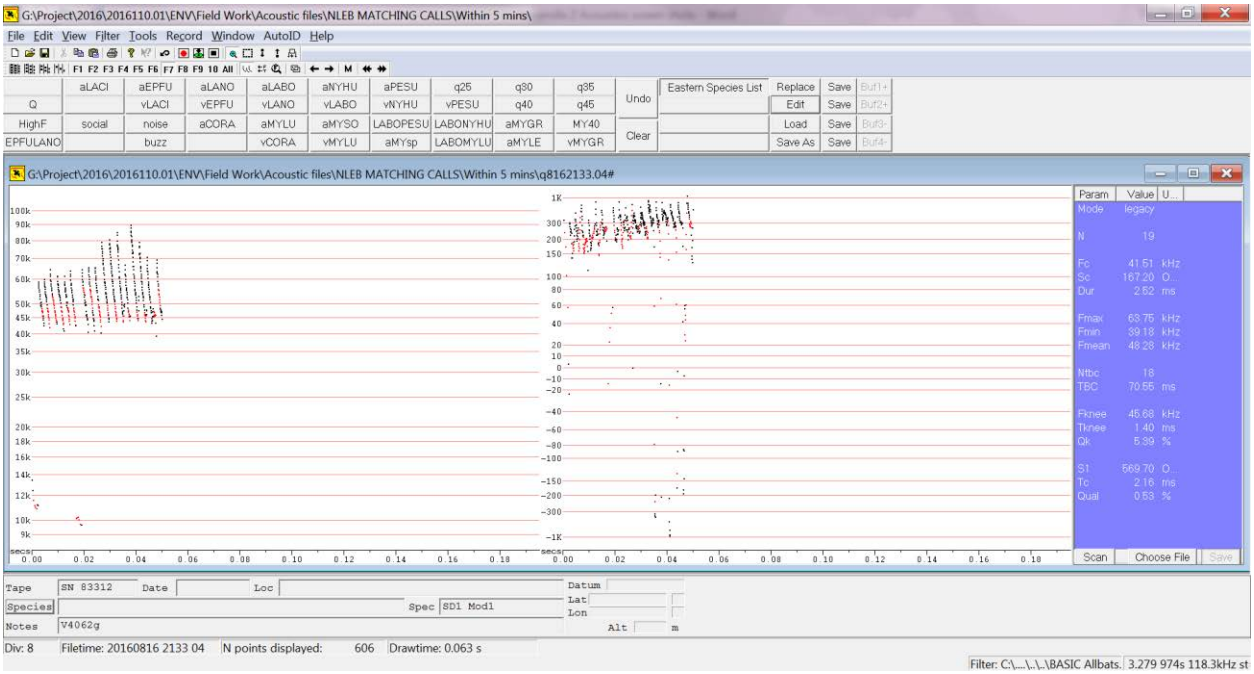
Representative Sonograms and Call Parameters – Neuse River Game Lands

Rationale: CALYX (Wallace): search phase call in clutter with well-defined downward tail. CALYX (Dustin): Call characteristics of both MYAU and MYSE, CEC: pulse shape and drop-down.

Site X, Night X, File Q8162133.04– Echo ID: MYSE, BCID: No ID, CALYX ID (Wallace): MYAU, CALYX ID (Dustin): Myotis, CEC ID: MYAU



Typical frequency only view of pulses – F3, uncompressed, unfiltered



Frequency and slope view of all filtered pulses – F7, compressed, filtered with “Basic Allbats”

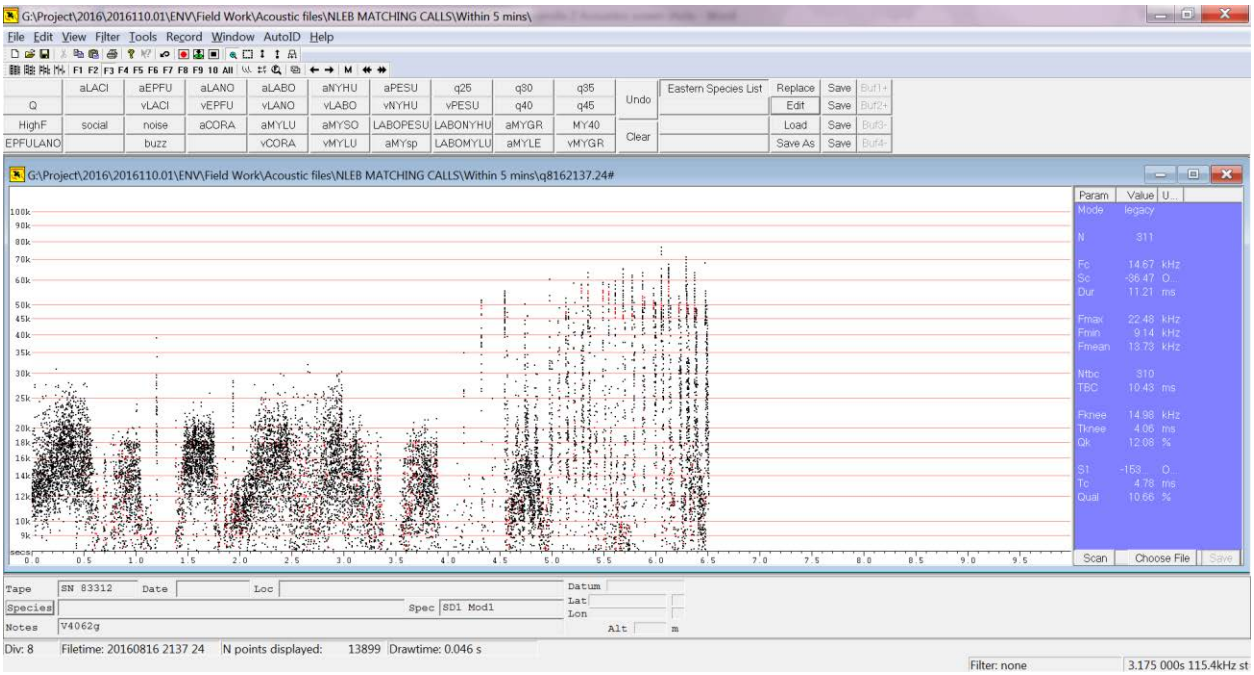
Filename	st	Dur	TBC	Fmax	Fmin	Fmean	Tk	Fk	Qk	Tc	Fc	Dc	S1	Sc	Qual	Pmc
q8162133.04#	1718	2.49	0	13.47	10.91	11.23	0.69	11.61	6	1.78	10.91	1.09	334.94	82.16	0.89	23.4
q8162133.04#	4666	2.08	1150.43	6.45	5.08	5.77	0	6.45	0	1.46	5.48	1.46	-11607.29	161.39	1.12	17.7
q8162133.04#	4734	2.19	29.99	58.82	42.55	49.43	1.3	48.19	2.23	1.73	45.71	0.43	305.24	177.97	0.49	28.7
q8162133.04#	4968	2.09	104.71	60.15	41.88	49.71	1.13	48.48	1.92	2.09	41.88	0.97	473.24	218.31	0.31	43.6
q8162133.04#	5201	2.6	66.52	64.52	43.24	50.83	0.84	53.33	4.67	2.41	43.72	1.57	727.04	182.73	0.4	47.6
q8162133.04#	5538	2.56	73.13	61.54	41.03	49.9	1.41	49.08	2.67	2.37	43.01	0.96	422.34	197.75	0.47	43.1
q8162133.04#	5980	2.08	103.94	61.54	43.01	50.07	1.29	48.19	3.69	2.08	43.01	0.79	929.93	207.75	0.77	43.1
q8162133.04#	6494	2.12	124.83	64	42.55	50.85	1.33	48.48	3.44	2.03	42.78	0.7	534.62	256.13	0.42	49.6
q8162133.04#	6849	2.36	105.89	64.52	40.61	50.78	0.47	56.34	2.9	0.92	52.63	0.44	538.88	221.63	0.71	22.6
q8162133.04#	7139	2.34	97.49	65.57	41.03	51.37	0.6	55.94	2.93	1.52	48.48	0.92	421.41	224.65	0.32	35.2
q8162133.04#	7399	2.42	99.29	65.57	40.4	51.32	1.36	49.69	3.37	2.31	42.33	0.96	359.33	241.22	0.44	54.9
q8162133.04#	7641	2.98	63.47	79.21	43.72	57.8	2.28	49.38	4.62	2.62	46.24	0.34	336.76	278.76	0.45	71.3
q8162133.04#	7886	2.09	66.18	6.62	5.17	5.74	0	6.62	0	1.4	5.73	1.4	-8891.52	149.48	0.39	15.6
q8162133.04#	7904	2.98	3.55	80.81	43.96	57.68	2.2	50	7.26	2.89	44.69	0.69	828.25	234.28	0.34	80.8
q8162133.04#	8625	2.89	147.12	85.11	43.72	56.79	2.39	44.2	12.68	2.57	45.71	0.17	892.67	-277.91	0.58	86.2
q8162133.04#	8965	2.01	72.99	66.67	44.2	51.77	1.31	47.62	5.06	1.83	44.2	0.52	739.15	205.21	0.54	50.8
q8162133.04#	9379	3.2	97.27	89.89	44.2	60.08	2.43	47.06	8.1	2.79	44.2	0.36	696.98	254.09	0.55	103.4
q8162133.04#	9639	2.98	68.4	79.21	43.72	54.98	2.11	46.78	10.9	2.64	45.71	0.53	812.08	62.82	0.69	73.3
q8162133.04#	9870	3.53	74.03	70.8	39.41	49.86	2.72	47.34	15.23	3.33	45.98	0.61	722.6	68.84	0.74	54
q8162133.04#	10086	2.04	60.41	69.57	44.69	52.92	0.66	55.94	4.58	1.36	48.48	0.69	708.55	297.05	0.39	43.5
q8162133.04#	15576	2.15	2335.97	9.37	5.79	5.57	0	9.37	0	1.22	6.57	1.22	-774.5	420.53	1.55	42.6

Parameters of all filtered pulses

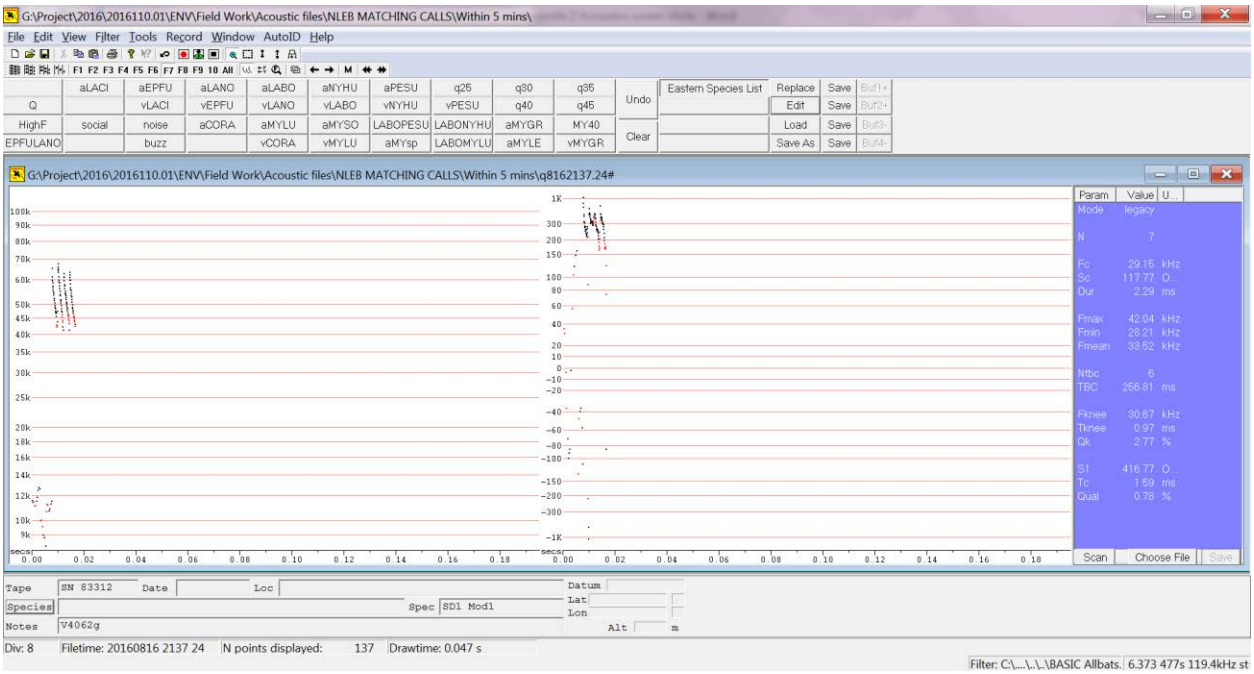
Representative Sonograms and Call Parameters – Neuse River Game Lands

Rationale: CALYX (Wallace): low-quality; only four pulses, so not a lengthy call sequence, and pulses seem incomplete. CALYX (Dustin): Poor quality, limited pulses, slightly "bouncy", CEC: too poor quality to make confident ID

Site 2, Night 1, File Q8162137.24– Echo ID: MYSE, BCID: No ID, CALYX ID (Wallace): possible PESU; CALYX (Dustin): LABO, CEC: possible Lasiurus



Typical frequency only view of pulses – F3, uncompressed, unfiltered



Frequency and slope view of all filtered pulses – F7, compressed, filtered with "Basic Allbats"

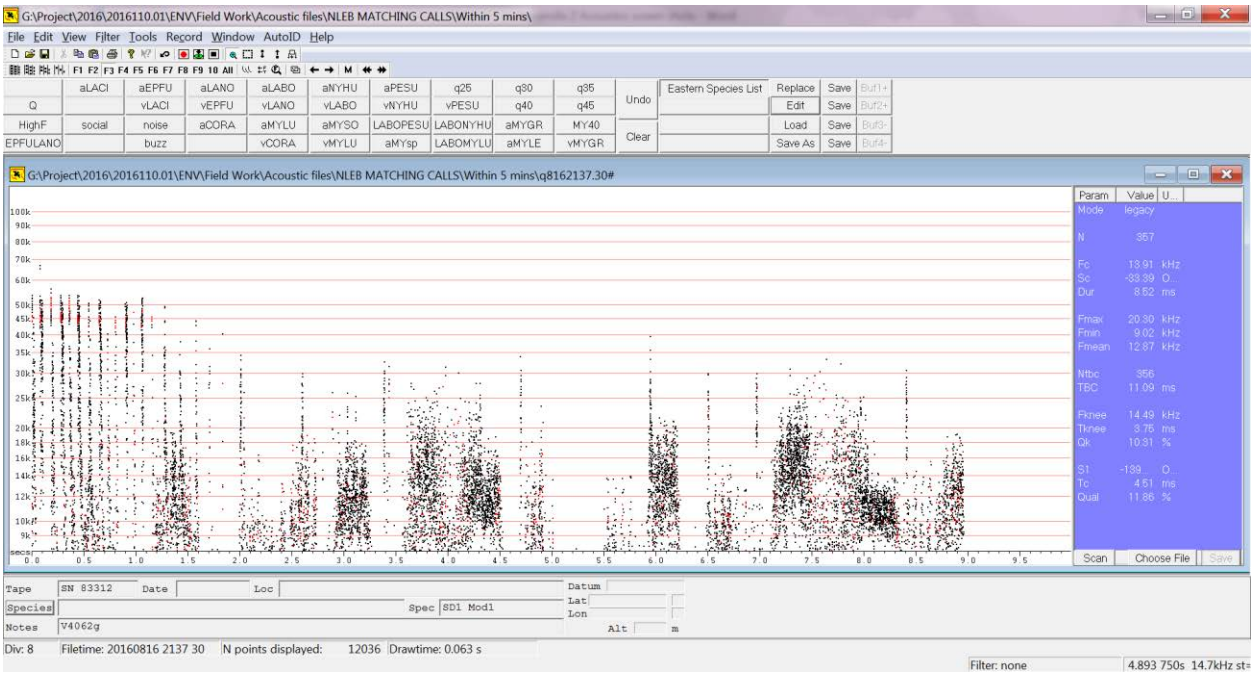
Filename	st	Dur	TBC	Fmax	Fmin	Fmean	Tk	Fk	Qk	Tc	Fc	Dc	S1	Sc	Qual	Pmc
q8162137.24#	27	3.03	0	12.8	11.16	11.9	0.35	11.44	0.02	1.41	11.16	1.06	65.01	34.6	1.06	14.7
q8162137.24#	2213	3.09	598.58	7.91	7.58	7.76	0	7.91	0	2.05	7.87	2.05	34.02	4.16	1.03	0.6
q8162137.24#	2536	2.29	200.12	7.19	6.16	7	0	6.16	0	1.17	6.81	1.17	-208.19	-123.39	1.02	5.5
q8162137.24#	3428	2.73	351.24	7.55	5.48	5.86	0	7.55	0	1.27	6.29	1.27	256.29	206.06	0.92	19.9
q8162137.24#	3442	2.15	9.38	6.53	5.13	5.58	0	5.13	0	1.36	5.87	1.36	-161.63	-141.33	0.7	11.3
q8162137.24#	3672	2.18	244.8	10.06	8.28	9.16	0	10.01	0	0.83	9.58	0.83	127.86	76.14	1.24	5
q8162137.24#	3705	2.34	15.33	9.51	5.08	5.14	0	9.51	0	1.33	6	1.33	498.5	498.5	1.99	58.5
q8162137.24#	5520	2.14	606.63	11.54	10.7	11.23	0	10.7	0	0.71	11.22	0.71	-204.4	-96.96	1.31	2.9
q8162137.24#	10825	2	1849.07	9.03	7.7	7.98	0	9.03	0	0.97	8.28	0.97	129.11	129.11	1.04	9
q8162137.24#	11038	2.4	209.86	7.65	4.53	5	0	7.65	0	1.55	5.17	1.55	472.83	364.96	1.7	47.9
q8162137.24#	14800	2.15	1958.76	65.57	42.33	50.28	1.1	49.69	4.84	1.79	43.01	0.69	1388.34	300.93	0.72	52.5
q8162137.24#	14991	2.08	70.64	67.8	41.24	51.97	1.36	48.48	3.97	1.79	44.44	0.44	593.77	287.92	0.42	52.5
q8162137.24#	15484	2.23	169.94	62.99	41.24	50.27	1.51	47.06	4.17	2.13	43.48	0.62	518.2	183.85	0.35	44.9
q8162137.24#	15799	2.25	77.84	63.49	42.55	49.87	1.52	45.98	5.05	2.15	42.55	0.64	428.57	175.82	0.38	49.2

Parameters of all filtered pulses

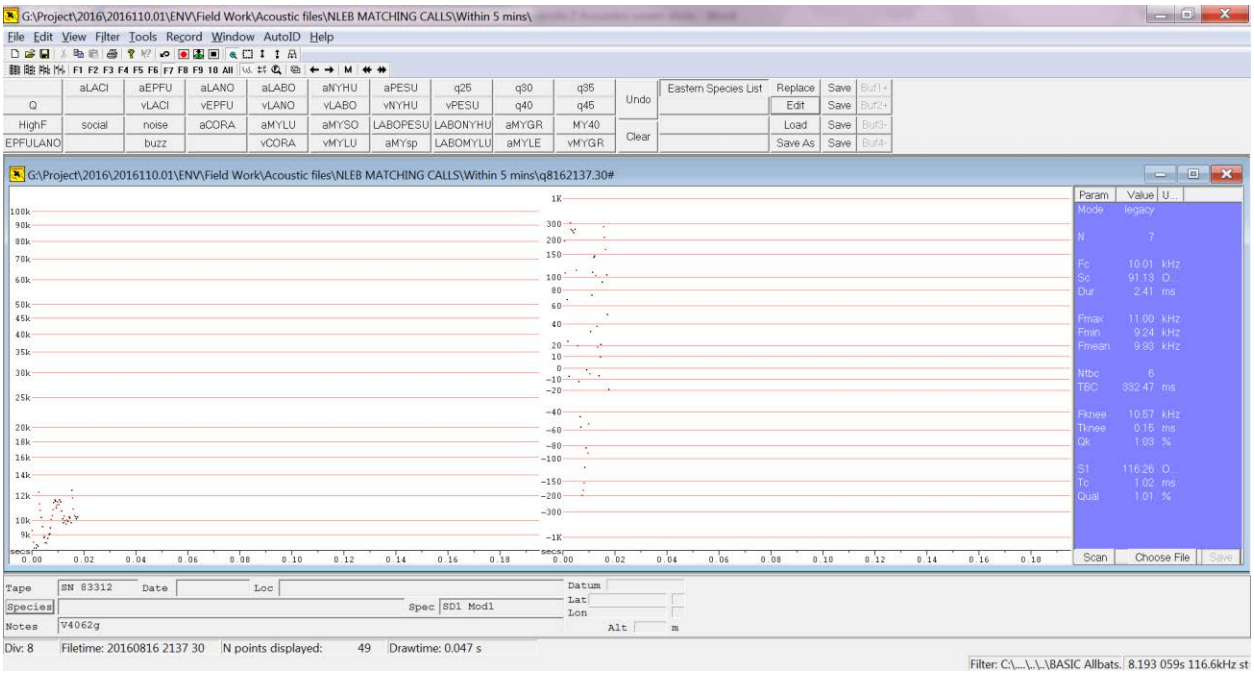
Representative Sonograms and Call Parameters – Neuse River Game Lands

Rationale: CALYX (Wallace): low-quality; only four pulses, so not a lengthy call sequence, and pulses seem incomplete. CALYX (Dustin): Too low frequency; after the filter was applied it removed all "calls", CEC: too poor quality to make confident ID; possible approach phase call

Site 2, Night 1, File Q8162.137.30– Echo ID: MYSE, BCID: No ID, CALYX ID (Wallace): noise, CALYX (Dustin): noise, CEC ID: Lasiurus or PESU



Typical frequency only view of pulses – F3, uncompressed, unfiltered



Frequency and slope view of all filtered pulses – F7, compressed, filtered with "Basic Allbats"

Filename	st	Dur	TBC	Fmax	Fmin	Fmean	Tk	Fk	Qk	Tc	Fc	Dc	S1	Sc	Qual	Pmc
q8162137.30#	1971	2.14	0	10.34	5.42	5.62	0	10.34	0	1.27	6.28	1.27	-5544.56	563.89	2.59	64.5
q8162137.30#	2974	2.53	635.73	9.62	5.58	7.9	0	5.58	0	1.14	7.04	1.14	-294.96	-294.96	0.65	36.5
q8162137.30#	4309	2.93	979.89	9.28	8.06	8.19	0.53	8.52	6.99	1.51	8.15	0.98	234.23	64.35	1.19	13.8
q8162137.30#	4341	2.28	21.65	6.13	5.47	5.26	0	6.13	0	1.44	5.56	1.44	-230.55	98.14	1.14	10.3
q8162137.30#	4940	2.03	321.34	12.35	8.82	9.85	0	12.35	0	0.74	10.81	0.74	361.62	258.83	0.54	14.2
q8162137.30#	7841	2.19	1519.65	9.09	8.48	9.13	0	8.89	0	0.94	8.48	0.94	169.18	71.4	0.88	7.2
q8162137.30#	8842	2.76	334.66	8.33	5.38	5.8	0	8.33	0	1.27	6.3	1.27	317.89	317.89	1.19	32.3
q8162137.30#	9094	2.16	294.34	8.15	5.59	5.57	0	8.15	0	1.25	6.37	1.25	-1348.84	281.99	0.81	27.8
q8162137.30#	9399	2.03	183.52	8.26	5.56	5.91	0	8.26	0	1.31	6.08	1.31	-1326.19	334.98	1.16	35.7
q8162137.30#	11593	2.29	1802.88	7.19	6.41	7	0	6.41	0	1.17	6.82	1.17	-120.04	-76.23	1.46	5.5
q8162137.30#	14519	2.16	1280.98	11.7	9.46	11.11	0.38	10.09	2.93	1.12	10.87	0.74	-243.7	-146.22	0.86	7.6
q8162137.30#	14721	2.94	74.9	11.68	9.85	10.9	0.35	11.22	1.39	1.06	11.28	0.71	-96.57	-11.45	1.41	3.5
q8162137.30#	14820	2.81	37.65	10.34	9.76	9.96	0	10.34	0	1.23	10.03	1.23	115.85	35.96	1.35	3.1
q8162137.30#	14847	2.29	9.81	12.54	10.17	10.48	0.34	11.83	2.9	1.11	10.4	0.77	273.2	241.82	0.83	20.5

Parameters of all filtered pulses

Appendix D

NCDOT Mist-netting and Acoustic Survey Data Forms

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: NLEB Eastern Research	**County:** Bladen	**Site#:** 1	**Night#:** 1	**Site Name:** Bladen Lake SP Singletary Lake Gate 8				**Date:** 7/19/16	
Latitude: 34.57283	**Longitude:** -78.48589			**Datum:** NAD 83	**Elevation:** 31'			**ID By:** H. Wallace	
Observers: H. Wallace, B. Dustin				**Start Time:** ~~2000~~ 2030				**End Time:** 0145	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2030	78	1	0	2358	73	1	2	0115	72	1	4

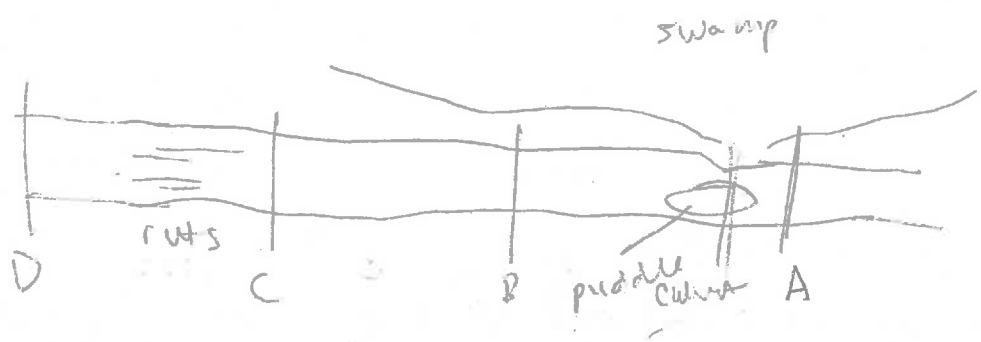
Moon Effect:	**Start:**	**Land Use:** Urban / Agriculture / (Forest) 43 / Water / (Wetland) 61 / Barren *(describe)*:
	Stop:	

NETS/TRAPS:	A: 1x2H-6m	B: 1x2H-6m	C: 1x2H-9m	D: 1x2H-9m	E:	F:
Pool size WxL	N/A ←	→ 4' x 8'	N/A	N/A		
Swoop WxL	N/A	unknown	N/A	N/A		
Photo? or #	Y	Y	Y	Y		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	-78.486641	34.574361	294°	12'	no	5.4	8/16	—	2000	0142	Y
B	-78.485902	34.573712	140°	12'	16	4.7	8/16	—	2000	0157	Y

Site Description: forest road to river
cypress, poplar, red maple, laurel oak, S. laurifolia, S. rotundifolia, carpinus
few loblolly, giant cane, microstegium
SAW: Coastal Plain Bottomland HW

Remarks: light rain @ 0115



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

13 17.5
-8 9.5

Bat Survey Data Form

Project: County: Bladen Site# 1 Night# 1 Site Name: Singletary Lake Gate 8 Date: 7/19/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2038	LASBOR	M	J	NR	39	8	8	C	6	CALYX 0009	
2	2130	MYOAUS	M	J	NR	37	10	9	D	18	CALYX 0010	bicolored; billy nairs dark base, white tip
3	22:10	PER SUB	M	A	NR	36	12	5	B	12	CALYX 0011	
4	22:01	NYCHUM	F	J	NR	38	14	9.5	C	10	CALYX 0012	
5	22:05	LASBOR	F	A	PL	43	10	15	B	8	CALYX 0013	
6	2100	LASBOR	F	—	—	—	—	10	C	—	—	EFN
7	2344	LASBOR	F	A	PL	41	10	14	D	10	CALYX 0014	
8	2355	LASBOR	F	J	NR	42	10	10.5	C	6	CALYX 0015	
9	0010	LASBOR	F	A	R	41	11	9.5	A	6	CALYX 0016	
10	0011	LASSEM	M	J	NR	43	9	9	A	8	CALYX 0017	
11	0040	PERSUB	M	A	NR	39	11	6	D	4	CALYX 0018	
12	0100	PERSUB	F	A	NR	36	12	6	C	6	CALYX 0019	
13	0105	LASBOR	F	A	NR	43	10	10	D	6	CALYX 0020	
14	01:16	PERSUB	M	A	NR	34	15	5.5	A	6	CALYX 0021	
15	01:20	PERSUB	M	A	NR	34	11	6	B	10	CALYX 0022	
16	0135	MYOAUS	F	A	PL	39	12	5	C	8	CALYX 0023	orange
17	0140	—	—	—	—	—	—	—	D	—	—	EFN
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: NLEB E. Research	**County:** Bladen	**Site#:** 2	**Night#:** 1	**Site Name:** Bladen Lakes ~~Tatum Millpond East~~				**Date:** 7-20-16	
Latitude: 34.71071	**Longitude:** -78.52111			**Datum:** NAD 83	**Elevation:** 85			**ID By:** B.D + H.W	
Observers: B. Dustin, H. Wallace, S. Beavans				**Start Time:** 2028				**End Time:** 0115	
Conditions:	**Time** 2028	**Temp** 83	**Wind** 0	**Clouds** 0	**Time** 2343	**Temp** 77	**Wind** 0	**Clouds** 0	**Time** 0115	**Temp** 73	**Wind** 0	**Clouds** 0
Moon Effect: FULL	**Start:** N/A	**Stop:** N/A		**Land Use:** Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: Forestry, Pine plantations 42/43								

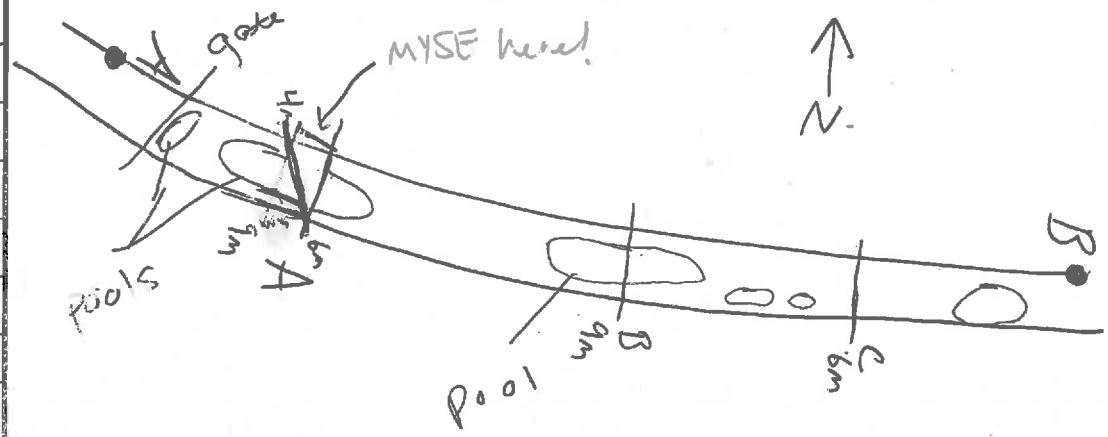
NETS/TRAPS:	**A:** 1x2h-9m + 1x2H-16m	**B:** 1x2H-9m	**C:** 1-2H-6m	**D:**	**E:**	**F:**
Pool size WxL	1-20x15 +1x2H-6m	5x15				
Swoop WxL	UNLIM - 20ft	UNLIM	1-UNLIM			
Photo? or #	Yes	Yes	Yes			

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	-78.516636	34.709718	38°	12	NO	5.4	8/16	—	20:00	0142	Yes
B	-78.521443	34.71083	286°	12	Med		8/16	—	20:00	0157	Yes

Site Description: ~45% unmanaged pine, Loblolly pine, Loblolly bay, wateroak, I. coreacea, red cedar, red maple, cane, clethra, titi, bayberry, smilax,

Bay Forest

Remarks: Net A is 3 nets, arranged in a triangle over a puddle and blocking natural flyways.



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

Bat Survey Data Form

Project: NLEB Eastern Research County: Bladen Site# 2 Night# 1 Site Name: Bladen Lakes Private Road near Tatum Date: 7/20/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:48	LASBOR	F	A	PL	40	10	9	B	10	CALYX 0024	
2	21:16	PESSUB	F	A	PL	34	9	8	A	5	CALYX 0025	
3	21:19	LASBOR	M	A	NR	40	9	9	A	1	CALYX 0026	
4	22:15	LASBOR	F	A	PL	41	11	9.5	A	2	CALYX 0027	
5	2230	NYCHUM	M	A	NR	41	11	9	C	18	CALYX 0028	
6	22:49	LASBOR	M	A	R	39	9	10	C	3	CALYX 0029	
7	23:05	LASBOR	F	A	PL	41	9	13.5	C	10	CALYX 0030	
8	23:07	NYCHUM	M	A	R	37	12	9	A	10	CALYX 0031	
9	2320	LASSEM	M	A	R	43	13	12	A	6	CALYX 0032	
10	2320	PESSUB	F	J	NR	33	—	5	A	8	~~CALYX 0033~~	no band too small
11	~~2320~~ 0020	LASBOR	F	A	PL	~~33~~ 42	12	15	C	10	CALYX 0033	
12	00:38	MYOSEP	M	A	NR	34	13	5	A	6	CALYX 0034	FT-8mm
13	0108	LASBOR										EFN
14												
15												
16												
17												
18												
19												
20												

TEMP

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	**County:**	Beaufort	**Site#:**	1	**Night#:**	1	**Site Name:** (Location)	Goose Creek SP Pintail Rd	**Date:**	7/12/16
Latitude: 35.291888		**Longitude:** -76.648600						**Datum:** NAD83	**Elevation:** 5'	**ID By:** H. Wallace	
Observers: H. Wallace, B. Dustin, S. Beavens, G. Jordan								**Start Time:** 2040		**End Time:** 0145	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2040	76	0	20%	2248	74	0	50%	0145	73	0%	0

Moon Effect: 1st Quarter	**Start:** N/A	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 54 61/62
	Stop: N/A	

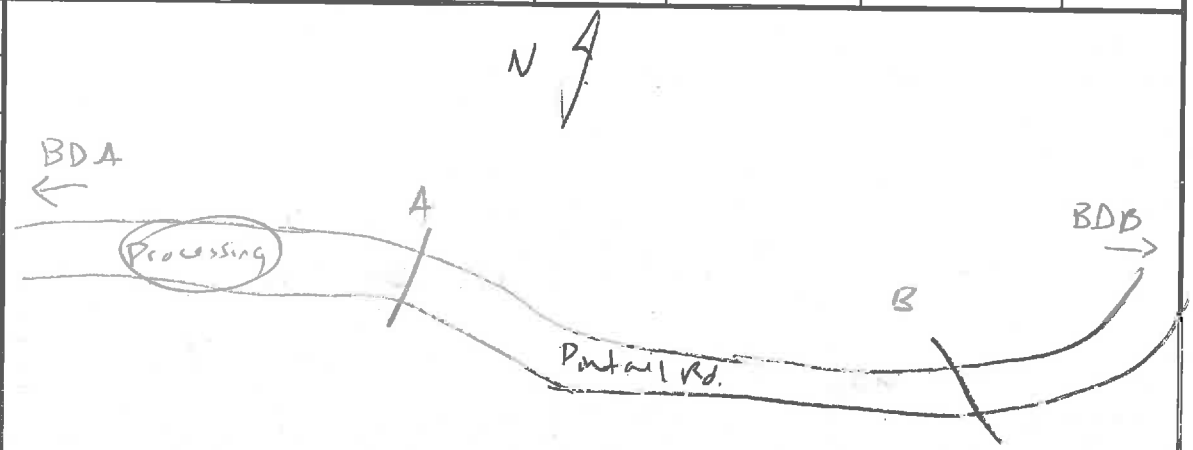
NETS/TRAPS:	A: 1x2H - 12m	B: 1x3H - 18m	C:	D:	E:	F:
Pool size WxL	N/A	N/A				
Swoop WxL	N/A	N/A				
Photo? or #	4x9	4x5				

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.291839	-76.651011	96°	12'	low	6.7	8/16	—	2006	0203	Y
B	35.291668	-76.647178	76°	12'	low	9.2	8/16	—	2001	0156	Y

Site Description: nets set over forest road; mixed pine - hardwood 30yr old. LOTS of bats flying over head at dusk Pintail Road; loblolly, longleaf, sweetgum, poplar, Clethra, bayberry redbay, arundinaria, A. laurifolia, lespedeza,

Remarks:

S-W = West Pine Flatwood



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

~~[illegible]~~ 22 23

Bat Survey Data Form

Page 1 of 1

Project: NLEB Eastern Research County: Beaufort Site# 1 Night# 1 ~~Site~~ Name: Goose Creek GL Date: 7/12/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2223	EPTFUS	F	J	NR	47	14	15	B	15'	CALYX 0001	
2	2240	LASBOR	F	J	NR	42	11	14	B	8	CALYX 0002	
3	21:12	EPTFUS	M	A	R	44	13	15	B	20	CALYX 0003	
4												
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NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	**County:**	Beaufort	**Site#:**	2	**Night#:**	1	**Site Name:**	Grose Creek GL Parker Trace	**Date:**	7/13/16
Latitude: -76.73246		**Longitude:** 35.24762						**Datum:** NAD83	**Elevation:** 10'	**ID By:** H. Wallace	
Observers: H. Wallace, B. Durbin, S. Beavans								**Start Time:** 2040		**End Time:** 0140	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2030	86	Ø	Ø	2252	83	Ø	5%	0135	81	Ø	Ø

Moon Effect: 1st quarter — Start: N/A; Stop: N/A

Land Use: Urban / Agriculture (2) / Forest (4) / Water / Wetland (6) / Barren *(describe)*:

NETS/TRAPS:	A: 1x1H-4m	B: 1x2H-6	C: 1x1H-6	D: 1x1H-6	E: 1x2H-9	F:
Pool size WxL	N/A	N/A	N/A	N/A	N/A	
Swoop WxL	N/A	N/A	N/A	N/A	N/A	
Photo? or #	Y	Y	Y	Y	Y	

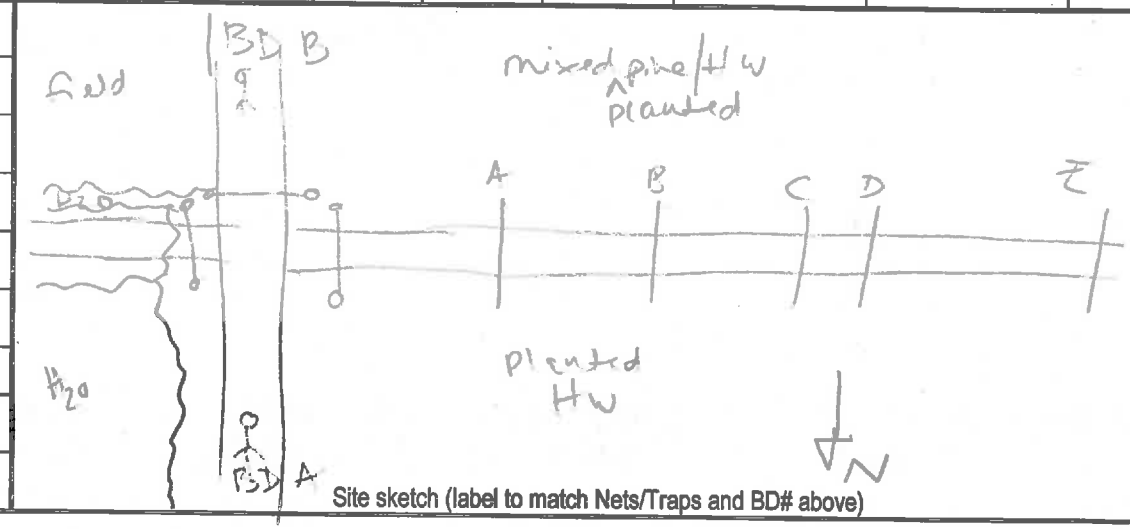
BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.247306	-76.732165	170°	12'	low	4.9	8/16	—	~~2200~~ 2000	0153	Y
B	35.248	-76.732985	270°	12'	no	—	—	—	1846	0201	Y

Site Description: nets set on interior forest road; good overhang w/ varying amounts of clutter on side; mixed pine HW on one side, planted HW on the other; loblolly, red maple, willow oak, green ash, sweetgum, PT, false nettle

Remarks:

Worst mosquitoes ever

Unit B mal functioned



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

green treefrog, Southern Cricket frog, bullfrog, no S+W equivalents

Bat Survey Data Form

Page _____ of _____

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

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
4												
5												
6												
7												
8												
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20												

SKUNKED

8%.

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	**County:**	Beaufort	**Site#:**	3	**Night#:**	1	**Site Name:**	Goose Creek GL Pintail Rd Spur	**Date:**	7/14/16
Latitude: 35.29167		Longitude: -76.64550						Datum: NAD 83	Elevation: 8	ID By: H. Wallace	
Observers: H. Wallace, B. Dustin								Start Time: 2036		End Time: 0142	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2030	83	Ø	20%	2055	82	Ø	Ø	0142	81	Ø	Ø

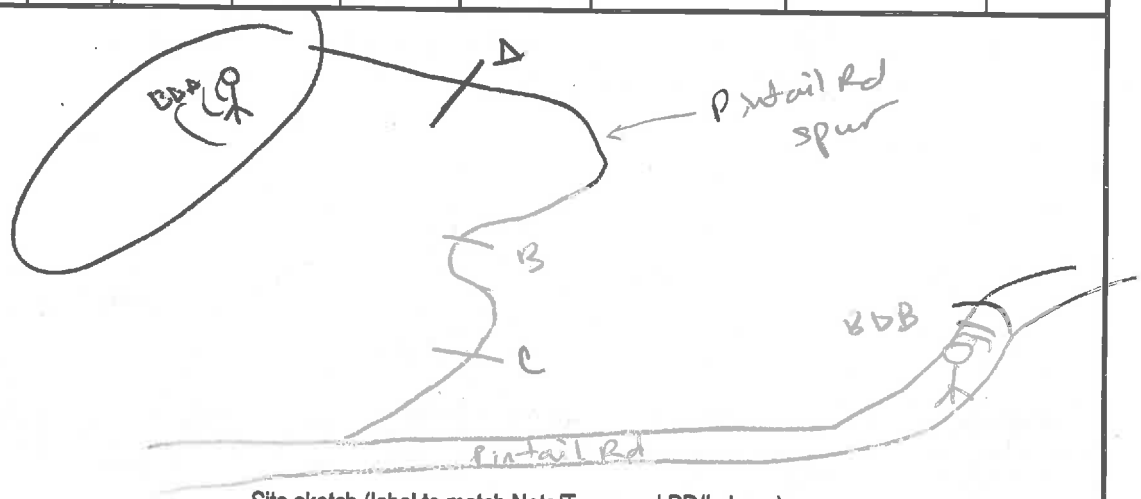
Moon Effect: 1st Quarter	Start: N/A Stop: N/A	**Land Use:** Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 42

NETS/TRAPS:	A: 1x24-4m	B: 1x39-9m	C: 1x24-6m	D:	E:	F:
Pool size WxL	N/A	N/A	N/A			
Swoop WxL	N/A	N/A	N/A			
Photo? or #	Y	Y	Y			

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.291616	-76.649599	292°	12	no	5.3	8/16	–	2035	0215	Y
B	35.291903	-76.645805	213°	12	mod	4.2	8/16	–	2301	0306	Y

Site Description: A. set in open field (recently mowed) at end of Pintail Rd spur. B. set in wide area on Pintail Rd. Loblolly pine forest (some longleaf near A) Wet Pine Flatwood

Remarks: flying squirrel in net B two times; chewed through transmit



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

Bat Survey Data Form

Page 1 of ____

Project: NEB Eastern Research County: Brunfield Site# 3 Night# 1 Site Name: Goose Creek Ex Pintail Rd Spur Date: 7/14/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2050 ~~LASBOR~~	LASBOR	F	A	L	39	9	11	B	7	CALVX 00054	
2 (23-8)	2110 ~~EPTFUS~~	EPTFUS	M	A	NR	45	13	15	C	6	0005	
3 (21-8)	2110	EPTFUS	M	A	NR	42	14	13	C	7	0006	
4 (23.5-7)	2110	EPTFUS						/		10		EFN
5	2120	EPTFUS	F	A	NR	43	14	15.5	A	7	0007	
6	2242	LASBOR	F									EFN
7	01:12	LASBOR	M	J	NR	40	8	8	B	8	008	
8	01:12	LASBOR									009	
9												
10												
11												
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14												
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16												
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NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	**County:**	Beaufort	**Site#:**	3	**Night#:**	2	**Site Name:**	Goose Creek Pintail RA Spur	**Date:**	7/26/16
Latitude: 35.291167		Longitude: -76.64550						Datum: NAD 83	Elevation: 5'	ID By: H. Wallace	
Observers: B. Dustin S. Beavens								Start Time: 2017		End Time: 0125	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2002	91°	Ø	Ø	2311	82	1	Ø	0113	81	1	Ø

Moon Effect: N/A	Start:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 42
	Stop:	

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

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.291625	-76.643631	61°	12	no	>7.3			2000	0137	Y
B	35.291903	-76.645085	283°	12	med	>5.9			2000	0144	Y

Site Description: see form from night 1

Willow Flatwoods

Remarks: Did not set 4m net near food plot this time

See acoustic form

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

Bat Survey Data Form

Project: NLEB Tankers Research County: Beau Site# 3 Night# 2 Site Name: Goose Creek Pintail Spur Rd. Date: 7/26/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	21:02	EPTFUS	M	A	NR	46	15	18	A	6'	CALYX 0501	
2	21:02	NYCHUM	M	A	R	34	11	9.5	A	15'	CALYX 0035	
3	2200	LASBOR	M	A	R	39	10	9.5	B	7'	CALYX 0036	
4	2230	LASBOR	F	J	NR	37	10	8	B	10'	CALYX 0037	
5	23:00	LASBOR	F	J	NR	38	9	8.5	A	12	CALYX 0038	
6	23:00	EPTFUS	—	—	—	—	—	—	A	14	—	EFRN
7												
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NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	**County:**	Beaufort	**Site#:**	1	**Night#:**	2	**Site Name:**	Goose Creek GL Pintail Rd	**Date:**	7/27/16
Latitude:	35.29188	**Longitude:**	-76.648600					**Datum:** MAD 83	**Elevation:** 5	**ID By:**	H. Wallace
Observers:	B. Dustin, S. Beavers							**Start Time:**	2020	**End Time:**	2100

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2020	88	1	100%					2059	86	3	100-%

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (*describe*):
N/A	Stop:	4.3 54 6/62

NETS/TRAPS:	A: 1 × 24-12m	B: 1 × 34-18m	C:	D:	E:	F:
Pool size WxL	N/A	N/A				
Swoop WxL	N/A	N/A				
Photo? or #	Y	Y				

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.291844	-76.651036		12'	low	4.8	8/16	—	2000	2242	Y
B	35.291676	-76.647162		12'	low	5.0	8/16	—	2018	2206	Y
				~~12'~~							

Site Description: see notes for night 1 at this site

Wet Pine Flat Wood

Remarks: rain began @ 2045 had to shut down early

See night 1

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

Bat Survey Data Form

Project: NUEB Eastern Research County: Beaufort Site# 1 Night# 2 Site Name: Goose Cr Pintail Rd Date: 7/27/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2050	PERSUB	F	J	NR	33	12	5.5	A	4	CALYX 0039	
2	2051	LASSEM	F	J	NR	41	11	11	B	18	CALYX 0040	
3												
4												
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20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	**County:**	Beaufort	**Site#:**	1	**Night#:**	3	**Site Name:**	Goose Cr Pintail Rd.	**Date:**	7/28/16
Latitude: 35.291888		Longitude: – 76.648600						Datum:	Elevation:	ID By: H Wallace	
Observers: M. Mickley								Start Time: ~~2000~~ 2025		End Time: ~~0245~~ 0130	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2013	85	1	Ø	2352	83	2	Ø	0200	81	1	Ø

Moon Effect: N/L	Start:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 54 6/62
	Stop:	

NETS/TRAPS:	A: 1 × 24 – 12m	B: 1 × 34 – 18m	C:	D:	E:	F:
Pool size WxL	N/A	N/A				
Swoop WxL	N/A	N/A				
Photo? or #	Y	Y				

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.291844	-76.651036	237°	12'	low	5.9	8/16	—	2000	0244	Y
B	35.291676	-76.647162	80°	12'	low	6.4	8/16	—	2000	0224	Y

Site Description: 2045 - net A chuckwills-widow caught in net B. 2150 - Flying squirrel in net B.

Wet Pine Flatwood

Remarks:

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

Bat Survey Data Form

Project: NLEB Eastern Research County: Beaufort Site# 1 Night# 3 Site Name: Goose Cr. Pintail Rd. Date: 7/28/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:45								B	6'		Chuck walls window
2	21:12	LASSEM	M	J	NR	39mm	8mm	8grams	A	6'	0041	
3	21:40	~~LASBOR~~	F	J	NR	38mm	8mm	11gr	A	8'	0042	
4	21:40	~~EPTFUS~~ NYHU	F	A	NR	37mm	11mm	13gr	B	10'	0502	
5	22:25	LASBOR	F	A	NR	38mm	8mm	12.5gr	A	10'	0043	
6	21:40	LASSEM	—				—				—	ERN
7	23:45	LASBOR	M	A	NR	37mm	9mm	10.5gr	A	6'	0044	
8	01:00	LASBOR	M	A	NR	39mm	8mm	9gr	B	8'	0045	
9	21:50								B			Flying squirrel
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	County:	Pender	Site#:	1	Night#:	1	Site Name:	Holly Shelter Tram Rd Creek + Plow line	Date:	8/22/16
Latitude: 34.429980		Longitude: -77.730344						Datum: NAD 83	Elevation: 30	ID By: H. Wallace	
Observers: S. Beavers								Start Time: 1950		End Time: 0100	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1945	88	Ø	5	2350	75	Ø	Ø	0105	77	Ø	Ø

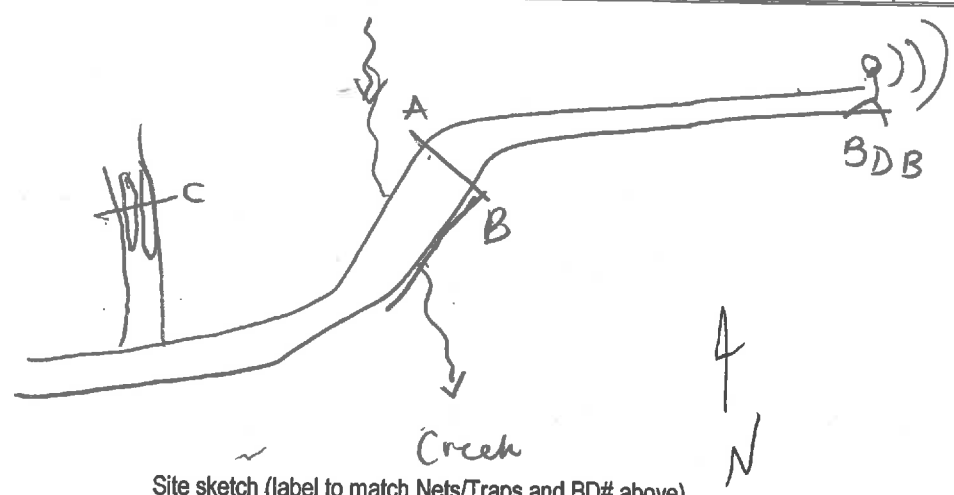
Moon Effect: N/A	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (*describe*): 41, 42, 43 61
	Stop:	

NETS/TRAPS:	A: 7×34-6m	B: 1×24-12m	C: 1×24-9m	D:	E:	F:
Pool size WxL	—	—	8'×20'			
Swoop WxL	—	—	8'×20'			
Photo? or #	Y	Y	Y			

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
B	34.430585	-77.7288	77°	12	10	6.9	8/16	—	1945	01:39	Y

Site Description: net C set over road ruts/puddles; net B set over road at culvert outlet. So cluttered that there's not really a flyway
* See acoustic form for habitat info

Remarks: screech and barred owls!



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

Bat Survey Data Form

Project: County: Pender Site# 1 Night# 1 Site Name: Date: 8/22/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2015	LASSEM	F	J	NR	46	8	10	C	6'	CALYX 0067	
2	2040	LASBOR	M	A	R	43	10	6.5	A	8'	CALYX 0071	
3	2045	PERSUB	F	A	NR	34	9	9	A	13'	CALYX 0072	
4	2100	LASSEM	M	A	R	41	9	9.5	A	7'	~~CALYX 0073~~	Died during processing
5	2115	EPTFUS	M	A	NR	43	12	15	A	10'	CALYX 0511	
6	2230	LASSEM	F	A	NR	45	9	10.5	A	10'	CALYX 0073	
7	2230	LASSEM	M	A	R	43	8	10	A	6'	CALYX 0074	
8	2230	LASBOR										EFN
9	2330	LASSEM	F	A	NR	38	8	10	A	6'	CALYX 0075	
10	0004	LASSEM										EFN
11												
12												
13												
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19												
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NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	**County:**	New Hanover	**Site#:**	2	**Night#:**	1	**Site Name:**	Holly Shelter Pond	**Date:**	8/23/16
Latitude: 34.430998		Longitude: -77.718656						Datum: NAD 83	Elevation: 36	ID By: H. Wallace	
Observers: B. Dustin, ~~H. Wall~~ G. Jordan, S. Beavens								Start Time: 1955		End Time: 0215	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	~~0~~1955	80	0	5%	2207	79	Ø	Ø				

Moon Effect: WANING	Start: N/A Stop:	**Land Use:** Urban / Agriculture (21) / Forest (42, 43) / Water / Wetland (61) / Barren *(describe)*:

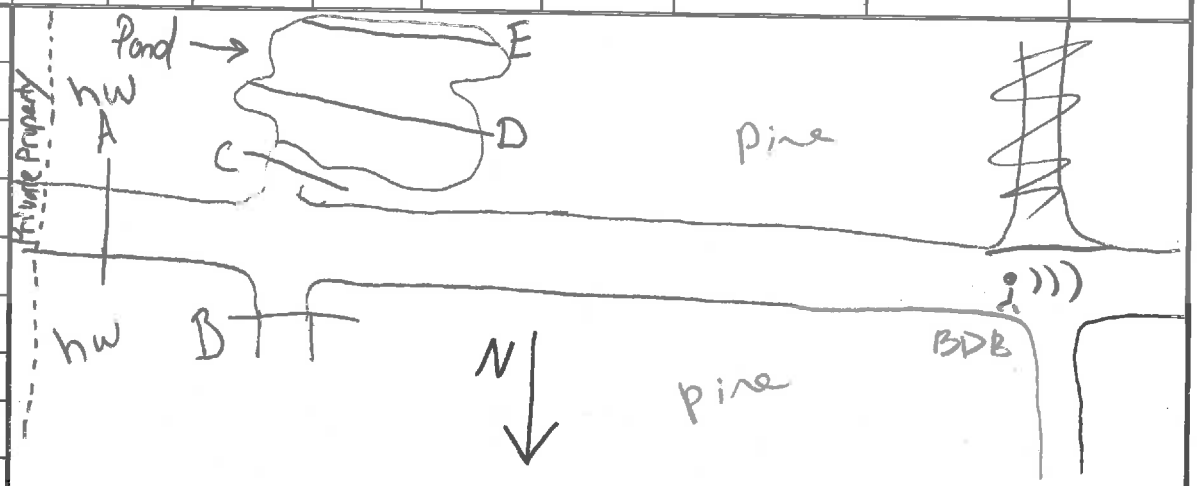
NETS/TRAPS:	A: 1×24-6m	B: 1×34-9m	C: 1×24-12m	D: 1×27-18m	E: 1×24-18m	F:
Pool size WxL	—	—	—	60×100'	60×100	
Swoop WxL	—	—	—	~~18×18~~ ~~60×60~~	60×100'	
Photo? or #	Y	Y	Y	Y	Y	

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A			7067	12	no	—	8/16	—	1945	—	Y
B	34.431292	-77.719722	296	12	no		8/16	—	1945	0228	Y

Site Description: nets are primarily in edge habitat between bottomland hardwood and longleaf pine forest.

ecotone of ~~Longleaf Pine Forest~~ Pine Savanna and Coastal Plain Small Stream Swamp (blackwater)

Remarks: Detector A malfunctioned



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

Bat Survey Data Form

Project: NLEB Eastern Research County: ~~New Hanover~~ Border Site# 2 Night# 1 Site Name: Date: 8/23/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2005	PERSUB	M	J	NR	35	11	6.5	D	2'	CALYX 0076	
2	2051											EFN
3	2106	LASSEM	F	A	NR	43	8	9.5	B	10'	CALYX 0077	
4	2108	LASBOR	M	A	R	37	7	9	B	9'	CALYX 0078	
5	2126	LASBOR								12		Recapture 0078
6	2230	LASSEM	M	A	R	41	12	8.5	D	2'	CALYX 0079	
7	2245	EPTFUS	F	A	NR	42	12	15.5	A	6'	CALYX 0512	
8	2300								B			EFN
9	2305	LASSEM	F	A	NR	43	9	11	D	4	CALYX 0080	
10	2320	LASSEM	M	J	NR	40	9.5	9	C	6	CALYX 0081	
11	2345	?							A			EFN
12	0001	NY HUM	M	A	R	34	7	10	E	3	CALYX 0070	
13	0015	EPTFUS	M	A	NR	43	16	15	D	2'	CALYX 0513	
14	0030	LASBOR							D			EFN
15	0048	CORRAF	M	A	R	43	32	9	E	1	CALYX 0081	
16	0055	LASSEM	F	A	NR	43	10	9	D	4	CALYX 0082	
17	0100	LASSEM	M	A	R	39	13	9	C	5'	CALYX 0083	
18	0104	LASSEM	F	A	NR	43	8	10	D	3'	CALYX 0085	
19	0105	LASSEM	F	J	NR	41	11	10	D	3'	CALYX 0084	
20	0110	LASBOR	F	A	NR	39	8	10	A	10'	CALYX 0086	

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	**County:**	Pender	**Site#:**	2	**Night#:**	1	**Site Name:**		**Date:**	8/23/16
Latitude:		Longitude:						Datum:	Elevation:	ID By:	
Observers:								Start Time:		End Time:	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
	Stop:	21 42.43 61

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

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

Site Description:

Remarks: Detector A malfunctioned

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

Bat Survey Data Form

Project: NLEB Research County: Pender Site# 2 Night# 1 Site Name: Date: 8/23/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	0109	LASBOR	M	A	NR	41	11	9	D	3'	CALYX 0087	
2	0142	LASSEM	M	A	R	44	9	9	D	3	CALYX 0088	
3												
4												
5												
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NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	**County:**	Pender	**Site#:**	3	**Night#:**	1	**Site Name:**	Hollyshelter Swamp Ridge	**Date:**	8/24/16
Latitude:	34.661956	**Longitude:**	-77.820030					**Datum:** NAD83	**Elevation:** 35	**ID By:**	A. Wallace
Observers:	B. Dustin, S. Beavens, E. Corey							**Start Time:**	1945	**End Time:**	0100

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1945	80	Ø	Ø	2344	75	Ø	Ø	0100	74	Ø	Ø

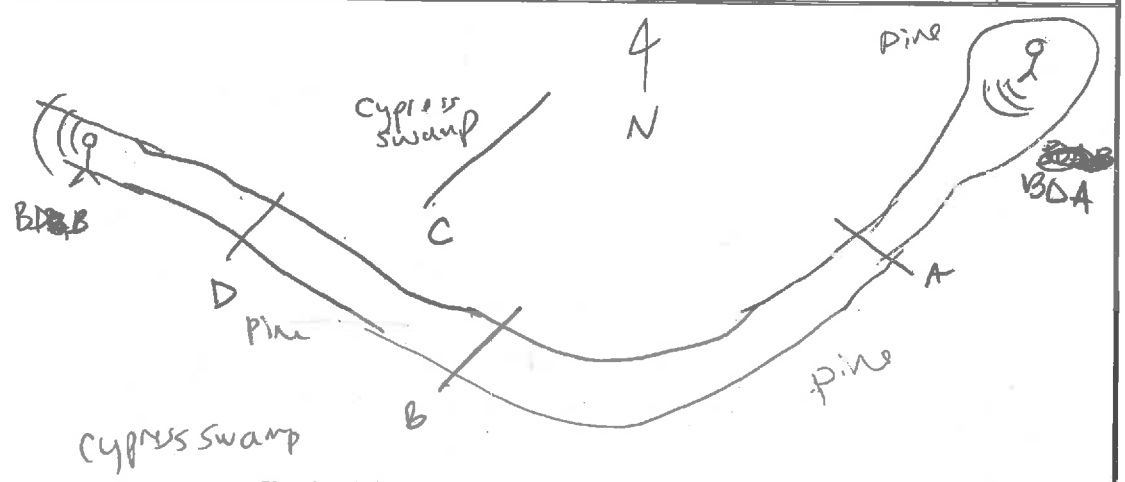
Moon Effect: W ~~N~~ G I B	**Start:**	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren (*describe*): 41,42,43 51 61
	Stop:	

NETS/TRAPS:	A: 1×2H-9m	B: 1×2H-6m	C: 1×3H-18m	D: 1×3H-9m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	Y	Y	Y	Y		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	—	—	—	12'	16	—	—	—	1945	—	Y
B	34.6029	-77.821802	120°	12'	16		8/16	~~8/16~~	1945	0153	Y

Site Description: nets A, B, D set on forest road w/ pines right next to road / ridge and hardwood cypress swamp on either side. net C set in cypress swamp (dry) ~~A~~ See acoustic datasheet

Remarks: detector A malfunctioned



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

Bat Survey Data Form

Project: NLEB Research Project County: Pender Site# 3 Night# 1 Site Name: Hilly Shelter Swamp Ridge Date: 8/24/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2010	PERSUB	M	A	NR	35	11	4.5	D	9'	CALYX 0089	
2	2028	CORRAF	M	A	R	42	31	8	B	4	CALYX 0090	
3	2050	MYOAUS	F	A	PL	38	12	6.5	D	10'	CALYX 0091	
4	2013	MYOAUS	F	A	PL	38	12	7	A	7	CALYX 0092	
5	2015	MYOAUS	F	J	NR	39	11	6.5	A	12	CALYX 0093	
6	2133	~~MYOAUS~~							B	4	—	Recapture 0093
7	2135	EPTFUS	M	A	NR	45	10	15.5	C	4	CALYX 0094	
8	2205	EPTFUS	M	A	R	44	13	14.5	D	8	CALYX 0095	
9	2235	MYOAUS							C	3	—	EFN
10	2325	LASBOR	F	A	PL	39	11	11	D	12'	CALYX 0094	
11	0001	LASBOR	F	A	NR	38	8	11	B	6'	CALYX 0095	
12	0026	MYOAUS	M	A	R	40	14	7	B	8'	CALYX 0096	~~[illegible] photos~~ ~~[illegible]~~
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLCB Eastern Research	**County:**	Pender	**Site#:**	4	**Night#:**	1	**Site Name:**	Holly Shelter Bannerman Rd. Left Gate	**Date:**	8/25/16
Latitude: 34.591680		Longitude: -77.801266						Datum: NAD83	Elevation: 19	iD By: H. Wallace	
Observers: B. Dustin, E. Carey								Start Time: 1950		End Time: 0100	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2000	79	Ø	Ø	2254	73	Ø	Ø	0100	73	Ø	Ø

Moon Effect:		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (*describe*):
WAX GIB	Start: N/A Stop: N/A	41, 42 61

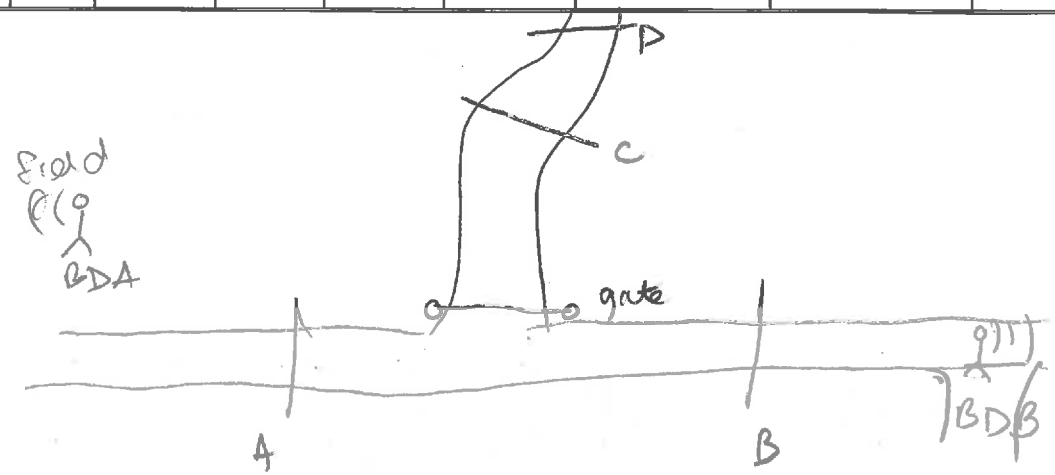
NETS/TRAPS:	A: 1×24-12m	B: 1×34-9m	C: 1×24-12m	D: 1×24-9m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	Y	Y	Y	N		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	34.591892	-77.79972		12	no	6.2	8/16	—	1945	0145	Y
B	34.591807	-77.802196		12	lo	7.7	8/16	—	1950 47	0102	Y

Site Description: all nets set in upland areas on forest roads w/ mixed pine/hw forest

* see habitat info on acoustic datasheet

Remarks:



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

Bat Survey Data Form

Project: County: Pender Site# 4 Night# 1 Site Name: Holly Shelter Brannerman Rd. Date: 8/26/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2005	LASSEM	M	A	~~R~~	40	11	7.5	D	15'	CALYX 0097	
2	2110	LASBOR	F	A	NR	43	12	11	C	5'	CALYX 0098	
3	2141	LASSEM							C	2		EFN
4	2142	CORRAF	M	A	R	40	31	10	A	5	CALYX 0099	
5	2210	LASBOR	M	A	NR	37	10	4	D	4	0100	
6	2210	LASSEM	M						D	8		EFN
7	2307	LASBOR	F	A	NR	41	11	11	B	8	CALYX 0101	
8	2308	EPTFUS	M	A	NR	44	12	11	B	8	CALYX 0516	
9	2340	LASSEM	M	A	R	~~49~~ 39	11	8.5	C	3	CALYX 0103	
10	2345	LASBOR	F	A	NR	42	11	11	C	6	CALYX 0102	
11	0005	LASBOR	M	A	R	38	10	7.5	C	6	CALYX 0104	
12	00010	LASBOR	F	A	NR	42	11	10	~~A~~B	7	CALYX 0105	
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: Holly Shelter	County: Pender	Site#: ~~[illegible]~~ #5	Night#: 1	Site Name: Lodge Rd Pond Holly Shelter ~~Site 4~~	Date: 24-AUG-2016				
Latitude: 34.42428122	Longitude: -77.69048457	Datum: WGS 1984	Elevation: 48.7 ft ASL	ID By: C. Rockey					
Observers: J. Fury; A. Kelly		Start Time: 1946	End Time: 0046						

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1946	26°C	0	25%	2246	23°C	0	0	0046	23°C	0	0

Moon Effect: N/A — Start: / Stop:

Land Use: Urban / Agriculture / (Forest) (Water) / Wetland / Barren (describe): Mature pine growth around pond

NETS/TRAPS:	A: 1x3H-12m	B: 1x3H-18m	C: 1x3H-12m	D: 1x3H-12m	E:	F:
Pool size WxL	6m N/A	6m x 10m	3m x 14m	3m x 4m		
Swoop WxL	N/A	10m	12m	2m		
Photo? or #	Net A	Net B	Net C	Net D		

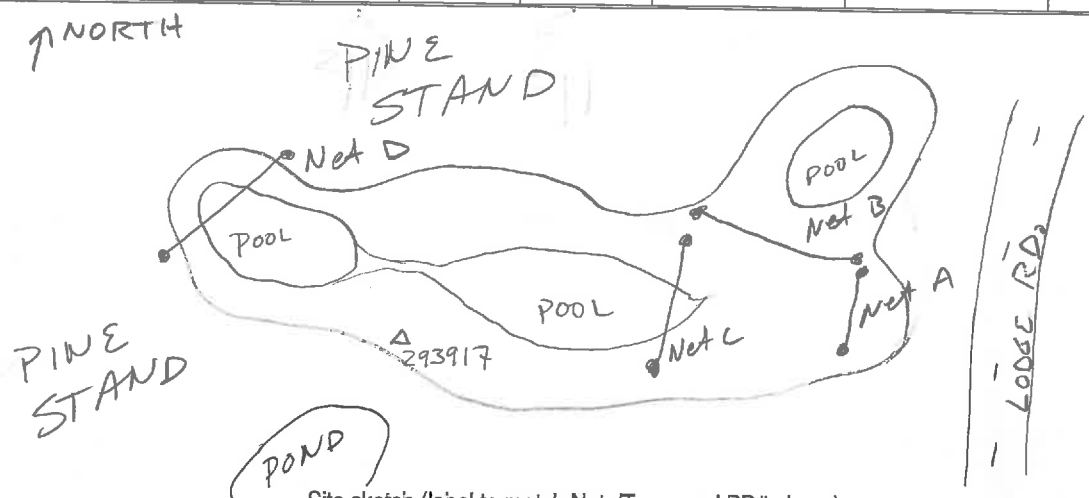
BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
293917	34.42401760	-77.69059388	Ext.	1.5m	No	5	—	—	1916	0710	Acoustic — 293917 1+2

Site Description:

Depressional pond surrounded by sparsely growing pine. Pond is ~50% dry; really just interconnected pools.

S+W = Pine Savanna

Remarks: N/A



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

Bat Survey Data Form

Project: Holly Shelter County: Pender Site# 1 Night# 1 Site Name: Holly Shelter Site 1 Date: 24-AUG-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2016	LASSEM	M	A	SC	38	9	8.25	B	2m	CALYX 0240	
2	2122	NYCHUM	M	A	SC	32	10	11	B	6	0239	
3	2147	LASSEM	M	A	SC	40	11	11.25	B	1	0238	
4	2219	LASSEM	F	A	NR	40	11	14.75	B	1	0237	
5	2219	LASSEM	F	A	NR	38	11	10.25	B	3	0236	
6	2306	LASSEM	M	A	SC	37	11	9.5	D	3	0235	
7	2342	LASSEM	M	J	SC	37	10	9.0	A	3	0234	
8	0018	LASSEM	F	J	NR	41	10	10.0	C	3	0233	
9												
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NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	Holly Shelter	**County:**	Pender	**Site#:**	~~12~~ 6	**Night#:**	1	**Site Name:**	Tram Road Holly Shelter ~~Site 10~~
Date:	25-AUG-2016								
Latitude:	34.441637708	**Longitude:**	-77.66624074	**Datum:**	WGS 1984	**Elevation:**	34.25 ft	**ID By:**	C. Rocky
Observers:	O. Fury ; M. Kelly			**Start Time:**	1945	**End Time:**	0045		

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1945	26° C	0	0	2245	23°C	0	0	0045	21°C	0	0

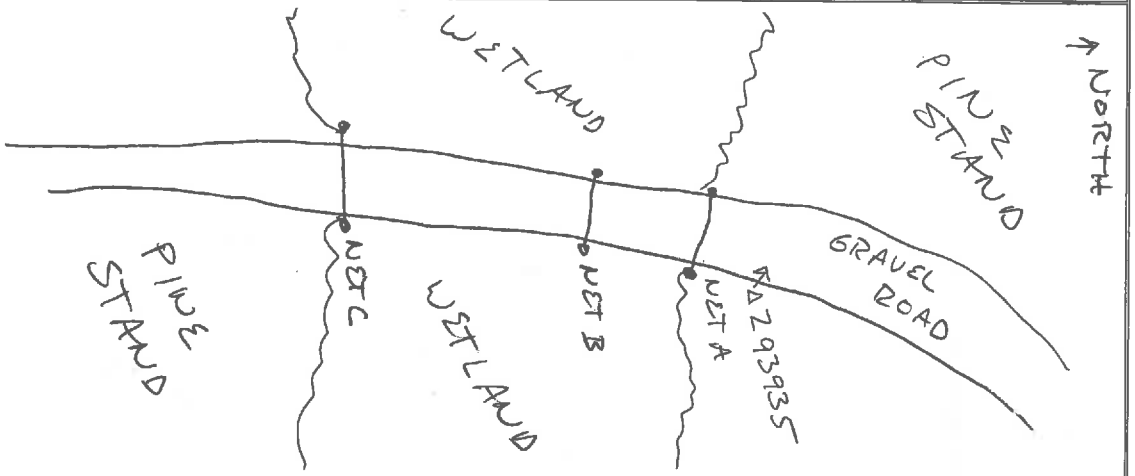
Moon Effect: Waning Crescent (44%)	Start: 0019 Stop: —	**Land Use:** Urban / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*: Mature pine stands w/ wetland interspersed

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

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
293935	34.44187552	-77.66615724	Ext.	15m	Low	5	—	—	1916	0102	Acoustic 293935 1+2

Site Description: Gravel/sand road through wetland, bordered to north and south by mature stand of pine
Pine savanna and Wet Pine Flatwood

Remarks:



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

Bat Survey Data Form

Project: Holly Shelter County: Pender Site# 10 Night# 1 Site Name: Holly Shelter Site 2 Date: 25-AUG-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2036	LASSEM	F	J	NR	39	8	—	A	1 m	CALYX Ø232	Escaped from hand before mass taken
2	2220	LASBOR	F	J	NR	40	8	9.75	A	2 m	CALYX Ø231	
3	2221	NYCHUM	F	J	NR	34	9	9.5	A	3 m	CALYX Ø230	
4	2342	LASSEM	M	A	SC	37	10	8.5	A	2 m	CALYX Ø229	
5												
6												
7												
8												
9												
10												
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18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	Murrayville Mitigation Site	**County:**	New Hanover	**Site#:**	1	**Night#:**	1	**Site Name:**	Murrayville ~~Site 1~~ Corbett	**Date:**	20-AUG-2016
Latitude:	34.31237651	**Longitude:**	-77.85285320					**Datum:**	WGS 1984	**Elevation:**	25 ft.
ID By:	C. Rockey										
Observers:	J. Fury; M. Kelly							**Start Time:**	1952	**End Time:**	0052

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1952	27° C	0	25%	2252	27°C	0	25%	0052	26° C	1	75%

Moon Effect: waning Gibbous (93%)	**Start:** 2131 **Stop:** —	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Pocosin wetland

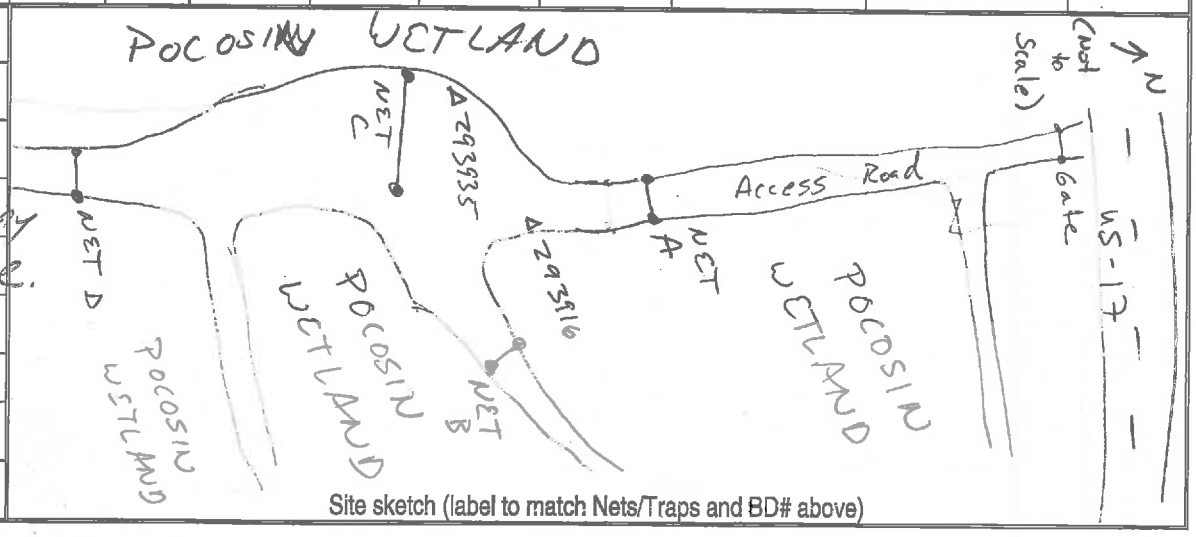
NETS/TRAPS:	**A:** 1x3H-9m	**B:** 1x3H-6m	**C:** 1x3H-12m	**D:** 1x3H-6m	**E:** —	**F:** —
Pool size WxL	N/A	N/A	N/A	N/A		
Swoop WxL	N/A	N/A	N/A	N/A		
Photo? or #	NET A2	NET 3B	NET 10-11	NET D13		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
293916	34.31191515	-77.85259313	Exto	1.5m	Low	5	—	—	2023	0705	Acoustic 293916 1+2
293935	34.31172911	-77.85268505	Exto	1.5m	Low	5	—	—	2023	0705	Acoustic 293935 1+2

Site Description:

Access roads through pocosin wetlands. Pines are dominant among canopy species. Sub-canopy and Undergrowth are very dense.

Remarks: Rain shower ap. 30 min. before sunset. Light rain around 0000



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

S+W= High Pocosin, Pond Pine Wetland

Bat Survey Data Form

Project: Murrayville Mitigation Site County: New Hanover Site# 1 Night# 1 Site Name: Murrayville ~~Site 1~~ Corbett Date: 20-AUG-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2355	LASSEM	M	A	SC	39mm	10mm	9g	D	1m	CALYX 0250	—
2												
3												
4												
5												
6												
7												
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9												
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NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	Murrayville Mitigation Site	**County:**	NEW HANOVER	**Site#:**	1	**Night#:**	2	**Site Name:**	Murrayville ~~Site~~ Corbel	**Date:**	21-AUG-2016
Latitude:	34.31237651	**Longitude:**	-77.85285320					Datum: WGS 1984	Elevation: 25 ft.	ID By: C. Rockey	
Observers:	J. Fury ; M. Kelly							Start Time: 1951		End Time: 0051	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1951	30°C	0	0%	2251	28°C	0	25%	0051	27°C	0	50%

Moon Effect: Waning Gibbous (86%)	Start: 2210 Stop:	**Land Use:** Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Pocosin Wetland

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

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
293916	34.31191515	-77.85259313	Ext.	1.5m	Low	5	—	—	2023	0705	SEE
293935	34.31172911	-77.85268505	Ext.	1.5m	Low	5	—	—	2023	0705	N1

Site Description:

See Night 1 - 20-AUG-2016

Remarks: Same net and acoustic setup as 20-AUG-2016

See Night 1 - 20-AUG-2016

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

S+W = High Pocosin, Pond Pine Wetland

Bat Survey Data Form

Project: Murrayville Mitigation Site County: NEW HANOVER Site# 1 Night# 2 Site Name: Murrayville ~~Site~~ Corbett Date: 21-AUG-2016

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

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	Murrayville Mitigation Site	**County:**	New Hanover	**Site#:**	2	**Night#:**	1	**Site Name:**	Murrayville Pond ~~Site 2~~	**Date:**	22-AUG-2016
Latitude:	34.30590902	**Longitude:**	-77.79386918	**Datum:**	WGS1984	**Elevation:**	33 ft	**ID By:**	C. Rockey		
Observers:	J. Fury, M. Kelly			**Start Time:**	1950			**End Time:**	0050		

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1950	26°C	Ø	Ø	2250	24°C	Ø	Ø	0050	23°C	Ø	Ø

Moon Effect: Waning Gibbous (77%)	**Start:** 2210 **Stop:**	**Land Use:** Urban / Agriculture / Forest / (Water) / Wetland / Barren *(describe)*: Pond

NETS/TRAPS:	A: 1x3H-12m	B: 1x3H-18m + 1x3H-6m-T	C: 1x3H-12m	D: 1x3H-6m	E:	F:
Pool size WxL	N/A	N/A	N/A	N/A		
Swoop WxL	N/A	N/A	N/A	N/A		
Photo? or #	Net A	Net B 1+2	Net C	Net D		

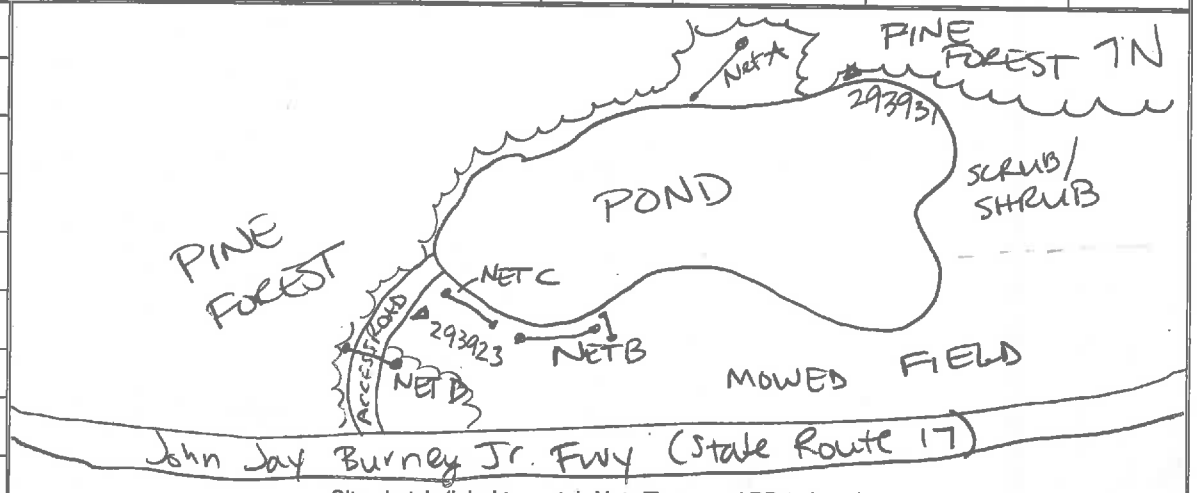
BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
293923	34.30603393°N	-77.79424981°W	Ext.	1.5	low	5	—	—	1920	0710	Acoustic - 293923 1+2
293931	34.30570318°N	-77.79155196°W	Ext.	1.5	low	5	—	—	1920	0710	Acoustic - 293931 1+2

Site Description:

Mowed field and pond surrounded by pine forest to the north and state route 17 to the south

S+W = Bay Forest

Remarks:



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

Bat Survey Data Form

Project: Murrayville Mitigation site County: New Hanover Site# 2 Night# 1 Site Name: Murrayville Pond ~~Site 2~~ Date: 22-AUG-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2116	NYCHUM	F	A	NR	34mm	11mm	11.0g	C	8m	CALYX 0249	
2	2140	LASSEM	M	A	SC	37mm	10mm	10.5g	C	2m	CALYX 0248	
3	2159	LASBOR	F	J	NR	34mm	8mm	8.5g	C	1m	CALYX 0247	
4	2234	LASSEM	M	J	SC	39mm	9mm	8.75g	C	1m	CALYX 0245	
5	2235	LASBOR	F	A	NR	38mm	9mm	10g	C	2m	CALYX 0246	
6	2254	LASBOR	F	J	NR	38mm	10mm	11g	C	2m	CALYX 0244	
7												
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9												
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NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	Murrayville Mitigation site	**County:**	New Hanover	**Site#:**	2	**Night#:**	2	**Site Name:**	Murrayville ~~Pond~~	**Date:**	23-AUG-2016
Latitude:	34.30590902	**Longitude:**	-77.79386918					Datum: WGS 1984	Elevation: 33 ft.	ID By: C. Rockey	
Observers:	J. Fury, M. Kelly							Start Time: 1949		End Time: 0049	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1949	26°C	3	1	2249	25°C	2	Ø	0049	24°C	2	Ø

Moon Effect: Waning Gibbous (67%)	Start: 2251 Stop: —	**Land Use:** Urban / Agriculture / Forest / (Water) / Wetland / Barren *(describe)*: Pond

NETS/TRAPS:	**A:** 1x3H- 12m	**B:** 1x3H- 18m + 1x3H- 6m - T	**C:** 1x3H- 12m	**D:** 1x3H- 6m	**E:**	**F:**
Pool size WxL	N/A	N/A	N/A	N/A		
Swoop WxL	N/A	N/A	N/A	N/A		
Photo? or #	See Night 1					

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
293923	34.30603393°N	-77.79424981°W	Ext.	1.5	low	5	—	—	1920	0710	See
293931	34.30570318°N	-77.79155196°W	Ext.	1.5	low	5	—	—	1920	0710	Night 1

Site Description:

See Night 1- 22-AUG-2016

FHW = Bay Forest

Remarks: Same net + acoustic setup as 22-AUG-2016

See Night 1 - 22-AUG-2016

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

Bat Survey Data Form

Project: Murrayville Mitigation Site County: New Hanover Site# 2 Night# 2 Site Name: Murrayville Pond ~~Site 2~~ Date: 23-AUG-2016

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2047	NYCHUM	F	A	NR	37m	8 mm	9.25g	C	4m	CALYX 0241	
2												
3												
4												
5												
6												
7												
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19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	VLEB Eastern Research	County:	Craven	Site#:	1	Night#:	1	Site Name:	Neuse River Duck Crk Rd	Date:	8/15/16
Latitude: 35.10322		Longitude: -76.99165						Datum: NAD83	Elevation: 9	ID By: H. Wallace	
Observers: B. Dustin								Start Time: 2015		End Time: 0120	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2015	83	Ø	Ø	2309	78	Ø	Ø	0120	76	Ø	Ø

Moon Effect: WAX GIB	Start: 2155	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): 42
	Stop: 2350	

NETS/TRAPS:	A: 1×34-6m	B: 1×24-9m	C:	D:	E:	F:
Pool size WxL	—	—				
Swoop WxL	—	—				
Photo? or #	Y	Y				

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.101063	-76.991391		12	10	5.9	8/16	—	20:00	0202	Y

Site Description: Nets placed across dirt road. Detector placed on side of road

Remarks: net trip in moonlight @ 2155

See acoustic form

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

Bat Survey Data Form

Project: NLEB Research Project County: Craven Site# 1 Night# 1 Site Name: Date: 8-15-16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	00.03	LASBOR	M						A	8		EFN
2	0040	LASBOR	F	A	NR	39	~~10~~ 12	11.5	A	5	CALYX 0049	
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	County:	Craven	Site#:	2	Night#:	1	Site Name:	Neuse River Food Plot	Date:	8/16/16
Latitude:	35.126141	Longitude:	-76.972364	Datum:	NAD 83	Elevation:	241	ID By:	H. Wallace		
Observers:	B. Dustin, S. Beavers							Start Time:	2005	End Time:	241

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2005	84	Ø	Ø	2330	79	Ø	Ø	0139	77	1	Ø

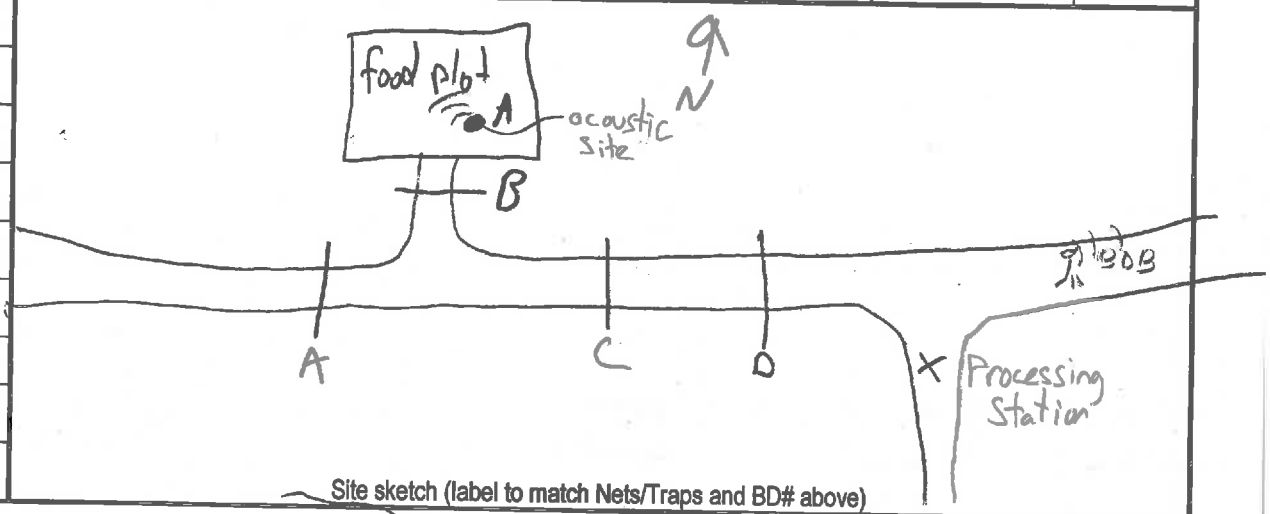
Moon Effect: WAX GIB	Start: A = 0045	Land Use: (Urban) / Agriculture / (Forest) / Water / (Wetland) / Barren (*describe*):
	Stop: —	41 / 42/43 / 61/62

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

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.122017	-76.971965	120 ~~88~~	12'	no	5.5	8/16	—	~~1930~~ 0001	0156	Y
B	35.125984	-76.972191	220	"	h	5.5	8/16	—	1930	0117	Y

Site Description:

Remarks: Det A malfunctioned



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

Bat Survey Data Form

Project: Craven NLEB Eastern Records County: Site# 2 Night# 1 Site Name: Food Plot Date: 8/16/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2030	MYOAUS	F	A	NR	31	13	7	C	6'	CALYX 0050	
2	2031	MYOAUS	F	J	NR	37	10	7.5	C	6'	CALYX 0051	
3	2031	MYOAUS	M	A	NR	38	10	7.5	C	6'	CALYX 0052	
4	2032								C			EFN
5	2032								C			EFN
6	2032	MYOAUS	F	A	NR	33	13	6.5	C	8'	CALYX 0053	
7	2035	MYOAUS	F	J	NR	32	14	7	D	6'	CALYX 0054	
8	2035	MYOAUS	F	A	PL	41	13	7.5	A	8'	CALYX 0055	Tick on wing
9	2035	MYOAUS	M	A	R	32	12	7	A	4'	CALYX 0056	
10	2115	MYOAUS	M						C	5'		EFN
11	2032								C			EFN
12	2040	MYOAUS	M	A	NR	39	11	7	C	7'	CALYX 0057	
13	2050	CORRAF	F	A	NR	43	31	8	C	8'	CALYX 0058	
14	2055	MYOAUS	F	J	NR	39	10	7.5	C	8'	CALYX 0059	
15	2055	MYOAUS	F	A	NR	39	13	7.5	A	10'	CALYX 0060	
16	2115	MYOAUS	F	A	NR	39	12	7.5	C	10'	CALYX 0061	
17	2135	CORRAF	F	A	PL	43	33	10	A	2'	CALYX 0062	
18	2207	PIPSUB	M	A	NR	32	11	6	A	8'	CALYX 0063	
19	2250	CORRAF	M	A	R	41	28	7	A	2'	CALYX 0064	Bat mites
20	2328	EPTFUS	M		NR	45	11	14.5	A	4'	CALYX 0503	

365

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:		**County:**	Craven	**Site#:**	2	**Night#:**	1	**Site Name:**	Neuse River Food Plot	**Date:**	8/16/16
Latitude:		Longitude:						Datum:	Elevation:	ID By:	
Observers:								Start Time:		End Time:	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds

Moon Effect:	Start:
	Stop:

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

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

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

Site Description:

Remarks: See pg 1 of 2

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

Bat Survey Data Form

Project: NLEB Eastern Research County: Craven Site# 2 Night# 1 Site Name: Food Plot Date: 8/16-17/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2336	EPTFUS	M	A	NR	46	14	14	D	6	CALYX 0504	
2	00:25	MYOAUS	F	A	PL	37	11	8	A	12	CALYX 0065	distinct color change @ tail,
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	County:	Craven	Site#:	2	Night#:	2	Site Name:	Neuse River Food Plot	Date:	8/30/16
Latitude:	35.126141	Longitude:	-76.972364					Datum: NAD83	Elevation: 24'	ID By:	H Wallace
Observers:	B. Dustin, S. Beavens							Start Time:	1435	End Time:	1240

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	19:36	84	0	10	22:54	79	0	0	1240	76	0	0

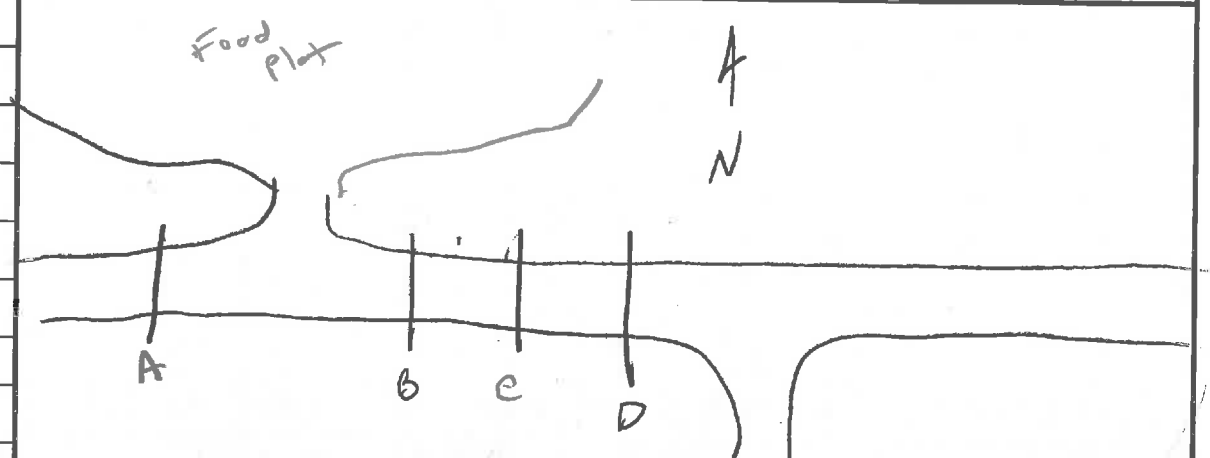
Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (*describe*):
	Stop:	11 42/43 61/62

NETS/TRAPS:	A: 1x24-4m	B: 1x24-6m	C: 1x24-6m	D: 1x14-9m	E:	F:
Pool size WxL	—	—	—	—		
Swoop WxL	—	—	—	—		
Photo? or #	Y	Y	Y	Y		

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

Site Description: See Night 1

Remarks: no detector data for this night



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

Bat Survey Data Form

Project: NLEB Eastern Research County: Craven Site# 2 Night# 2 Site Name: Neuse River Food Plot Date: 8/30/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2028	MYOAUS	F	A	NR	39	13	6.5	A	8'	CALYX 0106	
2	2029	MYOAUS	M	A	NR	40	14	6.5	A	10'	CALYX 0108	
3	2034	MYOAUS	F	A	NR	39	13	7	C	7'	CALYX 0109	
4	2035	MYOAUS	F	A	NR	37	10	6	D	3'	CALYX 0107	
5	2041	MYOAUS	F	A	NR	37	11	7.5	C	7'	CALYX 0110	
6	2050	MYOAUS	—					—	D	4'	—	EFN
7	2125	LASBOR	M	A	NR	42	11	11.5	A	4	CALYX 0111	
8	2020	MYOAUS	M	A	NR	36	12	7	C	5	CALYX 0112	
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCEB Eastern Research	**County:**	Craven	**Site#:**	3	**Night#:**	1	**Site Name:**	Neuse River Swamp	**Date:**	8/17/16
Latitude:	35.122115	**Longitude:**	-76.972394	**Datum:**	NAD 83	**Elevation:**	15'	**ID By:**	H. Wallace		
Observers:	B. Dustin, S. Beaver, G. Jordan					**Start Time:**	2000	**End Time:**	0140		

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2009	83	1	Ø	2309	79	Ø	Ø	0140	77	1	10

Moon Effect: Full	**Start:**	**Land Use:** ~~Urban~~ / Agriculture / Forest / Water / ~~Wetland~~ / Barren (*describe*):	
	Stop:	11	42/42 61/62

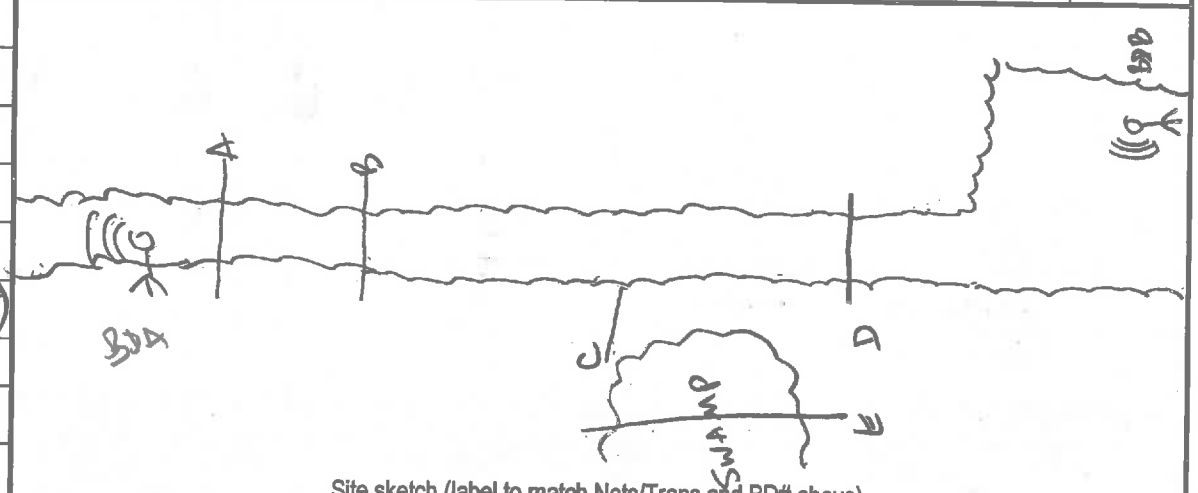
NETS/TRAPS:	A: 1×2H-6m	B: 1×1H-4m	C: 1×2H-4m	D: 1×2H-4m	E: 1×2H-18m	F:
Pool size WxL	—	—	—	—	15m×30m	
Swoop WxL	—	—	—	—	15m×15m	
Photo? or #	Y	Y	Y	Y	Y	

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.127255	-76.974665	0°	12	hi	9.2?	8/16	—	1945	0219	Y
B	35.122017	-76.971965	235°	12	no	6.4	8/14	—	1945	0147	Y

Site Description: A, B, D are ⊥ to road.
C across dry ditch / flyway
D spans shallow ponded area.

S+W = wet pine Flatwood and Coastal Plain bottomland hardwood (Blackwater)

Remarks: Detector A malfunctioned; no calls recorded



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

Bat Survey Data Form

Project: Craven County: NLEBearkin Research Site# 3 Night# 1 Site Name: Swamp Date: 8/17/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2040	EPTFUS	M	A	R	42	10	9	E	5'	CALYX 0066	
2	2200	CORRAF	F	A	NR	43	30	9	E	10'	~~CALYX 07~~	died during processing
3	2200	NYCHUM	M	A	R	38	10	8	E	10'	CALYX 68	
4	2225	EPTFUS	F	A	NR	47	15	14	E	4'	CALYX 0505	
5	2255	EPTFUS	F	J	NR	47	12	15	E	3'	CALYX 0506	
6	2310	MYOAUS	F	A	PL	41	13	7.5	D	6'	CALYX 0055	Recap! from 8/16/16
7	0040	EPTFUS	M	J	NR	43	11	13	D	3'	CALYX 0507	
8	0100	EPTFUS	F	A	NR	48	13	13 1/6	D	3'	CALYX 0508	
9	0105	CORRAF							B			EFN
10	0110	EPTFUS	F	A	PL	47	15	7.5	D		CALYX 0509	
11	0140	EPTFUS	F	A	NR	46	17	13	E	7'	CALYX 0510	
12												
13												
14												
15												
16												
17												
18												
19												
20												

93/11

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	County:	Craven	Site#:	3	Night#:	1	Site Name:	Neuse River Swamp	Date:	8/31/16
Latitude: 35.122115		Longitude: -76.972394						Datum: NAD83	Elevation:	ID By: H Wallace	
Observers: B. Dustin, S. Beavens								Start Time: 1930		End Time: 0045	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2003	77	1	100%	2240	76	1	70%	0045	75	Ø	40%

Moon Effect: N/A Start: Stop:

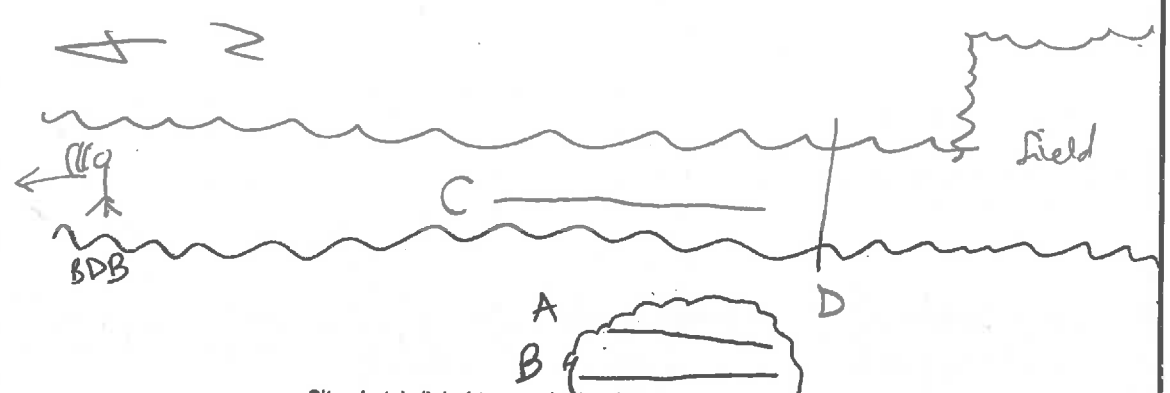
Land Use: Urban (11) / Agriculture / Forest (42/43) / Water / Wetland (61/62) / Barren (*describe*):

NETS/TRAPS:	A: 1×2H-12m	B: 1×2H-12m	C: 1×1H×12m	D: 1×2H 4m	E:	F:
Pool size WxL	40'×80'	40'×80'	—	—		
Swoop WxL	12'×12'		—	—		
Photo? or #	Y	Y	Y	Y		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
B	35.124412	-76.972404	358	12	med	6.2	8/16	—	1933	0100	Y

Site Description: net C is a single panel raised above shrubs to cover open area in midstory

Remarks:



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

Bat Survey Data Form

Project: NLEB Eastern Research County: Craven Site# 3 Night# 2 Site Name: Neuse River Swamp Date: 8/31/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2155	NYCHUM	M	A	R	34	8	10	B	8	CALYX 0113	
2	2207	EPTFUS							A	8		Recapture CALYX 0506
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NUE Eastern Research	County:	Craven	Site#:	4	Night#:	1	Site Name:	Neuse River Creek	Date:	8/18/16
Latitude:	35.126868	Longitude:	-76.973711					Datum: NAD83	Elevation: 29'	ID By:	H. Wallace
Observers:	B. Dustin							Start Time:	2000	End Time:	0100

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1955	76	Ø	10	2304	76	1	10	0100	76	1	10

Moon Effect: Full	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (*describe*):
	Stop:	11 42143 61162

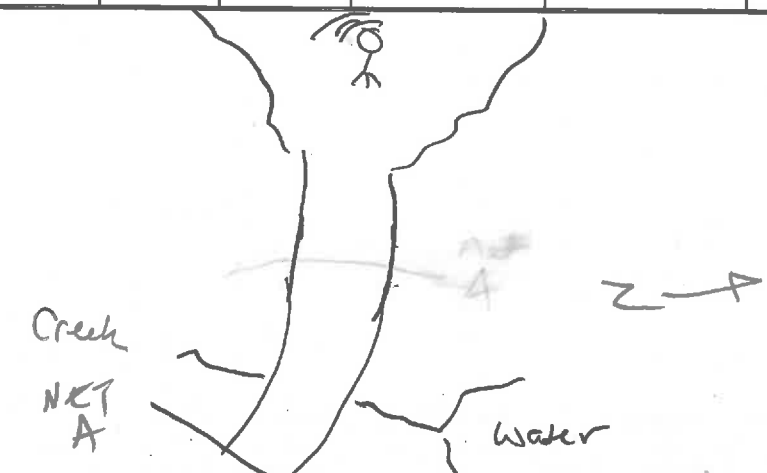
NETS/TRAPS:	A: 1×2H-4m	B: 1×3H-6m	C:	D:	E:	F:
Pool size WxL	—	—				
Swoop WxL	—	—				
Photo? or #	Y	Y				

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
~~A~~											
B	35.127255	-76.974665	274	12'	med	5.8	8/16	—	1945	0111	Y

Site Description: detector A not functioning properly, so not set out tonight. Detector B set at end of forest road in semi-cleared area.

~~Wet pine flatwood~~

Remarks: Coastal Plain small ~~stream swamp~~ (blackwater)



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

Bat Survey Data Form

Project: NLEB Eastern Research County: Craven Site# 4 Night# 1 Site Name: Creek Date: 8/18/16

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

SKUNKED!

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	County:	Wayne	Site#:	1	Night#:	1	Location ~~Site~~ Name:	Old Waynesboro Cemetery	Date:	7/6/16
Latitude: 35.374587		Longitude: -78.019444						Datum: NAD 83	Elevation: 70	ID By:	H. Wallace
Observers: H. Wallace, M. Mickley, G. Jordan								Start Time: 2040		End Time: 0140	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	840	79°	0	50%	2256	79°	2	20%	0135	77°	0	40%

Moon Effect: WAX CRES — Start: — Stop: —

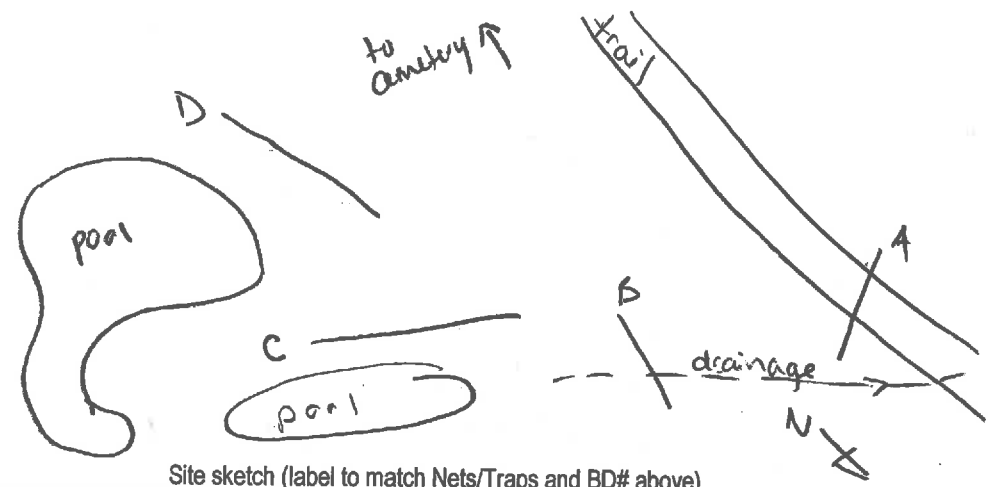
Land Use: Urban / Agriculture / ~~Forest~~ 43 / Water / Wetland / Barren *(describe)*:

NETS/TRAPS:	A: 1×2H-6m	B: 1×3H-9m	C: 1×2H-12m	D: 1×2H-12m	E:	F:
Pool size WxL	—	10'W×15'L	10'W×15'L	20'W×15'L		
Swoop WxL	—	10'W×15'L	10'W×15'L	unlimited		
Photo? or #	Y	Y	Y	Y		

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
B	35.373548	-78.018611	0°	12'	no ~~low~~	6.5	—	—	2040	0145	yes
A	35.375494	-78.019784	45°	12'	no	6.5	—	—	2000	0324	

Site Description: mixed pine and bottomland hardwoods. Net A set over trail w/ good canopy closure. Other nets in wetland, adjacent to but not over water; little to moderate canopy cover. Neuse River close by

Remarks: Coastal Plain bottomland Hardwood (Brownwater subtype)



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

Bat Survey Data Form

Project: NLEB Eastern Research County: Wayne Site# 1 Night# 1 ~~Site~~ Name: Old Cemetery Waynesboro Date: 7/6/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2325	LASBOR	F	J	NR	41	8	10g	B	25'	1300/R	
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

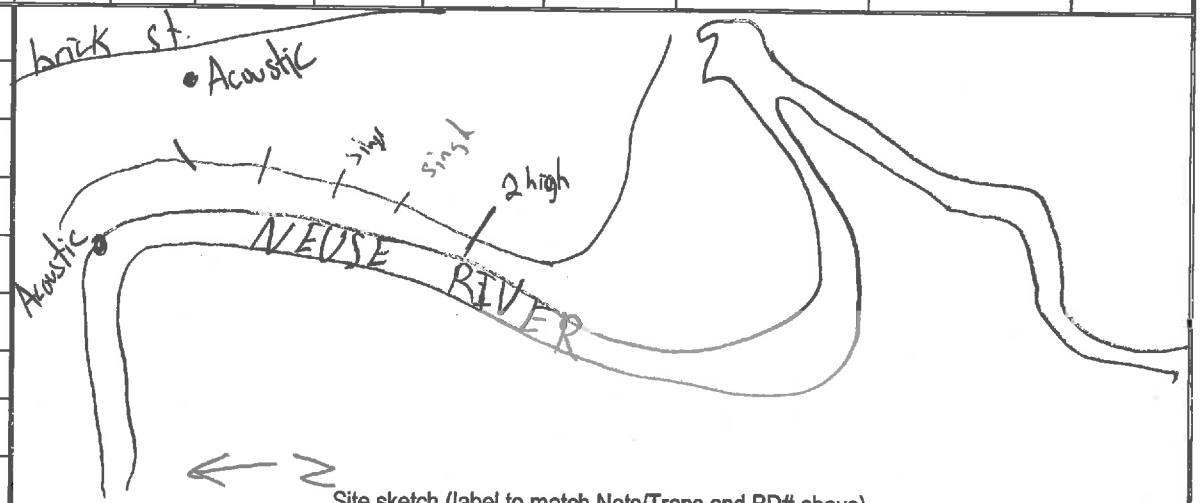
Project: WLER Bat Research	County: Wayne	Site#: 2	Night#: 1	Site Name: Old Waynesboro parallel to river		Date: 8-3-16			
Latitude: 35.37445	Longitude: -78.02137			Datum: NAD 83	Elevation: 58	ID By: B. Dustin			
Observers: B. Dustin, S. Beavans, N. Mountcastle				Start Time: 8:20		End Time: 0211			
Conditions:	Time 20:10	Temp 79°	Wind 0	Clouds 0	Time 23:50	Temp 73	Wind 0	Clouds Clear	Time 1:30	Temp 73	Wind 0	Clouds Clear
Moon Effect: N/A	Start:	Stop:	Land Use: Urban / Agriculture / Forest (41) / Water (51) / Wetland (61) / Barren (*describe*):									

NETS/TRAPS:	A: 1x24-6m	B: 1x18-4m	C: 1x18-4m	D: 1x18-6m	E: 1x18-2.4	F:
Pool size WxL	—	—	—	—	—	
Swoop WxL	—	—	—	—	—	
Photo? or #	Y	Y	Y	Y	Y	

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.376673	-78.024319	110	12	low	5.6	—	—	2000	0206	Y
B	35.377422	-78.023348	240	12	low	4.2	—	—	2000	0211	Y

Site Description: Old Waynesboro Park bottomland hardwood All nets set on path that parallels Neuse River

Remarks: ~~Piedmont/Mtn~~ Coastal Plain Levee Forest



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

Bat Survey Data Form

Project: NLEB Eastern Research County: Wayne Site# 2 Night# Site Name: Old Waynesboro Parallel to River Date: 8-3-16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2320	NYCHUM	M	A	R	33	12	8	A	16'	CALYX 0046	
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	**County:**	Wayne	**Site#:**	3	**Night#:**	1	**Site Name:**	Old Waynesburg Dump	**Date:**	8/4/16
Latitude: 35.37554		Longitude: -78.01974						Datum: NAD 83	Elevation: 75'	ID By: H. Wallace	
Observers: B. Dustin, Ed Corey, N. Mountcastle								Start Time: 2030		End Time: 0140	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2030	79	2	2	2325	77	1	1	0140	73	0	0

Moon Effect: New	Start:	**Land Use:** Urban / Agriculture / Forest (41) / Water (51) / Wetland (61) / Barren *(describe)*:
	Stop:	

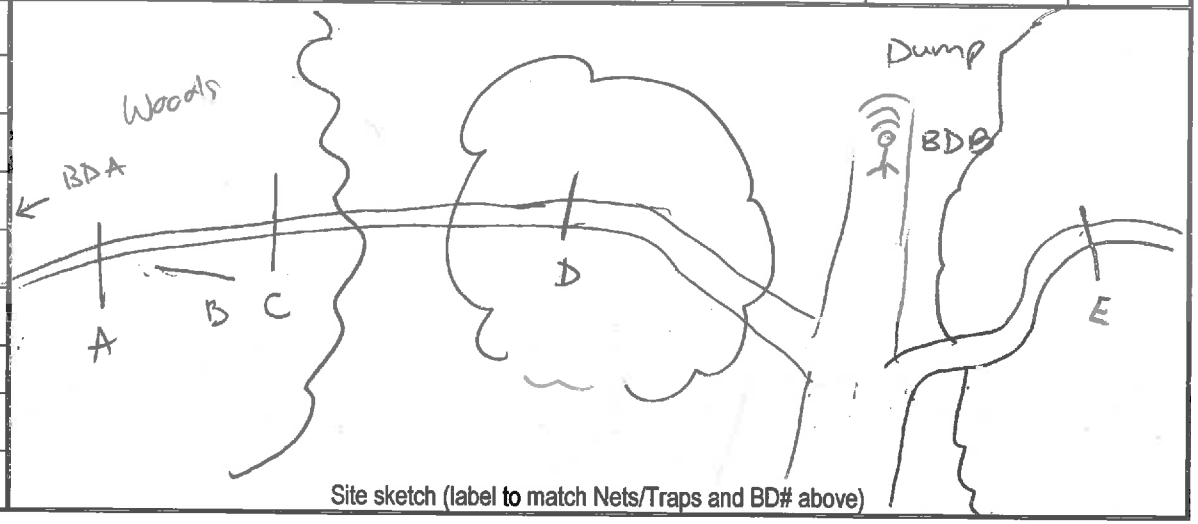
NETS/TRAPS:	A: 1×1H-6m	B: 1×3H-9m	C: 1×1H-18m	D: 1×2H-6m	E: 1×2H-12m	F:
Pool size WxL	N/A					
Swoop WxL	N/A					
Photo? or #	Y	Y	Y	Y	Y	

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.377352	-78.020876	4°	12	med	5.4	8/16	—	2000	0226	Y
B	35.375731	-78.019589	48	12	10	5.0	8/16	—	2000	0113	Y

Site Description: nets set in various patches of forest / upland areas. All hardwoods.

Coastal Plain Lower Forest, in part, but mostly disturbed / maintained

Remarks:



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

Bat Survey Data Form

Project: NLEB Eastern Research County: Wayne Site# 3 Night# 1 Site Name: Old Waynesborough Dump Date: 8/4/16

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1	2357	LASBOR	M	J	NR	39	13	9	C	6'	CALIX 0048	
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
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14												
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17												
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19												
20												

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NLEB Eastern Research	County:	Wayne	Site#:	4	Night#:	1	Site Name:	Old Waynesboro Red Loop	Date:	8/9/16
Latitude: 35.370144		Longitude: -78.017657						Datum: NAD83	Elevation: 56'	ID By: H. Wallace	
Observers: H. Wallace, S. Beavens, N. Mountcastle								Start Time: 2015		End Time: 0120	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	2003	82	Ø	10%	2230	80	Ø	Ø	0110	77	Ø	25%

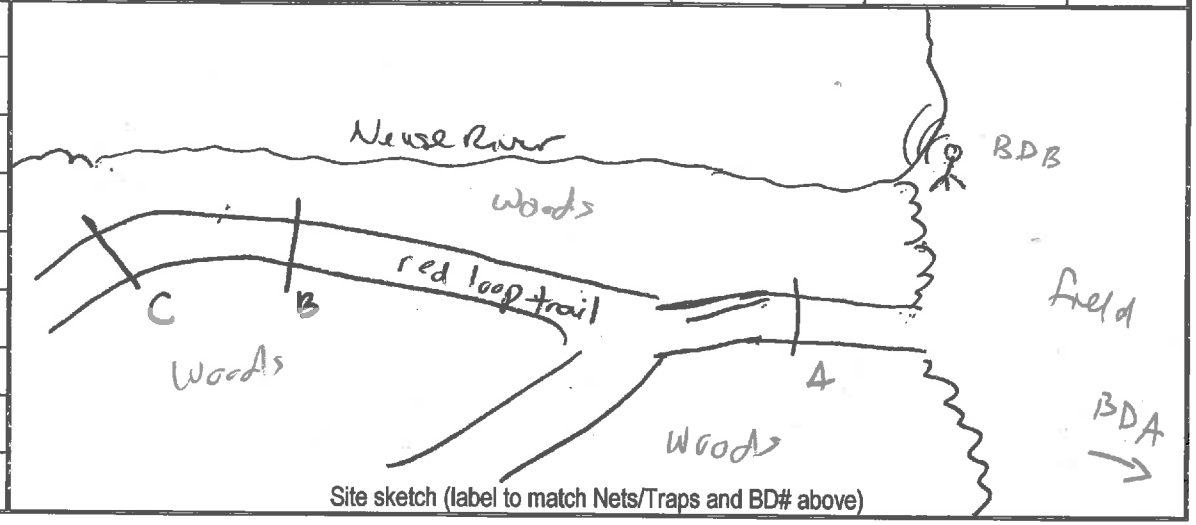
Moon Effect: WAX CRES	Start: N/A Stop: N/A	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): 41 51 61

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

BD#	Latitude	Longitude	Mic	Ht	clutter	gain	trigger	interval	Start time	Stop Time	Photo?
A	35.371902	-78.016152	313'	12'	no	5.6	8/16	—	2000	0142	yes
B	35.370738	-78.017523	269'	12'	no	5.7	8/16	—	2000	0137	yes

Site Description: All nets set on red loop trail. Levee forest w/ all hardwoods

Remarks: ~~Piedmont/Mtn~~ Coastal Plain Levee Forest



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

Bat Survey Data Form

Page _____ of _____

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

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	EAR	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2												
3												
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SKUNKED

Appendix E

Mist Net Site Photographs

Bladen Lakes State Forest – Singletary Lake Gate 8

Photo 1 - Mist Net Site 1, Night 1, Net A

Photo 2 - Mist Net Site 1, Night 1, Net B

Photo 3 - Mist Net Site 1, Night 1, Net C

Photo 4 - Mist Net Site 1, Night 1, Net D

Bladen Lakes State Forest – Tatum Millpond East

+ MYSE Captured in this set

Photo 5 - Mist Net Site 2, Night 2, Net A+

Photo 6 - Mist Net Site 2, Night 2, Net B

Photo 7 - Mist Net Site 1, Night 2, Net C

Goose Creek Game Lands – Pintail Road

Photo 8 - Mist Net Site 1, Nights 1, 2 and 3, Net A

Photo 9 - Mist net Site 1, Nights 1, 2, and 3, Net B

Goose Creek Game Lands – Parker Tract

Photo 10 - Mist Net Site 2, Night 1, Net A

Photo 11- Mist Net Site 2, Night 1, Net B

Photo 12 - Mist Net Site 2, Night 1, Net C

Photo 13 - Mist NEt Site 2, Night 1, Net D

Photo 14 - Mist Net Site 2, Night 1, Net E

Goose Creek Game Lands – Pintail Road Spur

Photo 15 - Mist Net Site 3, Night 1, Net A

Photo 16 - Mist Net Site 3, Night 1, Net B

Photo 17 - Mist Net Site 3, Night 1, NEt C

Photo 18 - Mist Net Site 3, Night 2, Net A

Photo 19 - Mist Net Site 3, Net B

Holly Shelter Game Lands – Tram Road, Creek and Plow Line

Photo 20- Mist Net Site 1, Night 1, Net A

Photo 21 - Mist Net SIte 1, Night 1, Net B

Photo 22 - Mist Net Site 1, Night 1, Net C

Holly Shelter Game Land - Pond

Photo 23 - Mist Net SIte 2, Night 1, Net A

Phot 24 - Mist Net Site 2, Night 1, Net B

Photo 25 - Mist Net Site 2, Night 1, Net C

Photo 26 - Mist Net Site 2, Night 1, Net D

Photo 27- Mist Net Site 2, Night !, Net E

Holly Shelter Game Lands – Swamp Ridge

Photo 28 - Mist Net Site 3, Night 1, Net A

Photo 29 - Mist Net Site 3, Night 1, Net B

Photo 30 - Mist Net Site 3, Night 1, Net C

Photo 31 - Mist Net Site 3, Night 1, Net D

Holly Shelter Game Lands – Bannerman Road Left Gate

Photo 32 - Mist NEt Site 4, Night 1, NEt A

Photo 33 - Mist Net Site 3, Night 1, Net B

Photo 34 - Mist Net SIte 4, Night 1, Net C

Photo 35 - Mist Net Site 4, Night 1, Net D

Holly Shelter Game Lands – Lodge Road Pond

Photo 36 - Mist Net Site 5, Night 1, Net A

Photo 37- Mist Net Site 5, Night 1, Net B

Photo 38 - Mist NEt Site 5, Night 1, Net C

Photo 39 - Mist Net SIte 5, Night 1, NEt D

Holly Shelter Game Lands – Tram Road

Photo 40 - Mist Net Site 6, Night 1, Net A

Photo 41 - Mist Net Site 6, Night 1, Net B

Photo 42- Mist Net Site 6, Night 1, Net C

Neuse River Game Lands – Duck Creek Road

Photo 43 - Mist Net Site 1, Night 1, Net A

Photo 44 - Mist Net Site 1, Night 1, Net B

Neuse River Game Lands – Food Plot

Photo 45 - Mist Net Site 2, Night 1, Net A

Photo 46 - Mist NEt Site 2, N ight 1, Net B

Photo 47 - Mist Net SIte 2, Night 1, Net C

Photo 48 - Mist NEt SIte 2, Night 1, Net C

Neuse River Game Lands – Food Plot

Photo 49 - Mist Net SIte 2 Night 2, Net A

Photo 50 - Mist Net Site 2, Night 2, Net B

Photo 51 - Mist Net Site 2, Night 2, Net C

Photo 52 - Mist Net Site 2, Night 2, Net D

Neuse River Game Lands – Swamp

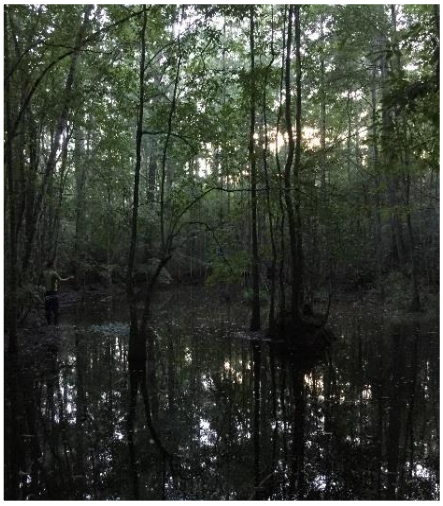
Photo 53 - Mist Net Stie 3, Night 2, Net A

Photo 54 - Mist Net Site 3, Night 2, Net B

Photo 55 - Mist Net Site 3, Night 2, Net C

Photo 56 - Mist Net Site 3, Night @, NetD

Photo 57 - Mist Net Site 3, Night 2, Net E



Neuse River Game Lands – Swamp

Photo 58 - Mist Net Site 3, Night 2, Nets A and B

Photo 59 - Mist Net Site 3, Night 2, Nets C and D

Neuse River Game Lands - Creek

Phot 60 - Mist NEt Site 4, Night 1, NEt A

Photo 61 - Mist Net Site 4, Night 1, Net B

Murryaville Mitigation Site – Corbett

Photo 62 - Mist Net Site 2, Nights 1 and 2, Net A

Photo 63 - Mist Net Site 3, Nights 1 and 2,, Net B

Photo 64 - Mist Net Site 2, Nights 1 and 2, Net C

Photo 65 - Mist Net Site 2, Nights 1 and 2, Net D

Murrayville Mitigation Site – Pond

Photo 66 - Mist Net Site 1, Nights 1 and 2, Net A

Photo 67 - Mist Net Site 1, Nights 1 and 2, Net B

Photo 68 - Mist Net Site 1, Nights 1 and 2, Net C

Photo 69- Mist Net Site 1, Nights 1 and 2, Net D

Old Waynesborough Park – Cemetery

Photo 70 - Mist Net Site 1, Night 1, Net A

Photo 71 - Mist Net Site 1, Ngith 1, Net B

Photo 72 - Mist Net Site 1, Night 1, Net C

Photo 73 - Mist Net Site 1, Night 1, Net D

Old Waynesborough Park – Parallel to River

Photo 74 - Mist Net Site 2, Night 1, Net A

Photo 75- Mist Net Site 2, Night 1, Net B

Photo 76 - Mist Net SIte 2, Night 1, Net C

Photo 77 - Mist Net Site 2, Night 1, Net D

Photo 78 - Mist Net Site 2, Night 1, Net E

Old Waynesborough Park – Dump

Photo 79 - Mist Net Site 3, Night 1, Net A

Photo 80- Mist Net Site 3, Night 1, Net B

Photo 81 - Mist Net SIte 3, Night 1, Net C

Photo 82 - Mist Net Site 3, Night 1, Net D

Photo 83 - Mist Net Site 3, Night 1, Net E

Old Waynesborough Park – Red Loop

Photo 84 - Mist Net Site 4, Night 1, Net A

Photo 85- Mist Net Site 4, Night 1, Net B

Photo 86 - Mist Net SIte 4, Night 1, Net C

Appendix F

Representative Captured Species Photographs

Healthy adult non-reproductive male northern long-eared bat (Myotis septentrionalis) captured on 07/20/2016 at Bladen Lakes State Forest Site 2 (Tatum Millpond East) 34.71071, -78.52111.

faint mask; long, thin, pointed tragus

wart on striated uropatagium

healthy wing

slightly keeled calcar

toe hairs

Band: CALYX0034