PROTECTED BAT SPECIES SURVEY REPORT

Northern Long-eared Bat Research Project
Eastern North Carolina
Fall 2017 and Winter 2018
Phase V

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Prepared for

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1.0 PROJECT DESCRIPTION

The North Carolina Department of Transportation (NCDOT) requested Ecological Engineering, LLP and its subcontractor Ecological Solutions, Inc. (project team) to assist in conducting portions of a research study of the northern long-eared bat (*Myotis septentrionalis,* NLEB, or MYSE) in eastern North Carolina. Mist-net surveys were conducted in three counties (Carteret, Craven, and Jones) within the Croatan National Forest (Croatan NF) for two sessions (fall 2017 and winter 2018). The objectives of the study are as follows:

- Determine the distribution of NLEB in eastern North Carolina, further document fall/winter activity, and develop greater understanding of NLEB winter habitat use and behavior;
- Conduct mist-netting and radio telemetry on NLEBs to locate and characterize day roost in late fall/winter;
- Swab susceptible bats to determine presence/absence of *Pseudogymnoascus destructans* (Pd), the fungus that causes white nose syndrome (WNS).

This report includes results of two mist-net survey sessions (1 & 2) and tracking which occurred from November 15th, 2017, to March 21st, 2018, in Carteret, Craven, and Jones Counties within the Croatan NF (Figures 1 & 2). Session 1 mist-net surveys occurred late fall of 2017 from November 15th to December 20th, and Session 2 mist-net surveys were conducted during the winter of 2018 from December 27th to February 28th. Other than a two day break from December 24th to 25th, 2017, tracking continued throughout the survey period from December 3rd to March 21st.

During Session 1, fall 2017, the project team conducted mist-net surveys in a total of 14 locations, including the site of a 2017 NC Wildlife Resources Commission (NCWRC) NLEB capture in Craven County (Figures 3 & 4 a-b). During Session 2, winter 2018, the project team conducted mist-net surveys in a total of 17 locations (Figures 5 a-b). The counties surveyed and site numbers are listed below. Detailed site descriptions, conditions, and survey dates can be found in Tables 1-6.

Session 1, fall 2017:

1. Carteret County a total of two locations (Sites 1 and 2)
2. Craven County a total of five locations (Sites 1-5)
3. Jones County a total of seven locations (Sites 1-7)

Session 2, winter 2018

1. Carteret County a total of two locations (Sites 2 & 3)
2. Craven County a total of nine locations (Sites 1, 3, 4, and 6-11)
3. Jones County a total of six locations (Sites 1-4, 8, and 9)

All surveys were conducted within suitable roosting and foraging habitat for NLEB and were conducted by qualified bat biologists currently permitted by the US Fish and Wildlife Service (USFWS) and NCWRC. Special use permits were obtained from the Croatan NF and Weyerhaeuser Company. Mist-netting at the above-referenced project locations was conducted with the goal of catching NLEB. All captured NLEB were fitted with transmitters, and telemetry was utilized to find roost locations. Emergence counts were performed following USFWS protocols at roost locations when weather conditions allowed.

2.0 QUALIFICATIONS

Ecological Engineering staff provided project administration, coordination, quality assurance, field support, and deliverable preparation on this contract.

Lane Sauls served as contract manager and assisted with coordination for this project. Lane's experience includes 23 years working in the natural resources field as project scientist, project manager, and contract manager for numerous projects across North Carolina.

Project manager David Cooper assisted with habitat characterization, report preparation, and quality assurance. David has 19 years of work experience in the natural resources field, including three years of experience assisting with bat surveys.

Ecological Engineering contracted with Ecological Solutions to perform field surveys and data analysis. All surveys were conducted by qualified biologists authorized to perform bat surveys under applicable USFWS and NCWRC permits.

The Ecological Solutions survey team was led by Senior Ecologist Dottie Brown and Bat Ecologist Kristi Confortin.

Dottie Brown served as principal investigator on this project. She was the lead biologist for site selection, mist-net, radio tracking, roost and emergence surveys. Dottie also oversaw data analysis and assisted with report writing for this project. Dottie holds a Federal USFWS Section 10 permit (TE94704A-1) as well as a NCWRC (18-ES00367) Scientific Collection permit. She has 11 years of experience performing bat surveys in the southeastern United States, Central America, and Africa, utilizing techniques such as pit tagging, emergence surveys, acoustic surveys, harp traps and mist-nets, radio telemetry, roost surveys, and hibernacula surveys.

Kristi Confortin served as a permitted biologist on mist-net surveys, radio tracking, and roost and emergence surveys and assisted with data and report preparation. Kristi is covered under the Ecological Solutions Federal USFWS Section 10 permit (TE48579B-2) and the NCWRC (18-ES00141). Kristi has five years of natural resource experience including bat mist-netting, banding, acoustics, and radio telemetry, and roost and hibernacula surveys.

3.0 METHODOLOGY

This section describes the methods used to perform mist-net surveys. Survey methodology followed procedures and protocols set forth by the NCDOT project scope dated October 9th, 2017 and the USFWS 2017 Range-Wide Indiana Bat Summer Survey Guidelines (USFWS 2017). All surveys adhered to the protocols stipulated in the USFWS National White Nose Syndrome Decontamination Protocol (USFWS 2016), North Carolina's White-nose Syndrome Surveillance and Response Plan (NCWRC 2016), and North Carolina Department of Transportation Decontamination Protocol (NCDOT 2017). Due to previous coordination, USFWS did not require site-specific survey plans.

3.1 Mist-net Surveys

Mist-net surveys were performed with the goal of capturing NLEB in three counties (Carteret, Craven, and Jones) within the Croatan NF. The most suitable mist-net sites were selected by permitted bat ecologist Dottie Brown. Net deployments were individually tailored to specific available habitats and

flight corridors, and configurations utilized combinations of nets sized between four and twelve meters in length, single or stacked between one net panel and three net panels in height. Between four and nine net sets were deployed at each survey site per calendar night of mist-net surveys. Each mist-net site was photographed, and a GPS point was taken. Figures 4 a-b, and 5 a-b depict the locations of mist-net sites within each of the three counties sampled. At the onset of the research in November 2017, mist-netting was only conducted on nights for which the forecast temperature was greater than 50° Fahrenheit (F) at the beginning of each nightly survey period. In addition, surveys were completed for 5 hours unless the temperatures dropped below 45° F; however, during Session 1 in late November NCDOT and USFWS approved continuing surveys until temperatures dropped to 40° F. Lascar Electronics model EL-USB-1-LCD temperature data loggers provided by NCDOT were deployed at each site to assist in documenting temperatures at the time of each bat capture. NCDOT mist-net data sheets, which also require documentation of all information contained in the USFWS Sample Data Sheet for Indiana Bat Surveys (USFWS 2017), were used to record mist-net site and capture data.

3.2 Radio Tracking

During the 2017 fall Session, two NLEB were captured in Craven County (Figures 6 and 6a), and three NLEB were captured during the 2018 winter session in Carteret and Craven Counties (Figures 7 and 7a) for a total of five NLEB captured within the Croatan NF. All five NLEB were fitted with 21-day Holohill Systems, LB – 2x radio transmitters within the 150-frequency range. Transmitter attachment adhered to methodology described in the 2017 Range-wide Indiana Bat Summer Survey Guidelines (USFWS 2017). Bats were tracked daily until the roost was located or for a maximum of eight hours. Radio tracking was performed primarily by pedestrian means using a handheld three or five-element antenna. In the event a transmitter signal was lost, methods used to relocate the signal included expanded pedestrian transects and vehicular transects using an elevated, pole-mounted five-element antenna. During the course of radio tracking, field conditions (i.e. flooding and prescribed fire) prevented roost documentation for a total of six days. Radio tracking efforts continued for NLEBs 302 and 180 for the entire 21-day period. Radio tracking efforts continued for NLEB 430 for 16 days until the dropped transmitter was located on the 16th day, and for NLEB 100 for five days until the dropped transmitter was located on the fifth day.

NLEB 340 was tracked from December 19th, 2017 to January 10th, 2018 for a total of 21 days with a two day break on December 24th and 25th during which no tracking was conducted. After the 21-day tracking period, NCDOT and USFWS approved a continuation of tracking for this bat until the transmitter signal died; therefore, tracking continued another nine days until January 19th. After transmitter failure, NLEB 340 was able to be visually observed in its roost tree (340D), and surveyors, on a volunteer basis, continued checking the roost tree daily for visual documentation of NLEB 340 for another 16 days outside of the scope of this project and with NCDOT approval, until February 13, 2018.

3.3 Roost Inspection/Emergence Surveys

Roost documentation was conducted utilizing the USFWS Emergence Survey Datasheet (USFWS 2017). Each roost was photographed, and a GPS point was taken. Figures 8a and 9a-b depict the locations of roosts documented during each session. Emergence counts were performed at each roost within the parameters of the scope to include:

- The scoped emergence count duration was from one half hour before dusk to one hour after dusk.
- Bats exiting the roost were counted in five minute intervals.

- Temperatures were recorded at the beginning and end of each emergence count.
- Emergence counts were not performed at every roost for every bat due to temperatures below 45°F, rain, high winds, or heavy fog.

3.4 Habitat Characterization

Prior to performing field surveys, a desktop Geographic Information System (GIS) assessment using the most recent available color aerials of the study area was performed to determine availability of potentially suitable habitat for NLEB. This information was utilized to guide preliminary site selection. A pre-netting site visit was conducted between November 6th and 8th, 2017, to verify the presence of suitable habitat and finalize mist-net site locations. Field assessments included extensive pedestrian reconnaissance of the study area (Croatan NF).

Habitat at each mist-net site was described by community type as described in The Guide to the Natural Communities of North Carolina, Third Approximation (Schafale, 1990). In addition, each mist-net site's habitat was scored as either:

1) pine/hardwood/mixed/unforested;
2) upland/bottomland;
3) managed (thinned, burned, or pine plantation)/unmanaged;
4) mature forest/ <20 years old forest or cutover;
5) natural (>50% wooded), rural (>50% agricultural land)/mixed (primary land use is not wooded or agricultural):
6) clutter estimate as either,
    (1) sparse/no, <10% cover;
    (2) low, 10-39% cover;
    (3) medium, 40-75% cover;
    (4) high, >75% cover

For each documented NLEB roost, a USFWS Indiana Bat Roost data sheet was completed and habitat was characterized by community type as described in The Guide to the Natural Communities of North Carolina, Third Approximation (Schafale, 1990).

4.0 FINDINGS

This section describes the results of habitat assessments, mist-net surveys and captures, tracking efforts, and roost documentation and emergence surveys during Session 1 fall (November 15th to December 20th, 2017) and Session 2 winter (December 27th, 2017 to March 21st, 2018).

4.1 Mist-net Sites and Habitat Descriptions

The mist-net sites monitored were chosen based on the availability of suitable habitat for northern long-eared bats, proximity to foraging areas, and flight corridors. During Session 1 fall 2017, mist-net surveys were conducted at 2 locations in Carteret County, 5 locations in Craven County, and 7 locations in Jones County for a total of 42 crew nights. During Session 2 winter 2018, mist-net surveys were conducted at 2 locations in Carteret County, 9 locations in Craven County, and 6 locations in Jones County for a total of 47 crew nights. On average 4-9 nets were deployed per night. Mist-net sites are described below. Additional mist-net site data and dates sampled are presented in Tables 1 through 6. Please refer to Figures 4 a-b and 5 a-b accompanying this report for the locations of mist-net sites.

4.1.1 – Carteret County

Mist-net Site 1-Carteret is located in the southeastern portion of the forest along Forest Service (FS) Road 183 just off FS Road 181/Oyster Point at approximately 34.761987°, -76.762163°. The mist-net site was situated in upland, mesic, mixed pine and hardwood forest at the edge of an upland row pine/managed pine stand. This community type consists of a canopy of longleaf pine (*Pinus palustris*), loblolly pine (*Pinus taeda*), sweetgum (*Liquidambar styraciflua*), live oak (*Quercus virginiana*), and water oak (*Quercus nigra*). The understory is partially open and consists of wax myrtle (*Morella cerifera*), fetterbush (*Lyonia lucida*), swamp bay (*Persea palustris*), flowering dogwood (*Cornus florida*), American holly (*Ilex opaca*), large gallberry (*Ilex coriacea*), and greenbrier (*Smilax* sp.). Community types in proximity to the mist-net site include Mesic Mixed Hardwoods (Coastal Plain Subtype) (Schafale, 1990), Coastal Plain Small Stream Swamp (Blackwater Subtype), (Schafale, 1990) and managed pine.

Mist-net Site 2-Carteret is located in the eastern portion of the forest. The mist-net site was located along Millis Swamp Road/FS Road 177 at approximately 34.77828°, -76.96162°. Nets were situated along FS Road 177 where the road intersects with Juniper Branch, surrounded by upland row/managed loblolly pine and longleaf pine. This community type consists of a canopy of loblolly pine, longleaf pine, sweetgum, water oak, swamp tupelo (*Nyssa biflora*), sweet bay magnolia (*Magnolia virginiana*), American holly, red maple (*Acer rubrum*), Atlantic white-cedar (*Chamaecyparis thyoides*), laurel oak (*Quercus hemisphaerica*), and swamp titi (*Cyrilla racemiflora*). The understory contains species typical of peatland communities, such as fetterbush, large gallberry, wax myrtle, and giant cane (*Arundinaria gigantea*), and greenbrier. Community types in proximity to the mist-net site include Coastal Plain Small Stream Swamp (Blackwater Subtype).

Mist-net Site 3-Carteret is located in the southeastern portion of the forest along Millis Road /FS Road 128) at approximately 34.76831°, -76.97234°. This area consists of an upland and bottomland mix, with managed row pine stands and riparian hardwood forest. The mist-net site was situated along Millis Road/FS Road 128 at its intersection with a small stream and swamp complex. This community type consists of a canopy of loblolly pine, sweetgum, bald cypress (*Taxodium distichum*), swamp tupelo, sweet bay magnolia, and American holly. The understory contains species typical of peatland communities, such as fetterbush, large gallberry, wax myrtle, and giant cane. Community types in proximity to the mist-net site include Coastal Plain Small Stream Swamp (Blackwater Subtype).

4.1.2 – Craven County

Mist-net Site 1-Craven is located in the northeastern portion of the forest at a NCWRC game land located off of Mill Branch Road/FS Road 170 at approximately 34.027270°, -77.046536°. The mist-net site was situated where a forest road intersects with two unnamed tributaries to Brice Creek and a wetland/swamp. The immediate area surrounding the site consists of a canopy dominated by sweetgum, flowering dogwood, swamp bay, red maple, tulip poplar (*Liriodendron tulipifera*), swamp chestnut oak (*Quercus michauxii*), black willow (*Salix nigra*), water tupelo (*Nyssa aquatica*), overcup oak (*Quercus lyrata*), white oak (*Quercus alba*), southern red oak (*Quercus falcata*), and turkey oak (*Quercus laevis*). The understory is mostly open, and contains giant cane, American holly, wax myrtle, dog hobble (*Leucothoe axillaris*), netted chain fern (*Woodwardia areolata*), horse sugar (*Symplocos tinctoria*), and inkberry (*Ilex glabra*). Community types in proximity to the mist-net site include Mesic Mixed Hardwoods (Coastal

Plain Subtype), Coastal Plain Semipermanent Impoundment (Schafale, 1990), and Coastal Plain Small Stream Swamp (Blackwater Subtype).

Mist-net Site 2-Craven is located in the northeastern portion of the forest, along Mill Branch Road/FS Road 170 where it intersects Black Branch at approximately 35.01611°, -77.05026°. The mist-net site was situated within an upland mixed hardwood forest and along the edge of a large cypress-gum swamp/pond. The immediate area surrounding the site consists of a canopy dominated by water oak, white oak, loblolly pine, sweetgum, sweet bay magnolia, swamp chestnut oak, eastern red cedar (*Juniperus virginiana*), and the cypress-gum swamp/pond contains bald cypress, swamp tupelo (*Nyssa biflora*), and black willow. The understory is moderately dense, and contains swamp bay, wax myrtle, fetterbush, inkberry, giant cane, American holly, horse sugar, highbush blueberry (*Vaccinium corymbosum*), and lanceleaf greenbrier (*Smilax smallii*). Vines are common, and include Carolina jasmine (*Gelsemium sempervirens*) and roundleaf greenbrier (*Smilax rotundifolia*). Community types in proximity to the mist-net site include Mesic Mixed Hardwoods (Coastal Plain Subtype), Coastal Plain Semipermanent Impoundment, and Coastal Plain Small Stream Swamp (Blackwater Subtype).

Mist-net Site 3-Craven is located in the northeastern portion of the forest at approximately 35.04836°, -77.05100°. The mist-net site was situated between a wetland and cypress-gum swamp/pond, along a gated forest road that connects with FS Road 121-A and Brice Creek boat ramp. The surrounding forest canopy consists of loblolly pine, sweetgum, water oak, flowering dogwood, white oak, turkey oak, swamp chestnut oak, tulip poplar, swamp bay, overcup oak, sourwood (*Oxydendrum arboreum*), northern red oak (*Quercus rubra*), American beech (*Fagus grandifolia*), and scarlet oak (*Quercus coccinea*), and the wetland and cypress-gum swamp/pond canopy consist of gum/tupelo and bald cypress. The upland understory is relatively sparse, and contains American holly, giant cane, horse sugar, dwarf palmetto (*Sabal minor*), and Christmas fern (*Polystichum acrostichoides*). Community types in proximity to the mist-net site include Mesic Mixed Hardwoods (Coastal Plain Subtype), Coastal Plain Semipermanent Impoundment, and Coastal Plain Small Stream Swamp (Blackwater Subtype).

Mist-net Site 4-Craven is located in the middle of the forest along FS Road 178 off of Middle Little Road/FS Road 121-2 at approximately 35.00707°, -77.07463°. The mist-net site was situated between a creek/swamp and is surrounded by mixed pine and hardwood forest. The canopy consists of loblolly pine, red maple, sweetgum, water oak, black gum, bald cypress, swamp bay, turkey oak, and mimosa (*Albizia julibrissin*). A dense understory includes American holly, wax myrtle, dog hobble, giant cane, swamp bay, fetterbush, cinnamon fern (*Osmundastrum cinnamomeum*), Carolina jasmine, and several species of greenbrier. Community types in proximity to the mist-net site include Coastal Plain Small Stream Swamp (Blackwater Subtype).

Mist-net Site 5-Craven is located in the middle of the forest along FS Road 202 off of Middle Little Road/FS Road 121-2 at approximately 34.96789°, -77.05271°. The mist-net site was situated at the edge of a large wetland and several tributary streams to West Prong Brice Creek and a managed pine stand. The canopy consists of red maple, bald cypress, water tupelo, sweetgum, loblolly pine, longleaf pine, white oak, turkey oak, dogwood, and pond pine (*Pinus serotina*). The understory consists of swamp bay, American holly, inkberry, wax myrtle, fetterbush, and dog hobble. Community types in proximity to the mist-net site include Mesic

Mixed Hardwoods (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp (Blackwater Subtype).

Mist-net Site 6-Craven is located in the northern portion of the forest adjacent of the NCWRC Wildlife Management Area (WMA) just off of forest service road 121A at approximately 35.044312°, -77.068239°. The mist-net site was located within both an upland mesic mixed hardwoods and blackwater stream and swamp. The immediate area surrounding the site consists of a canopy dominated by sweetgum, loblolly pine, bald cypress, red maple, white oak and southern red oak. The understory is sparse, and contains swamp and red bay, giant cane, highbush blueberry, and fetterbush. Community types in proximity to the mist-net site include Mesic Mixed Hardwoods (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp (Blackwater Subtype).

Mist-net Site 7-Craven is located within a NCWRC WMA along North Little Road/FS Road 121-1 at approximately 35.040608°, -77.066028° in the northern portion of the forest approximately 1.20 miles from Brice Creek. The mist-net site was situated within an upland mixed hardwood and pine forest with a canopy that is dominated by white oak, southern red oak, sweetgum, loblolly pine, sourwood, and dogwood. The adjacent wetland and bottomland canopy consist of bald cypress, water and swamp tupelo, red maple, and swamp bay. The relatively sparse understory includes hardwood saplings including white oak, southern red oak, sourwood and sweetgum as well as dog hobble, fetterbush, wax myrtle, high bush blueberry, and smilax spp. Community types in proximity to the mist-net site include Dry-Mesic Oak-Hickory Forest (Coastal Plain Subtype) (Schafale, 1990) and Coastal Plain Small Stream Swamp (Blackwater Subtype).

Mist-net Site 8-Craven is located in the northeastern portion of the forest along Hope Road/FS Road 3046 at approximately 34.92144°, -76.83989°. The mist-net site was situated along a wide forest road that intersects with a large pond and wetland surrounded by an upland mature mixed pine and hardwood forest. The canopy in the upland habitat includes loblolly pine, white oak, sweetgum, southern red oak, water oak, live oak, and sourwood, and the adjacent wetland canopy includes bald cypress, red maple, and water tupelo. The understory and herbaceous layers include American holly, highbush blueberry, doghobble, roundleaf greenbrier, lanceleaf greenbrier, saw greenbrier, and grape vines (*Vitis* sp.). Community types in proximity to the mist-net site include Mesic Mixed Hardwoods (Coastal Plain Subtype), Coastal Plain Semipermanent Impoundment, and Coastal Plain Small Stream Swamp (Blackwater Subtype).

Mist-net Site 9-Craven is located in the northeastern portion of the forest where Hope Road/FS Road 3046 and the Neusiok National Recreation Trail intersect at approximately 34.91064°, -76.81831°. The mist-net site was situated in a wetland associated with Still Gut Creek and is surrounded by a mature mixed pine and hardwood forest. The canopy consists of loblolly pine, sweetgum, southern red oak, eastern red cedar, and sweet bay magnolia. The understory is open and consists of fetterbush, giant cane, and greenbrier. Community types in proximity to the mist-net site include Mesic Mixed Hardwoods (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp (Blackwater Subtype).

Mist-net Site 10-Craven is located in the center of the forest along Hunters Creek Road/FS Road 144 at approximately 34.80819°, -77.07938°. The mist-net site was situated along Hunters Creek Road where it intersects with Wolf Swamp surrounded by an upland, mesic, mixed pine and hardwood forest and a managed pine stand. The upland managed row/pine stand canopy

consists of longleaf pine and loblolly pine, and mesic mixed pine and hardwood canopy consists of water oak, laurel oak, sweetgum, white oak, and southern red oak. The mist-nets were established within the riparian corridor of Wolf Swamp where the canopy consists of bald cypress, red bay, swamp bay, water oak, sweetgum, dogwood, water tupelo and swamp tupelo. The understory and herbaceous layers are partially open and consist of American holly, giant cane, fetterbush, dog hobble, inkberry, and greenbrier. Community types in proximity to the mist-net site include Coastal Plain Small Stream Swamp (Blackwater Subtype). It should be noted that a discrepancy in the location of the Craven/Carteret county line between the U.S. Forest Service (USFS) map and the NCDOT GIS shapefile exists in this vicinity. For the purposes of this report, we have utilized the USFS line, but show both lines on the attached mapping.

Mist-net Site 11-Craven is located in the northwestern portion of the forest along Middle Little Road/FS Road 121-2 where it intersects with West Prong Brice Creek at approximately 34.97012°, -77.04887°. The mist-net site was situated in a small blackwater stream and swamp habitat surrounded by upland row pine/managed pine stands. This community type consists of a canopy of longleaf and loblolly pine, sweetgum, bald cypress, red maple, dogwood, American hop-hornbeam (*Ostrya virginiana*), sugar maple (*Acer saccharum*), and swamp chestnut oak. The understory is partially open and consists of American holly, wax myrtle, swamp and red bay, and greenbrier. Community types in proximity to the mist-net site include Coastal Plain Small Stream Swamp (Blackwater Subtype).

4.1.3 – Jones County

Mist-net Site 1-Jones is located in the western portion of the forest at the Dixon Field Boat Ramp along the White Oak River at approximately 34.85598°, -77.21021°. The mist-net site was along FS Road 3057 and is situated within a mesic mixed pine and hardwood forest. The community type consists of a canopy of water oak, loblolly pine, sweetgum, swamp bay, tulip poplar, American beech, swamp chestnut oak, American holly, and sourwood. The understory is open and consists of giant cane, swamp bay, and cat greenbrier (*Smilax glauca*). Community types in proximity to the mist-net site include Coastal Plain Bottomland Hardwoods (Blackwater Subtype) (Schafale, 1990) and Mesic Mixed Hardwoods, Coastal Plain Subtype.

Mist-net Site 2-Jones is located in the western portion of the forest within a mesic mixed pine and hardwood forest associated with Black Swamp Creek and approximately 1.12 miles from the White Oak River at approximately 34.87309°, -77.20116°. The mist-net site was situated at the edge of an NCWRC WMA with a surrounding forest consisting of moderately dense loblolly pine, sweetgum, and red maple. The understory is moderately dense, and includes giant cane, highbush blueberry, and sapling hardwoods including sweetgum, loblolly pine, and red maple. Vines include roundleaf and lanceleaf greenbrier, and Japanese honeysuckle (*Lonicera japonica*). Community types in proximity to the mist-net site include Mesic Mixed Hardwoods (Coastal Plain Subtype) and managed herbaceous areas.

Mist-net Site 3-Jones is located in the southwestern portion of the forest along Haywood, Landing Road/FS Road 146 at approximately 34.81921°, -77.18228°. The mist-net site was located just off of the White Oak River where mist-nets were situated at the edge of large wetland surrounded by a mature, mesic, mixed pine and hardwood forest. The canopy consisted of white oak, sweetgum, northern red oak, American beech, loblolly pine, water oak, tulip poplar, and pignut hickory (*Carya glabra*). The understory is open in the upland mixed pine and hardwood forest in vicinity of the mist-nets and included giant cane and smilax species.

Community types in proximity to the mist-net site include Mesic Mixed Hardwoods (Coastal Plain Subtype) and Tidal Cypress-Gum Swamp (Schafale, 1990).

Mist-net Site 4-Jones is located in the northwestern portion of the forest just east of U.S. Route 17 (US 17) along Crooked Run Road at approximately 34.946018°, -77.233817°. The mist-net site was situated at the edge of a mesic mixed pine and hardwood forest and a blackwater stream and swamp habitat where the canopy consisted of sweetgum, loblolly pine, red maple, southern red oak, water oak, live oak, laurel oak, American beech, white oak, tulip poplar, pignut hickory, and northern red oak. A cluttered understory and herbaceous layer included wax myrtle, swamp bay, American holly, dog hobble, giant cane, high bush blueberry, wild grape vine, Carolina jasmine, horse sugar, occasional dwarf palmetto and greenbrier. Community types in proximity to the mist-net site include Nonriverine Wet Hardwood Forest (Schafale, 1990).

Mist-net Site 5-Jones is located in the northwestern portion of the forest at approximately 34.917830°, -77.231235° along a forest road that runs parallel to US 17. The mist-net site was within a swamp habitat with a mixed mature pine and hardwood forest. Tree species appearing in the canopy include loblolly pine, red maple, sweetgum, black gum, water oak, and water tupelo. The understory was open with a sparse herbaceous layer to include swamp bay, American holly, highbush blueberry, fetterbush, horse sugar, Carolina jasmine, doghobble, and occasional dwarf palmetto. Vines are common, and include roundleaf greenbrier, and laurel-leaf greenbrier (*Smilax laurifolia*). Community types in proximity to the mist-net site include Nonriverine Wet Hardwood Forest.

Mist-net Site 6-Jones is located in the northwestern portion of the forest along a forest road that runs that parallels US 17 at approximately 34.92310°, -77.23143°. The mist-net site was within a swamp habitat within a mixed mature pine and hardwood forest. Tree species appearing in the canopy include red maple, sweetgum, swamp chestnut oak, black gum, and water oak. A sparse and open understory included swamp bay, American holly, highbush blueberry, fetterbush, horse sugar, Carolina jasmine, doghobble, and occasional dwarf palmetto. Vines are common, and include roundleaf greenbrier, and laurel-leaf greenbrier. Community types in proximity to the mist-net site include Nonriverine Wet Hardwood Forest.

Mist-net Site 7-Jones is located in the western portion of the forest south of Catfish Lake and along Mirey Branch Road/FS Road 172 just off of Catfish Lake Road at approximately 34.88871°, -77.16588°. The mist-net site was situated in a blackwater stream swamp habitat with both upland mixed pine and hardwood forest and at the edge of an upland row pine/managed pine stand. This community type consists of a canopy of loblolly pine, sweetgum, swamp chestnut oak, white oak, black gum, red maple, and water oak. The understory is cluttered and consists of hardwood saplings including sweetgum, red maple, wax myrtle, fetterbush , swamp bay, giant cane, large gallberry, and greenbrier. Community types in proximity to the mist-net site include Mesic Mixed Hardwoods (Coastal Plain Subtype) and Tidal Cypress-Gum Swamp.

Mist-net Site 8-Jones is located in the northwestern portion of the forest just east of US 17 along Crooked Run Road and west of Weyerhaeuser property at approximately 34.94943°, -77.21955°. The mist-net site was situated at the edge of a mesic mixed pine and hardwood forest bordering a mesic row pine / managed stand. The canopy consisted of sweetgum, loblolly pine, red maple, southern red oak, water oak, live oak, white oak, tulip poplar, pignut hickory, and northern red oak. A cluttered understory and herbaceous layer included wax myrtle, swamp

bay, American holly, dog hobble, giant cane, highbush blueberry, grape vine, Carolina jasmine, horse sugar, occasional dwarf palmetto and greenbrier. Community types in proximity to the mist-net site include Mesic Mixed Hardwoods (Coastal Plain Subtype) and Nonriverine Wet Hardwood Forest.

Mist-net Site 9-Jones is located in the western portion of the forest along Holston Creek Road where FS Road 134 and 203 intersect at approximately 34.84672°, -77.13167°. The mist-net site was situated along Holston Creek in a blackwater stream swamp habitat with both upland mixed pine and hardwood forest and at the edge of an upland row pine/managed pine stand. This community type consists of a canopy of loblolly pine, sweetgum, tulip poplar, white oak, red maple, and water oak. The understory is partially open and consists of red and swamp bay, American holly, dwarf palmetto, wax myrtle, doghobble, fetterbush , swamp bay, giant cane, large gallberry, Japanese honeysuckle, grape vine, and greenbrier. Community types in proximity to the mist-net site include Coastal Plain Small Stream Swamp (Blackwater Subtype).

Table 1 - Mist-net Site Summary 2017 – Croatan National Forest within Carteret County

Site	Lat, Long	Community Type (per Schafale 1990 unless otherwise noted)	Dates	Start, End Times	Survey Hours	Weather Conditions
1-Carteret	34.761987°, -76.762163°	Upland Managed Pine (not a natural community), and Mesic Mixed Hardwoods, (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp, (Blackwater subtype)	12/12/2017	16:30, 20:10	3.40	Clear, light wind to none, 57°-44° F
2- Carteret	34.77828°, -76.96162°	Coastal Plain Small Stream Swamp, (Blackwater Subtype)	12/12/2017	16:43, 20:09	3.26	Partly cloudy to clear, light wind to none, 51.5°-36° F
			12/15/2017	16:28, 21:40	4.38	Cloudy, no wind to light wind, 53°-42° F
			12/17/2017	16:42, 22:26	5.28	Cloudy, no wind, 51°-47° F

Table 2 - Mist-net Site Summary 2017 – Croatan National Forest within Craven County

Site	Lat, Long	Community Type (per Schafale 1990 unless otherwise noted)	Dates	Start, End Times	Survey Hours	Weather Conditions
1-Craven	35.027270°, -77.046536°	Mesic Mixed Hardwoods, (Coastal Plain Subtype), Coastal Plain Semipermanent Impoundment, and Coastal Plain Small Stream Swamp, (Blackwater Subtype)	11/19/2017	17:00, 20:20	3.20	Cloudy to clear, light wind, 60°-44° F
			11/21/2017	16:50, 22:05	5.15	Cloudy, light wind to no wind, 59°-53° F
			11/22/2017	16:45, 21:20	4.35	Partly cloudy to clear, no wind to light wind, 58°-44° F
			11/24/2017	16:30, 21:15	4.45	Light wind, partly cloudy, 55°-43.5° F
			12/4/2017	16:56, 22:01	5.05	Light wind, no clouds to partly cloudy, 58°-53° F
			12/5/2017	16:39, 22:34	6.13	Partly cloudy, No wind to light wind, 62.5°- 57° F
			12/18/2017	16:54, 22:57	6.03	Partly cloudy, no wind, 64°-45.5° F
			12/19/2017	16:43, 22:23	5.40	Partly cloudy to no clouds, no wind, 64.5°-49° F

Site	Lat, Long	Community Type (per Schafale 1990 unless otherwise noted)	Dates	Start, End Times	Survey Hours	Weather Conditions
2- Craven	35.01611°, -77.05026°	Mesic Mixed Hardwoods, (Coastal Plain Subtype), Coastal Plain Semipermanent Impoundment, and Coastal Plain Small Stream Swamp, (Blackwater Subtype)	11/19/2017	16:56, 20:00	3.04	Partly cloudy to no clouds, no wind, 56°-45° F
3- Craven	35.04836°, -77.05100°	Mesic Mixed Hardwoods, (Coastal Plain Subtype), Coastal Plain Semipermanent Impoundment, and Coastal Plain Small Stream Swamp, (Blackwater Subtype)	12/1/2017	16:39, 22:35	5.04	No wind to light wind, no clouds, 60°-47° F
			12/2/2017	16:42, 22:49	6.07	Cloudy, no wind, 54°-52° F
4- Craven	35.00707°, -77.07463°	Coastal Plain Small Stream Swamp, (Blackwater Subtype)	12/2/2017	16:30, 20:00	3.30	Cloudy, no wind, 56°-51° F
			12/3/2017	16:55, 22:05	5.10	No clouds, no wind, 52.5°-46° F
5 - Craven	34.96789°, -77.05271°	Mesic Mixed Hardwoods, (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp, (Blackwater Subtype)	12/15/2017	16:58, 21:58	5.00	Partly cloudy, no wind to light wind, 56°-42° F
			12/17/2017	16:56, 20:00	3.04	Partly cloudy, no wind to light wind, 53°-47° F

Table 3 - Mist-net Site Summary 2017 – Croatan National Forest within Jones County

Site	Lat, Long	Community Type (per Schafale 1990 unless otherwise noted)	Dates	Start, End Times	Survey Hours	Weather Conditions
1-Jones	34.85598°, -77.21021°	Mesic Mixed Hardwoods, (Coastal Plain Subtype) and Coastal Plain Bottomland Hardwood, (Blackwater Subtype)	11/15/2017	17:28, 22:30	5.02	Partly cloudy, light wind, 63°-48° F
			11/16/2017	17:00, 20:30	3.30	Partly cloudy to no clouds, light wind, 50°-44° F
			11/17/2017	17:00, 18:00	1.00	No clouds, light wind, 50°-40° F
			12/1/2017	16:30, 22:15	5.45	No clouds, no wind, 60°-44° F
2-Jones	34.87309°, - 77.20116°	Mesic Mixed Hardwoods, Coastal Plain Subtype and Managed Herbaceous (not a natural community)	11/18/2017	17:00, 21:00	4.00	Partly cloudy to cloudy, light wind, 58°-58° F
3-Jones	34.81921°, -77.18228°	Mesic Mixed Hardwoods, Coastal Plain Subtype, and Tidal Cypress-Gum Swamp	11/21/2017	16:58, 22:00	5.02	Partly cloudy, no wind to light wind, 64°-53° F
			11/22/2017	16:58, 22:01	5.03	No clouds, no wind, 66°-45° F
			11/24/17	16:58, 21:01	4.07	Partly cloudy, light wind, 56°-44° F

4-Jones	34.946018°, -77.233817°	Non-riverine Wet Hardwood Forest	11/25/2017	16:35, 22:12	5.32	Partly cloudy, no wind, 56°-48°F
			11/26/2017	16:32, 20:18	3.46	No clouds, no wind, 55.5°-43°F
			11/27/2017	16:30, 21:02	4.32	No clouds, no wind, 51.5°-44° F
			11/28/2017	16:35, 22:38	6.03	No clouds, no wind, 61.5°-46° F
			11/29/2017	16:42, 22:35	5.53	No clouds, no wind, 63°-47° F
			11/30/2017	16:32, 22:40	6.08	Partly cloudy, no wind, 63°-47° F
			12/5/2017	16:54, 22:20	5.26	No clouds, no wind, 72°-55° F
			12/18/2017	16:56, 20:08	3.12	No clouds, no wind, 62°-46° F
			12/19/2017	16:40, 19:59	3.19	No clouds, no wind, 57°-51° F
5-Jones	34.917830°, -77.231235°	Non-riverine Wet Hardwood Forest	11/25/2017	16:49, 22:20	5.31	No clouds, no wind, 57°-48° F
			11/26/2017	16:48, 20:37	3.49	Partly cloudy to no clouds, light wind to no wind, 54°-44° F
6-Jones	34.92310°, -77.23143°	Non-riverine Wet Hardwood Forest	11/27/2017	16:40, 20:37	3.57	No clouds, no wind, 53°-44° F
			11/28/2017	16:40, 22:32	5.52	No clouds, no wind, 58°-47° F
			11/29/2017	16:45, 22:20	5.35	No clouds to partly cloudy, no wind to light wind, 66°-49° F
7-Jones	34.88871°, -77.16588°	Mesic Mixed Hardwoods, (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp, (Blackwater Subtype)	11/30/2017	16:45, 22:49	5.04	Partly cloudy, no wind, 59°-46° F

Table 4 - Mist-net Site Summary 2018 – Croatan National Forest within Carteret County

Site	Lat, Long	Community Type (per Schafale 1990 unless otherwise noted)	Dates	Start, End Times	Survey Hours	Weather Conditions
2- Carteret	34.77828°, -76.96162°	Coastal Plain Small Stream Swamp, (Blackwater Subtype)	1/23/2018	17:12, 20:10	3.22	Partly cloudy to no clouds, Light wind to no wind, 57°-46° F
			1/24/2018	17:04, 19:00	2.04	No clouds, no wind, 50°-34° F
			2/20/2018	17:40, 23:20	5.40	Partly cloudy, no wind to light wind, 69.5° -65° F
			2/21/2018	17:50, 23:15	5.25	No clouds, no wind, 73° – 58.5° F
			2/27/2018	17:40, 20:40	3.00	No clouds, no wind to light wind, 60° – 39° F
3-Carteret	34.76831°, -76.97234°	Coastal Plain Small Stream Swamp, (Blackwater Subtype)	2/20/2018	17:50, 23:58	6.:08	Partly cloudy, no wind to light wind, 70° -65° F

Table 5 - Mist-net Site Summary 2018 – Croatan National Forest within Craven County

Site	Lat, Long	Community Type (per Schafale 1990 unless otherwise noted)	Dates	Start, End Times	Survey Hours	Weather Conditions
1-Craven	35.027270°, -77.046536°	Mesic Mixed Hardwoods, (Coastal Plain Subtype), Coastal Plain Semipermanent Impoundment, and Coastal Plain Small Stream Swamp, (Blackwater Subtype)	1/24/2018	17:25, 19:50	2.25	No clouds, no wind, 54°-40° F
			1/26/2018	17:25, 19:47	2.22	No clouds, no wind, 50°-37°F
			1/27/2018	17:20, 23:30	6.10	Overcast to partly cloudy, no wind, 59.5° – 53° F
			2/1/2018	17:30. 22:30	5.00	No clouds to partly cloudy, light winds, 60.5° – 53° F
			2/22/2018	17:57, 23:20	5.17	No clouds, no wind, 73° – 60° F
			2/23/2018	17:35, 23:15	5.40	Partly cloudy to clear skies, no wind, 72.5° – 59° F
3- Craven	35.04836°, -77.05100°	Mesic Mixed Hardwoods, (Coastal Plain Subtype), Coastal Plain Semipermanent Impoundment, and Coastal Plain Small Stream Swamp, (Blackwater Subtype)	2/10/2018	17:40. 22:45	5.05	Partly cloudy to overcast, light wind, 68.5° – 64° F
			2/14/2018	17:40, 22:50	5.10	Partly cloudy to overcast, no wind to light wind, 55° - 51° F
4- Craven	35.00707°, -77.07463°	Coastal Plain Small Stream Swamp, Blackwater Subtype)	2/24/2018	17:40, 23:20	5.40	Partly cloudy, no wind, 71.5° – 61.5° F
6 - Craven	35.044312°, -77.068239°	Mesic Mixed Hardwoods, (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp, (Blackwater Subtype)	1/10/2018	16:50, 22:53	6.03	Cloudy to no clouds, no wind, 62.5°-46° F
			1/20/2018	17:01, 23:05	6.06	Partly cloudy to no clouds, no wind, 58°-41° F
			1/21/2018	17:15, 23:20	6.05	No clouds, no wind, 63.5°-43° F
			1/22/2018	17:20, 23:05	5.45	Partly cloudy, no wind, 65.5°-55.5° F
7 - Craven	35.040608°, -77.066028°	Dry-Mesic Oak-Hickory Forest (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp (Blackwater Subtype)	1/10/2018	17:03, 21:15	4.12	Mostly cloudy to partly cloudy, no wind, 59°-40° F
			1/20/2018	17:50, 22:00	4.50	No clouds, no wind, 54°-40° F
			1/21/2018	17:20, 22:25	5.05	No clouds, light wind to no wind, 58°-44° F
			1/22/2018	17:20, 22:31	5.11	Cloudy, light wind, 64°-57.5° F
			1/23/2018	17:25, 22:25	5.00	No clouds, light wind, 66°-51.5° F
			2/6/2018	17:21, 22:45	5.24	Partly cloudy to no clouds, no wind, 61° – 45° F
			2/9/2018	17:40, 22:47	5.07	No clouds, light wind to no wind, 51° – 44° F

Site	Lat, Long	Community Type (per Schafale 1990 unless otherwise noted)	Dates	Start, End Times	Survey Hours	Weather Conditions
8 - Craven	34.92144°, -76.83989°	Mesic Mixed Hardwoods, (Coastal Plain Subtype), Coastal Plain Semipermanent Impoundment, and Coastal Plain Small Stream Swamp, (Blackwater Subtype)	2/19/2018	17:50, 22:55	5.05	Overcast to no clouds, no wind, 68° – 60° F
9 - Craven	34.91064°, -76.81831°	Mesic Mixed Hardwoods, (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp, (Blackwater Subtype)	2/15/2018	17:41, 22:50	5.09	Partly cloudy to overcast, light wind, 76° – 59° F
			2/16/2018	17:30, 23:40	6.10	Partly cloudy, light wind to no wind, 65° – 62° F
			2/17/2018	17:20, 23:35	6.15	Overcast, no wind, 51° – 51° F
			2/19/2018	17:49, 22:50	5.01	Overcast to no clouds, no wind, 68.5° – 61° F
10 - Craven	34.80819°, -77.07938°	Coastal Plain Small Stream Swamp, (Blackwater Subtype)	2/15/2018	17:50, 22:55	5.05	Partly cloudy, light winds, 60° – 60.5° F
			2/16/2018	17:50, 22:55	5.05	No clouds, no wind, 74° – 64° F
			2/28/2018	17:50, 22:55	5.05	Partly cloudy to overcast with light rain, no wind, 63° – 57° F
11 - Craven	34.97012°, -77.04887°	Coastal Plain Small Stream Swamp, (Blackwater Subtype)	2/24/2018	17:20, 23:00	5.40	Partly cloudy, light winds, 70° – 60° F
			2/27/2018	17:50, 21:16	3.26	No clouds, no wind, 55° – 38° F
			2/28/2018	17:40, 21:30	3.90	No clouds to overcast, no wind, 60° – 57.5° F

Table 6 - Mist-net Site Summary 2018 – Croatan National Forest within Jones County

Site	Lat, Long	Community Type (per Schafale 1990 unless otherwise noted)	Dates	Start, End Times	Survey Hours	Weather Conditions
1-Jones	34.85598°, -77.21021°	Mesic Mixed Hardwoods, (Coastal Plain Subtype) and Coastal Plain Bottomland Hardwood, (Blackwater Subtype)	2/14/2018	17:27, 22:58	5.31	Partly cloudy, no wind, 62° – 49° F
			2/25/2018	17:40, 23:22	5.42	Overcast to partly cloudy, no wind, 73.5° – 59.5° F
2-Jones	34.87309°, - 77.20116°	Mesic Mixed Hardwoods,(Coastal Plain Subtype) and Managed Herbaceous (not a natural community)	1/27/2018	17:14, 22:34	5.58	Partly cloudy to cloudy, no wind, 63.5°-54° F
			2/1/2018	17:25, 20:00	3.25	Partly cloudy to no clouds, light wind, 60°- 35° F
3-Jones	34.81921°, -77.18228°	Mesic Mixed Hardwoods, (Coastal Plain Subtype), and Tidal Cypress-Gum Swamp	2/22/2018	17:50, 22:30	4.40	No clouds, light wind to no wind, 69.5° – 56° F

Site	Lat, Long	Community Type (per Schafale 1990 unless otherwise noted)	Dates	Start, End Times	Survey Hours	Weather Conditions
4-Jones	34.946018°, -77.233817°	Non-riverine Wet Hardwood Forest	2/10/2018	17:30, 23:20	5.50	Partly cloudy to overcast, no wind, 66° – 65.5° F
8-Jones	34.94943°, -77.21955°	Non-riverine Wet Hardwood Forest and Mesic Hardwoods, (Coastal Plain Subtype)	2/6/2018	17:40, 21:42	4.02	Partly cloudy to no clouds, no wind to light wind, 57° – 39° F
			2/9/2018	17:30, 21.34	4.04	Partly cloudy to no clouds, light wind to no wind, 51.5° – 39° F
9-Jones	34.84672°, -77.13167°	Coastal Plain Small Stream Swamp, (Blackwater Subtype)	2/23/2018	17:40, 22:59	5.19	No clouds, no wind, 72.5° – 59° F
			2/25/2018	18:00, 23:06	5.06	Partly cloudy to overcast, light wind to no wind, 78° – 59.5° F

4.2 NLEB Capture Site Habitat Descriptions

Five NLEB were captured in Carteret and Craven Counties. NCDOT, USFWS and state agencies were notified within 24 hours of a capture in accordance with the requirements of all federal and state permits. Copies of capture notifications can be found in Appendix H. All *Myotis* species were photographed, and temperatures at the time of capture were documented. All NLEB capture sites are described below. Additional mist-net capture data are presented in Tables 7 - 9. Please refer to the Figures accompanying this report for the locations of mist-net sites.

4.2.1 – Croatan National Forest Carteret County

Mist-net Site 2-Carteret is the site of a male NLEB captured on 2/20/2018, transmitter frequency 150.302. The site is situated in the eastern portion of the forest. The mist-net/NLEB capture site was located east of the Pocosin Wilderness and west of Newport, NC along Millis Swamp Road/FS Road 177 at approximately 34.77828°, -76.96162°. The capture site was along the road where it intersects with Juniper Branch, within the Coastal Plain Small Stream Swamp (Blackwater Subtype) natural community. The capture site is surrounded by upland row/managed loblolly pine and longleaf pine. There are several streams that converge in this general area and connect to the Pocosin Wilderness, a large wetland/swamp area. For tree species please refer to the description of mist-net site 2-Carteret in section 4.1.1.

4.2.2 – Croatan National Forest Craven County

Mist-net Site 1-Craven is the site of a male NLEB captured on 12/18/2017, transmitter frequency 150.340. The site is situated in the northeastern portion of the forest at a NCWRC game land located off of Mill Branch Road/FS Road 170, at approximately 34.027270°, -77.046536°. This site is also the location of the first NLEB captured within the Croatan NF in May 2017 by NCWRC. This site is located approximately 0.5 miles west of Brice Creek and is situated where a forest road intersects with two tributaries to Brice Creek and a wetland/swamp that is surrounded by Mesic Mixed Hardwoods, (*Coastal Plain Subtype*), Coastal Plain Semipermanent

Impoundment, and Coastal Plain Small Stream Swamp, (*Blackwater Subtype*) community types. For tree species please refer to the description of mist-net site 1-Craven in section 4.1.2.

Mist-net Site 4-Craven is the site of a male NLEB captured on 12/2/2017, transmitter frequency 150.430. The site is situated in the center of the Croatan NF along FS Road 178 off of Middle Little Road/FS Road 121-2 at approximately 35.00707°, -77.07463°. The capture site borders a large wetland/swamp area north of Catfish Lake, is approximately 0.5 miles west of Brice Creek, and is adjacent to Weyerhaeuser property. The mist-net site was situated within the Coastal Plain Small Stream Swamp (Blackwater Subtype) community type. The surrounding area consists of mixed pine and hardwood forested uplands. For tree species please refer to the description of mist-net site 4-Craven in section 4.1.2.

Mist-net Site 10-Craven is the site of two male NLEB captures on 2/16/2018 and 2/28/2018, transmitter frequencies 150.100 and 150.180, respectively. This site is situated in the center of the forest along Hunters Creek Road/FS Road 144 at Hunters Creek, approximately 2 miles west of Pond Pine Wilderness and Pocosin Wilderness at approximately 34.80819°, -77.07938°. The county lines for Carteret, Craven, and Jones counties converge in close proximity of this location. The mist-net site was situated within a Coastal Plain Small Stream Swamp (Blackwater Subtype) community along Hunters Creek Road where it intersects with Wolf Swamp. The surrounding area consists of upland, mesic, mixed pine and hardwood forests and a managed pine stand. For tree species please refer to the description of mist-net site 10-Craven in section 4.1.2. It should be noted that a discrepancy in the location of the Craven/Carteret county line between the U.S. Forest Service (USFS) map and the NCDOT GIS shapefile exists in this vicinity. For the purposes of this report, we have utilized the USFS line, but show both lines on the attached mapping.

4.3 - NLEB Roost Site Habitat Descriptions

Of the five NLEB captured, bat 302 was tracked to roost trees located in Carteret County, bats 430, 340, and 180 were tracked to roost trees located in Craven County, and bat 100 was tracked to roost trees located in both Craven and Jones Counties, which is the first county record for NLEB in Jones County (Figure 10). Community types at NLEB roost sites are described below. Additional roost data are presented in Table 10. Please refer to Figures 8a and 9a-b for the locations of NLEB roosts.

4.3.1 – NLEB 150.430 Roosts A-C, Craven County

This NLEB, captured at mist-net site 4-Craven during session 1, was tracked to three roosts (A, B, and C). Roosts A and C were located within a Bay Forest community type (Schafale, 1990) where the canopy was dominated by the presence of loblolly bay (*Gordonia lasianthus*). NLEB 430 was documented using roost A, a live pond pine, for five days and roost C, a live loblolly bay, for one day. Roost B, a live red maple located within a Coastal Plain Small Stream Swamp (Blackwater Subtype) community, was used for six days. Please refer to the description of mist-net site 4-Craven in section 4.2.2 for a description of the habitat for roost C at this locality.

4.3.2 – NLEB 150.340 Roosts A-D, Craven County

NLEB 150.340 was captured at mist-net site 1-Craven during session 1 and was tracked to a total of four roosts (A, B, C, and D). Roost A was a live sourwood located within a Dry-Mesic Oak-Hickory Forest (Coastal Plain Subtype) with a canopy dominated by white oak. The understory is

dominated by highbush blueberry, swamp bay, fetterbush, and an assortment of greenbrier species. Roosts B, a live water tupelo, and D, a live bald cypress, were both located within the Coastal Plain Small Stream Swamp (Blackwater Subtype) community. Please refer to the description of mist-net site 1-Craven in section 4.2.2 for a description of the habitat for roosts B and D at this locality. Roost C was a live bald cypress located within a Cypress-Gum Swamp (Blackwater Subtype) with a canopy dominated by large, mature bald cypress and water tupelo, in addition to a few red maples. Standing water between 1 inch and approximately 30 inches deep was present in the majority of this community type. Roosts A and B were used for two days each, roost C was used for six days, and roost D was used for 38 days.

4.3.3 – NLEB 150.100 Roosts A & B, Craven and Jones County

NLEB 150.100 was captured at mist-net site 10-Craven during session 2 and tracked to a total of 2 roosts (A and B). Roost A is a live sweetgum located within the Coastal Plain Small Stream Swamp (Blackwater Subtype) community. Please refer to the description of mist-net site 10-Craven in section 4.2.2 for a description of the habitat for roost A at this locality. Roost B is a live water tupelo located within the Cypress-Gum Swamp (Blackwater Subtype) community. The canopy is dominated by large, mature bald cypress, with numerous water tupelo and frequent red maple, sweetgum, red bay and swamp bay. The understory is generally sparse, and includes few specimens of fetterbush, Carolina jasmine, large gallberry, dog hobble, and saw greenbrier. Standing water between 1 inch and approximately 30 inches deep is present in the majority of this community type. Both roosts were used for two days each before the transmitter was dropped.

4.3.4 – NLEB 150.302 Roosts A-D, Carteret County

NLEB 150.302 was captured at mist-net-site 2-Carteret during session 2 and tracked to four roosts (A, B, C, and D). Roost A was in a loblolly pine snag and located within a managed row pine stand (not a natural community) with a canopy dominated by *Pinus* species such as loblolly and longleaf pine and a few scattered sweetgum. Roosts B, C, and D were located within the Coastal Plain Small Stream Swamp (Blackwater Subtype) community along Juniper Branch and Southwest Prong of the Newport River. The canopy is dominated by large, mature water tupelo and black gum, with frequent red maple, sweetgum, red bay, and swamp bay. A few sand live oaks (*Quercus geminata*) were observed at the transition with upland habitats in this vicinity. The understory is generally sparse, and includes few specimens of fetterbush, Carolina jasmine, large gallberry, and saw greenbrier (*Smilax bona-nox*). Standing water between 1 inch and approximately 30 inches deep is present in the majority of this community type. NLEB 302 was initially documented using roost A for three days, and returned to this roost after a period of fifteen days spent in roosts B-D. Roost B was a live red maple used for one day, roost C was a live black tupelo used for two days, and roost D, a live red bay, was used for seven days.

4.3.5 – NLEB 150.180 Roosts A-D, Craven County

NLEB 150.180 was captured at mist-net-site 10-Craven during session 2 and tracked to four roosts (A, B, C, and D). All four roosts were located along Wolf Creek where standing water between 1 inch and approximately 30 inches deep is present the majority of the time. Roost A, a live bald cypress, and roost D, a live swamp tupelo, were both located within the Cypress-Gum Swamp (Blackwater Subtype) community. The canopy was dominated by bald cypress, water tupelo, and swamp tupelo, with scattered red maple and sweetgum. The understory is generally sparse, and includes few specimens of fetterbush, large gallberry, hemp vine (*Mikania*

scandens), doghobble and saw greenbrier. Roost B, a live red maple, and roost C, a live swamp tupelo, were both located within the Coastal Plain Small Stream Swamp (Blackwater Subtype) community. The canopy was dominated by swamp tupelo, water tupelo, black gum, red maple, frequent bald cypress, and a few red bay and swamp bay. NLEB 180 was documented using roost A for one day, roost B was used for 14 days, roost C was used for one day, and roost D was used for five days.

4.4 Summary of Findings – Mist-net Captures

Mist-net sites were chosen by permitted biologists based on optimal habitat and flight corridors. A total of 254 bats were captured, representing ten of the 17 bat species typically found in NC. Five NLEB, the target species, were captured at three locations in Craven County and one location in Carteret County. For Session 1/ fall 2017, four mist-net surveys were conducted in Carteret County, 15 in Craven County, and 23 in Jones County for a total of 42 surveys completed. During Session 2/ winter 2018, six surveys were conducted in Carteret County, 31 in Craven County, and ten in Jones County for a total of 47 surveys completed. Of the 254 bats captured, 75 percent were male and 25 percent were female.

Two NLEB were captured during Session 1/ fall 2017 at two locations: mist-net sites 1 and 4 in Craven County, and three NLEB were captured during Session 2/ winter 2018 at two locations: two NLEB at mist-net site 10 in Craven County and one at mist-net site 2 in Carteret County. Although NLEB were previously documented within the Croatan NF in Craven County by NCWRC in May of 2017, they had not previously been captured within the county or the Croatan NF during the fall or winter, or within Carteret County, NC during any season.

Although no bats showed clinical signs of infection by White Nose Syndrome (WNS), captured species susceptible to WNS were swabbed for the presence of the fungus, *Pseudogymnoascus destructans* (Pd), responsible for the disease. Bat species swabbed included the northern long-eared bat, southeastern bat (*Myotis austroriparius*), big brown bat (*Eptesicus fuscus*), and tri-colored bat (*Perimyotis subflavus*). During Session 1 and 2, 88 bats and one substrate for NLEB 340 roost D cavity were swabbed. The samples have been turned over to Kennesaw State University (KSU) in Georgia for analysis and results will be submitted to NCDOT and USFWS when testing is completed. All captured *Myotis* species were photographed.

Table 10 provides a summary of all bat species captured during mist-netting. Please refer to the figures accompanying this report for the locations of mist-net sites. Please refer to Appendix A for mist-net site photographs, Appendix B and D for photographs of captured bats including NLEB, and Appendix F for mist-net data sheets.

Table 7 - Mist-net Capture Summary in Carteret County

Site No.	Lat, Long	Night	Date	CORA	EPFU	LABO	LACI	LANO	LASE	MYAU	MYSE	NYHU	PESU	TOTAL	CAPTURE Temperatures	NOTES
1-Carteret	34.76198°, -76.76216°	Night 1	12/12/2017											0		No bats were captured
2-Carteret	35.96162°, -76.96162°	Night 1	12/12/2017			2			1			1		4	45 – 38 °F	
		Night 2	12/15/2017			2			1					3	49-47.5 °F	
		Night 3	12/17/2018											0		No bats were captured
		Night 4	1/23//2018						1					1	54 °F	
		Night 5	1/24/2018											0		
		Night 6	2/20/2018		9	4			4		1	5		23	69-65.5 °F	NLEB capture temp 64.5° F
		Night 7	2/21/2018		4	5			2			1		12	62.5-59 °F	
		Night 8	2/27/2018											0		No bats were captured
3-Carteret	34.76831°, -76.97234°	Night 1	2/20/2018			1			2			1		4	66-65 °F	
TOTAL					**13**	**14**			**11**		1	**8**		**47**		

CORA = *Corynorhinus rafinesquii*, Rafinesque's Big-eared Bat; **EPFU** = *Eptesicus fuscus*, Big Brown Bat; **LABO** = *Lasiurus borealis*, Red Bat; **LACI** = *Lasiurus cinereus*, Hoary Bat; **LANO** = *Lasionycteris noctivagans*, Silver-haired 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

Table 8 - Mist-net Capture Summary in Craven County

Site No.	Lat, Long	Night	Date	CORA	EPFU	LABO	LACI	LANO	LASE	MYAU	MYSE	NYHU	PESU	TOTAL	CAPTURE Temperatures	NOTES
1-Craven	35.00707°, -77.07463°	Night 1	11/19/2017										1	1	47 °F	
		Night 2	11/21/2017			2								2	56 – 55 °F	
		Night 3	11/22/2017		2									2	49 – 48 °F	
		Night 4	11/24/2017											0		No bats were captured
		Night 5	12/4/2017	1		1								2	58 – 48 °F	
		Night 6	12/5/2017		2	1						9		12	60.5 – 58.5 °F	
		Night 7	12/18/2017		1					1	1	2		5	56 – 50 °F	NLEB capture temp 56° F
		Night 8	12/19/2017	1					1					2	55 – 51.5 °F	
		Night 9	1/24/2018											0		No bats were captured
		NIGHT 10	1/26/2018											0		No bats were captured
		Night 11	1/27/2018							2				2	53 °F	
		Night 12	2/1/2018							1				1	54.5 °F	
		Night 13	2/22/2018		2	4								6	67.5 - 64 °F	
		Night 14	2/23/2018											0		No bats were captured
2-Craven	35.01611°, -77.05026°	Night 1	11/19/2017											0		No bats were captured
3-Craven	35.04836°, -77.05100°	Night 1	12/1/2017							3				3	53 °F	
		Night 2	12/2/2017											0		No bats were captured
		Night 3	2/10/2018		4					2				6	65 – 63.5 °F	
		Night 4	2/14/2018							1				1	51 °F	

Site No.	Lat, Long	Night	Date	CORA	EPFU	LABO	LACI	LANO	LASE	MYAU	MYSE	NYHU	PESU	TOTAL	CAPTURE Temperatures	NOTES
4-Craven	35.00707°, -77.07463°	Night 1	12/2/2017			1					1			2	52 – 51.5 °F	NLEB capture Temp 51.5° F
		Night 2	12/3/2017			1								1	46 °F	
		Night 3	2/24/2018		2	6								8	66.5 – 62 °F	
5-Craven	34.96789°, -77.05271°	Night 1	12/15/2017											0		No bats were captured
		Night 2	12/17/2017			1								1	49 °F	
6-Craven	35.044312° -77.068239°	Night 1	1/10/2018			1								1	53 °F	
		Night 2	1/20/2018											0	66.5 – 62 °F	No bats were captured
		Night 3	1/21/2018											0	66.5 – 62 °F	No bats were captured
		Night 4	1/22/2018							2				2	55 °F	
7-Craven	35.040608°, -77.066028°	Night 1	1/10/2018							1				1	50 °F	
		Night 2	1/20/2018									1		1	43 °F	
		Night 3	1/21/2018							1				1	53 °F	
		Night 4	1/22/2018		2	1			1			3		7	57 – 56.5 °F	
		Night 5	1/23/2018				1		1	1		1	1	5	61 – 55.5 °F	
		Night 6	2/6/2018			1						1		2	53.5 – 49 °F	
		Night 7	2/9/2018											0		No bats were captured
8-Craven	34.92144°, -76.83989°	Night 1	2/18/2018		3	1			4					8	67 – 60 °F	
9-Craven	34.91064°, 76.81831°	Night 1	2/15/2018		1	2			1			1		5	60 – 59.5 °F	
		Night 2	2/16/2018		1	3			1					5	63.5 – 62 °F	
		Night 3	2/17/2018											0		No bats were captured
		Night 4	2/19/2018		1	1								2	66.5 – 6 °F	
10-Craven	34.80819°, -77.07938°	Night 1	2/15/2018											0		No bats were captured
		Night 2	2/16/2018		2	1					1			4	64 – 59.5 °F	NLEB capture temp 63.5° F
		Night 3	2/28/2018								1			1	57 °F	NLEB capture temp 57° F
11-Craven	34.97012°, -77.04887°	Night 1	2/24/2018	1	6	5		1		1			1	15	65.5 – 60 °F	
		Night 2	2/27/2018											0		No bats were captured
		Night 3	2/28/2018			3								3	59.5 – 58 °F	
TOTAL				**3**	**29**	**36**	**1**	**1**	**9**	**16**	**4**	**18**	**3**	**120**		

CORA = *Corynorhinus rafinesquii*, Rafinesque's Big-eared Bat; **EPFU** = *Eptesicus fuscus*, Big Brown Bat; **LABO** = *Lasiurus borealis*, Red Bat; **LACI** = *Lasiurus cinereus*, Hoary Bat; **LANO** = *Lasionycteris noctivagans*, Silver-haired 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

Table 9 - Mist-net Capture Summary in Jones County

Site No.	Lat, Long	Night	Date	CORA	EPFU	LABO	LACI	LANO	LASE	MYAU	MYSE	NYHU	PESU	TOTAL	CAPTURE Temperatures	NOTES
1-Jones	34.85598°, -77.21021°	Night 1	11/15/2017	1										1	48 °F	
		Night 2	11/16/2017											0		No bats were captured
		Night 3	11/17/2017							1				1	41 °F	
		Night 4	12/1/2017											0	60 – 44 °F	No bats were captured
		Night 5	2/14/2018			1				3				4	53-49 °F	
		Night 6	2/25/2018			2								2	66.5 – 68 °F	
2-Jones	34.87309°, -77.20116°	Night 1	11/18/2017			3								3	58-57 °F	
		Night 2	1/27/2018			1								1	55 °F	
		Night 3	2/1/2018											0		No bats were captured
		Night 4	1/27/2018			1								1	50 °F	

Site No.	Lat, Long	Night	Date	CORA	EPFU	LABO	LACI	LANO	LASE	MYAU	MYSE	NYHU	PESU	TOTAL	CAPTURE Temperatures	NOTES
3-Jones	34.81921°, -77.18228°	Night 1	11/21/2017			3								3	64 – 56 °F	
		Night 2	11/22/2017			1	1					3		5	48 – 45 °F	
		Night 3	11/24/2017											0	56 – 44 °F	No bats were captured
		Night 4	2-22-2018		2	2			1			1		6	65 – 61 °F	
4-Jones	34.946018°, -77.233817°	Night 1	11/25/2017			2				1				3	52 – 47 °F	
		Night 2	11/26/2017			1			1					2	45 °F	
		Night 3	11/27/2017										1	1	38 °F	PESU was captured during shut down and at a temperature of 38°
		Night 4	11/28/2017		1	4				1			1	7	54 – 46 °F	
		Night 5	11/29/2017		2	1		1	1			1	2	8	53 – 49.5 °F	
		Night 6	11/30/2017											0		No bats were captured
		Night 7	12/5/2017		1	1	1			2		1		6	61 – 55 °F	
		Night 8	12/18/2017		1									1	51 °F	
		Night 9	12/19/2017			1			1			1		3	55 – 50 °F	
		Night 10	2/10/2018			2						1		3	63 – 61.5 °F	
5-Jones	34.917830°, -77.231235°	Night 2	11/25/2017							2				2	53 – 52 °F	
		Night 1	11/26/2017											0		No bats were captured but bats were observed flying
6-Jones	34.92310°, -77.23143°	Night 1	11/27/2017											0		No bats were captured
		Night 2	11/28/2017			1				3				4	56 – 51 °F	
		Night 3	11/29/2017							5				5	56 – 53 °F	
7-Jones	34.88871°, -77.16588°	Night 1	11/30/2017			1								1	50 °F	
8-Jones	34.94943°, -77.21955°	Night 1	2/6/2018			1								1	57 °F	
		Night 2	2/9/2018			1								1	44 °F	
9-Jones	34.84672°, -77.13167°	Night 1	2/23/2018		1				1			1	1	4	62.5 – 59.5 °F	
		Night 2	2/25/2018		3	3		1				1		8	66 – 60.5 °F	
TOTAL				**1**	**11**	**33**	**2**	**2**	**5**	**18**	**0**	**10**	**5**	**87**		

CORA = *Corynorhinus rafinesquii*, Rafinesque's Big-eared Bat; **EPFU** = *Eptesicus fuscus*, Big Brown Bat; **LABO** = *Lasiurus borealis*, Red Bat; **LACI** = *Lasiurus cinereus*, Hoary Bat; **LANO** = *Lasionycteris noctivagans*, Silver-haired 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

4.5 Summary of Findings - Radio Tracking, Roosts, and Emergence Surveys

As previously mentioned, radio tracking was conducted for all five NLEB captured. All five NLEB were tracked to a total of 17 roost trees located in all three counties (Table 10). Although eleven different tree species were used for roost, the most commonly used were *Nyssa* species, bald cypress and red maple.

Roost trees varied greatly in species, age, condition, DBH, height, and observable crevices available for roosting. With the exception of bat 340, roost D, distance between roosts averaged < 0.50 km. Roosting activities observed were typical of commonly documented NLEB behavior, where roost switching is frequent and trees vary in size and species. Typically, NLEB change roosts every two to five days (USFWS 2014b).

During the course of this study, NLEB 340 exhibited previously undocumented roosting behavior. This bat was captured December 18th, 2017 and tracked and documented in four different roosts until February 13th, 2018. The bat was verified within roosts on a total of 51 days. On December 31st, 2017, NLEB 340 moved > 3 miles (1.069 km) from roost C to roost D in subfreezing temperatures <30° F a few days before a winter snow storm on January 3rd, 2018. Although this bat was observed to use four different roost trees, NLEB 340 was documented, via radio telemetry (19 days) and visual observation (16 days), to use roost D for a total of 35 days. During this period, two snow/ice events occurred and temperatures in the swamp where roost D was located remained <30° F the majority of the time. However, temperatures from <30° F up to <70° F were observed on warmer days.

In addition, NLEB 180 moved between four roosts during the 21 days of tracking in Craven County. During this period, NLEB 180 used roost B for a total of 14 days and returned to this roost several times during inclement weather events and when temperatures dropped significantly. In general, NLEB were observed to roost in taller trees with larger diameter at breast height (DBH) during harsh weather events and colder temperatures.

Table 10 provides a summary of radio tracking dates, roosts documented, and emergence surveys performed. Table 11 provides a summary of NLEB roost distances from capture sites for each of the five tracked NLEB. Detailed roost habitat descriptions are provided in Section 4.3. Please refer to Appendices C and E for representative photographs of roost and community habitats, and Appendix G for tracking, roost, and emergence data sheets.

Table 10 - NLEB Tracking, Roost, & Emergence Summary

MYSE sex & Freq.	NCWRC Band No.	Dates Tracked (2017-2018)	Habitat Community Type	Tree Species	Roost No.	Lat, Long	County	Roost Dates (2017-2018	Emergence Surveys		Notes
									Date 2017-2018	Observed Emerging/Temp.	
150.430 Male	NCWRC A3291	12/3-12/18, 2017; 16 days, dropped transmitter was found on 16th day	Bay Forest	*Pinus serotina*	A	35.00138°, -77.08186°	Craven	12/4-12/8, 2017	12/5 2017	Yes/64°	Unable to locate exact roost on 12/3, 12/16-12/18 No emergence survey was conducted for roost C due to temps below 50°
			Coastal Plain Small Stream Swamp (Blackwater Subtype)	*Acer rubrum*	B	35.00798°, -77.07735°		12/9-12/12, 12/14-12/15 2017	12/14 2017	No	
			Bay Forest	*Gordonia lasianthus*	C	35.00179°, -77.08158°		12/13 2017	N/A	N/A	
150.340 Male	NCWRC A3201	12/19/2017 – 1/10/2018; 21 days; approved to continue tracking an additional 9 days until transmitter died on 1/19/2018; continued volunteer visual observation from 1/20-2/13, 2018	Dry-Mesic Oak-Hickory Forest	*Oxydendrum arboreum*	A	35.04184°, -77.06590°	Craven	12/20 & 12/21 2017	12/21 2017	Yes/44°	Emergence documented via telemetry. Was unable to see bat leave roost tree. Did observe two other bats emerging from trees in the immediate area.
			Coastal Plain Small Stream Swamp (Blackwater Subtype)	*Nyssa aquatica*	B	35.04311°, -77.06794°		12/22 & 12/23 2017	N/A	N/A	Tracking was not conducted on 12/24 & 12/25 2017 No emergence was conducted for roost B or C due to temps below 50°
			Cypress-Gum Swamp (Blackwater Subtype)	*Taxodium distichum*	C	35.03839°, -77.06635°		12/26-12/31 2017	N/A	N/A	
			Coastal Plain Small Stream Swamp (Blackwater Subtype)	*Taxodium distichum*	D	35.01326°, -77.02158°		1/1 – 2/13 2018	1/9 2018	No	Bat did not emerge from the roost during emergence survey. Roost D was located during a snow storm and bat 340 remained in this roost for over 30 days.
150.100 Male	NCWRC A3112	2/17 – 2/21/2018; 5 days; dropped transmitter located on fifth day	Coastal Plain Small Stream Swamp (Blackwater Subtype)	*Liquidambar styraciflua*	A	34.80635°, -77.07892°	Craven	2/17 & 2/18 2018	2/17 2018	No	Bat did not emerge during the survey
			Cypress-Gum Swamp (Blackwater Subtype)	*Nyssa aquatica*	B	34.81182°, -77.08299°	Jones	2/19 & 2/20 2018	2/19 2018	No	
150.302 Male	ES-GA 0695	2/21 -3/17, 2018; 21 days; completed required days for tracking	Managed Row Pine (not a natural community)	*Pinus taeda*	A	34.77765°, -76.96254°	Carteret	2/21, 2/22, 2/24, 3/11, 2018	2/21 2018	Yes/69°	Unable to track on 2/23/2018 due to controlled burns in the area. On 2/25/2018 unable to locate roost due to controlled burns in area; however, the bat was observed moving between several trees during the burn in this area
			Coastal Plain Small Stream Swamp (Blackwater Subtype)	*Acer rubrum*	B	34.77330°, -76.96127°		2/26/2018	N/A	Unable to complete emergence survey due to heavy rain and thunderstorms	
				Nyssa sylvatica	C	34.77371°, -76.9661°		2/27 and 2/28, 2018	2/28 2018	Yes/62°	
				Persea borbonia	D	34.77333°, -76.96352°		3/1, 3/3-3/5, 3/12-3/14, 2018	3/1 2018	Yes/62°	
150.180 Male	NCWRC A3114	3/1 -3/21, 2018; 21 days; completed required days for tracking	Cypress-Gum Swamp (Blackwater Subtype)	*Taxodium distichum*	A	34.80951°, -77.07953°	Craven	3/1/2018	3/1 2018	No	Bat did not emerge during survey
			Coastal Plain Small Stream Swamp (Blackwater Subtype)	*Acer rubrum*	B	34.80786°, -77.07922°		3/3-3/10, 3/12, & 3/17-3/21 2018	3/3 2018	No	
				Nyssa sylvatica	C	34.80931°, -77.07870°		3/11/2018	3/11 2018	No	Did see bat at top of cavity as survey team left the area
			Cypress-Gum Swamp (Blackwater Subtype)	*Nyssa biflora*	D	34.81065°, -77.07874°		3/13-3/16 2018	3/16 2018	Yes/67°	Bat emerged and left signal area

Table 11 - NLEB Capture Site to Roost Distance

MYSE sex & Freq.	Capture Site	Roost No.	Distance from Roost to Capture Site (miles / km)*
150.430 Male	Craven 4	A	0.57 / 0.92
		B	0.18 / 0.29
		C	0.54 / 0.87
150.340 Male	Craven 1	A	1.49 / 2.40
		B	1.63 / 2.78
		C	1.36 / 2.19
		D	1.71 / 2.75
150.100 Male	Craven 10	A	0.13 / 0.21
		B	0.32 / 0.51
150.302 Male	Carteret 2	A	0.07 / 0.11
		B	0.34 / 0.55
		C	0.41 / 0.66
		D	0.36 / 0.58
150.180 Male	Craven 10	A	0.09 / 0.14
		B	0.02 / 0.03
		C	0.09 / 0.14
		D	0.17 / 0.27

*NOTE: Distance from roosts to capture sites does not reflect the longest distance traveled between roosts.

5.0 DISCUSSION

During fall 2017 and winter 2018, a total of 89 surveys were conducted within Carteret, Craven, and Jones Counties, North Carolina, within the Croatan National Forest. Surveys were successful in realizing the main objectives of this portion of the research study of the northern long-eared bat in eastern North Carolina. With four captures in Craven County, one capture (new record) in Carteret County, and the documentation of an active roost (new record) in Jones County, two counties were added to the distribution of this bat species in eastern NC (Figure 10). A May 2017 NCWRC NLEB capture record in Craven County was reinforced by this study's four additional Craven County NLEB captures, which confirmed an active NLEB population within this county. All five captured NLEB were tracked to roosts and remained active during warmer periods of both fall 2017 and winter 2018, documenting fall/winter activity. The documentation of NLEB 340 moving >3 miles (4.83 km) in temperatures well below 30° F to a roost tree that was used for at least 35 days during two snow events and several weeks of sub-freezing temperatures provides evidence that NLEB remain active during winter, and may indicate that these bats have behaviorally adapted to select overwintering roosts in large trees. In addition, the observed activity and capture temperatures documented (64.5° F – 51.5° F) during this research project have also provided evidence that NLEB remain in the North Carolina Coastal Plain during the winter and are active during warmer periods throughout the winter. Please refer to Tables 7-10 for more information on capture temperatures.

To note, eight tri-colored bats were captured; three in Craven County and five in Jones County. Both males and females were captured, which suggests the potential of a reproducing population within the Croatan NF. Since the discovery of the fungal disease WNS in 2006, populations of the tricolored bat have plummeted with reported mortality rates of 100 percent in many affected hibernacula (CBD and DOW, 2016). After a 90-day review in response to a petition by the Center for Biological Diversity (CBD) and the Defenders of Wildlife (DOW) to list the tri-colored bat as a Threatened or Endangered species, the USFWS has announced that listing may be warranted and has initiated a twelve month review (Federal Register 2017). Documentation of the tri-colored bat in the Coastal Plain of NC may be important as this may possibly be a refuge for this species to escape the fungus and the associated disease, WNS. Four of the tri-colored bats (males and females) were captured at mist-net site 4-Jones (Crooked Run Road) located on the northwestern section of the forest. In addition, a female tri-colored bat captured during a survey breakdown in Craven County was documented at 38° F (3.33° C).

Also of note, the Croatan NF was conducting a prescribed fire regimen in areas where tracking surveys were being conducted during Session 2 winter 2018. NLEB 302, captured in Carteret County on February 2nd, 2018 was being actively tracked in the general area of capture site 2-Carteret and along Millis Swamp Road/FS Road 177 during two separate prescribed fire events. Due to active fires and safety concerns, staff could not enter the area to track this bat to the actual roost tree on February 23rd and 25th, 2018; however, on these dates, a tracking team was able to follow the transmitter signal of NLEB 302 to observe this bat flying during the day and switching between several trees during both fire events. Although a roost was not documented on February 23rd, NLEB 302 was observed moving and switching trees during a prescribed fire along Millis Road. On February 24th, NLEB 302 had returned and was documented back in roost 302A. On February 25th, 2018 a second fire event was in progress, and NLEB 302 was again observed flying and switching between trees during the fire; therefore, no roost was documented this day. On February 26th, NLEB 302 was documented in a new roosting area NE of its capture site in Roost 302B. The roost was located in a riparian area with standing water along Juniper Branch and Southwest Prong of the Newport River. Anecdotal reports were also received from members of the Croatan NF fire crew that bats were observed flying and switching trees during the day during the

February 23rd, 2018 fire event. Although bats have often been observed flying out of vegetation during fire events (personal communications with forest staff), it was notable to observe and document NLEB moving and switching to safer areas during such events.

Overall, all captured bat species were observed to be healthy, with no wing damage to indicate WNS. Swabs for analyzing the potential presence of Pd were collected on all NLEB, southeastern bats, big brown bats, and tri-colored bats captured. No little brown bats were captured; therefore, none were swabbed for Pd. A total of 88 bat swabs and one swab of NLEB 340 roost D were submitted to KSU. Results will be sent to NCDOT and USFWS when received.

Although no female NLEB were captured, large sections of the Croatan NF were inaccessible (i.e. remote wilderness areas) and therefore no surveys were conducted in these areas. All NLEB captures and roosting activity were documented on the borders of these large wilderness areas or along riparian corridors (streams and swamps) that connect to these areas that are difficult to access to conduct mist-net surveys. These riparian corridors and inaccessible areas may support a larger population of NLEB in the Croatan NF and provide habitat that is supportive of maternity roosts and the associated females. Additional surveys in this area of the state and during the maternity season are needed in order to fully assess population size and to document a reproductive NLEB population.

6.0 REFERENCES

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Figures

921002-013.mxd

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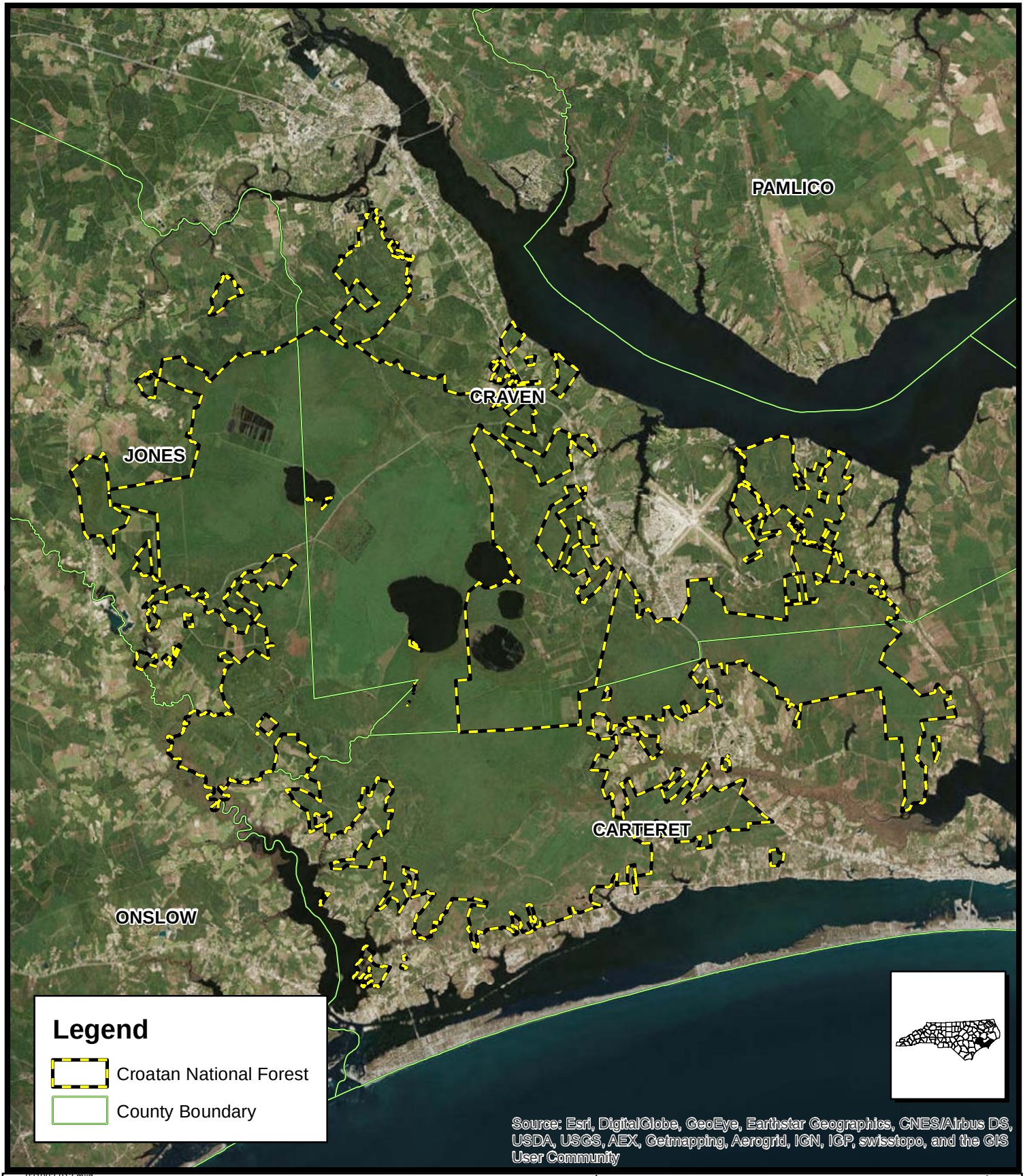
Figure 1: Project Location Map

0 25 50 75

Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (*Myotis septentrionalis*)
Research Study Fall 2017/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N



921002-013.mxd

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Figure 2: Survey Area Map

0 3 6 9
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (*Myotis septentrionalis*)
Research Study Fall 2017/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

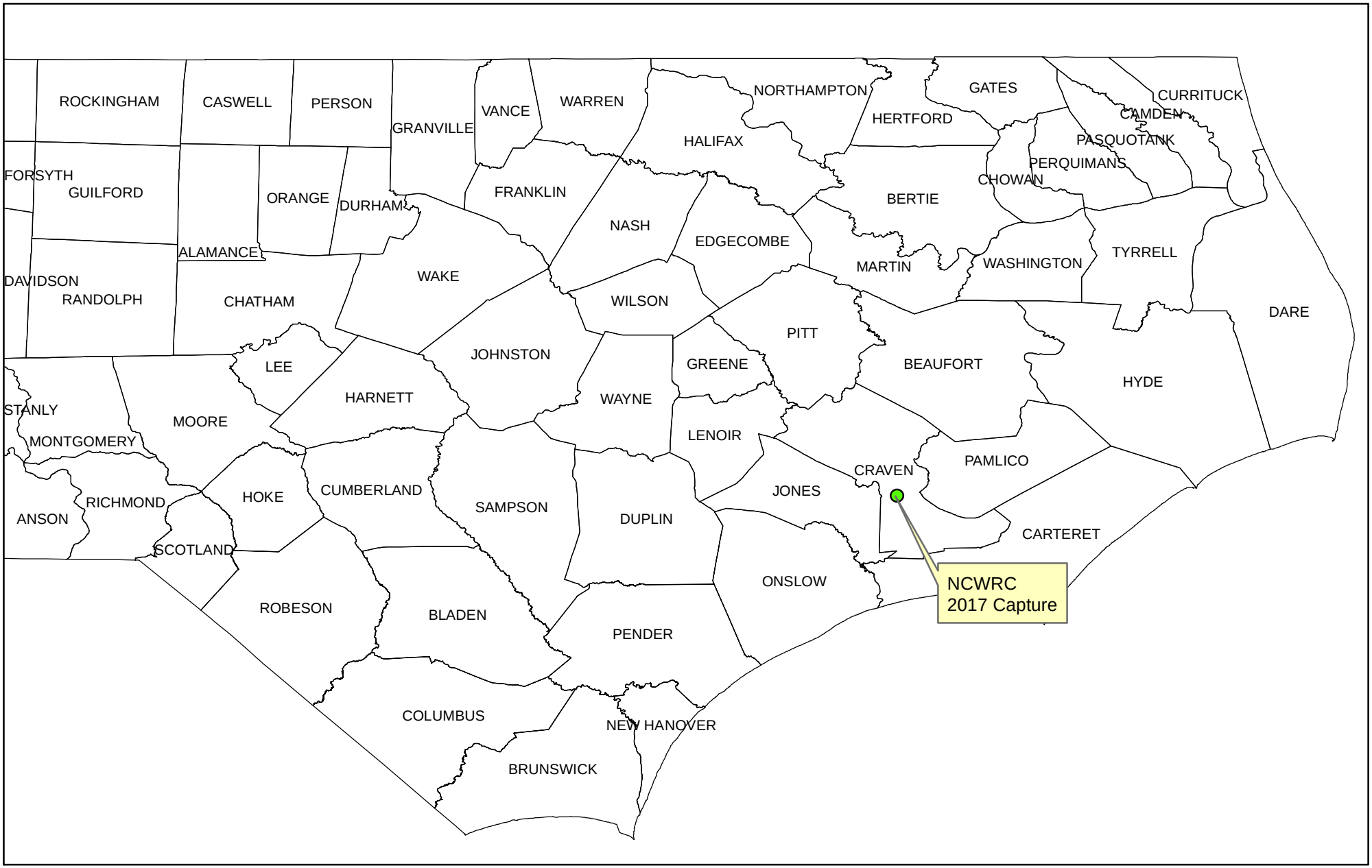

FIGURE 3: Historical Northern Long-eared Bat Capture Sites in Croatan National Forest

0 10 20 40 60 80 100 120 140 160

Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (*Myotis septentrionalis*)
Research Study Fall 2017/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

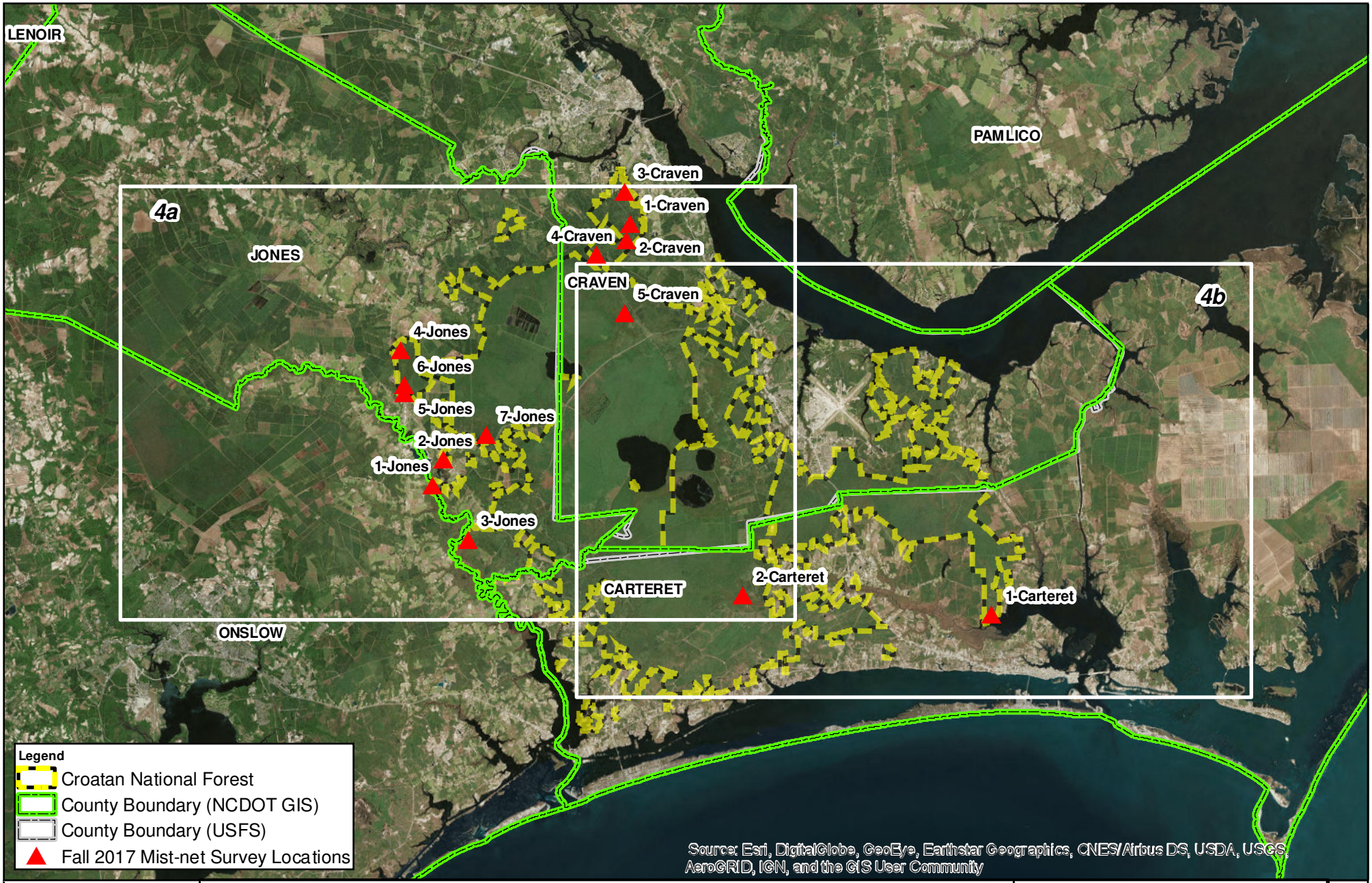

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FIGURE 4: Mist-net Survey Locations Fall 2017 - Index

0 3 6 12 18 24 30
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (Myotis septentrionalis)
Research Study Fall 2018/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

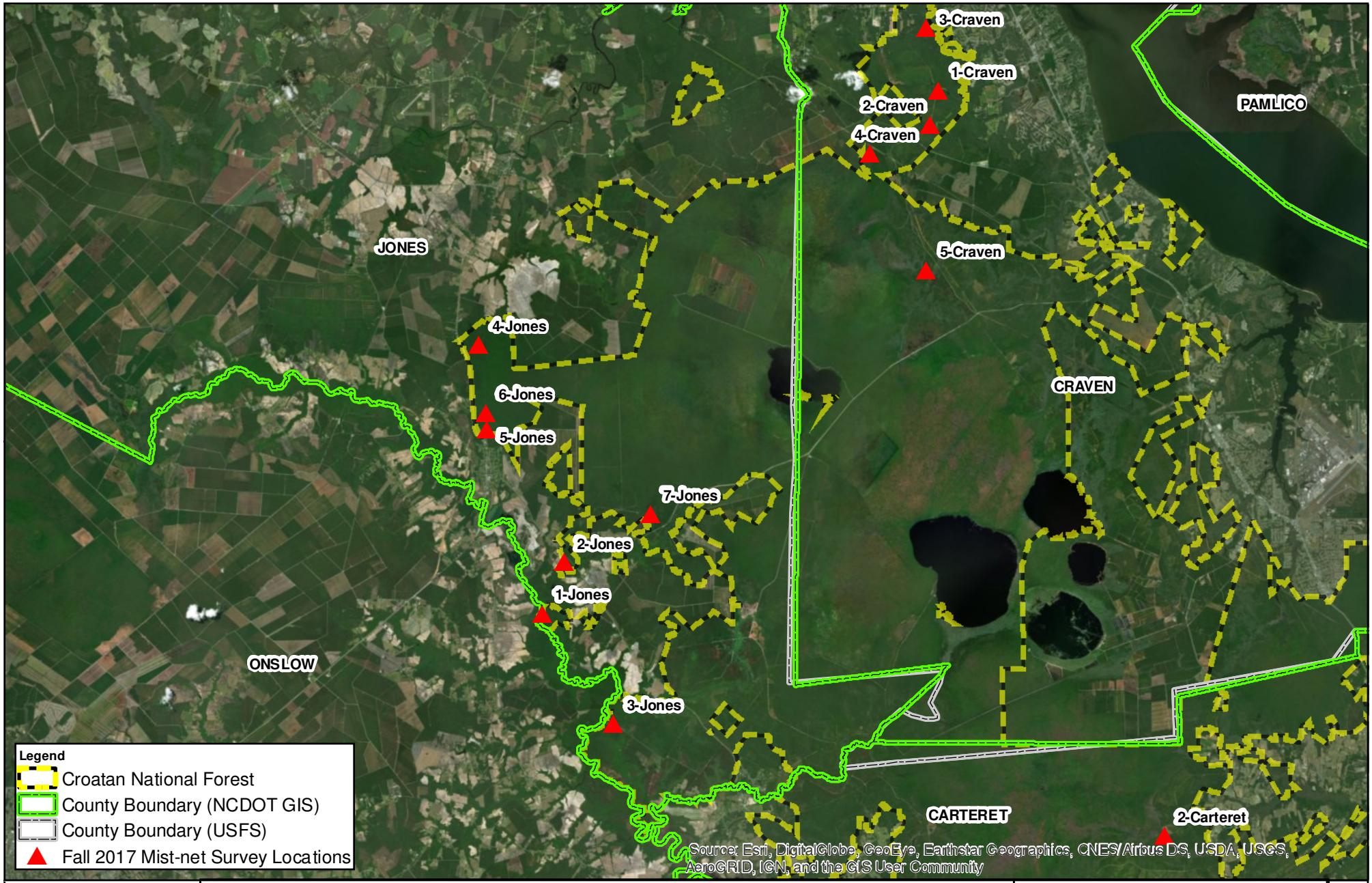

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FIGURE 4a: Mist-net Survey Locations Fall 2017 Map

0 1.5 3 6 9 12 15
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (Myotis septentrionalis)
Research Study Fall 2018/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

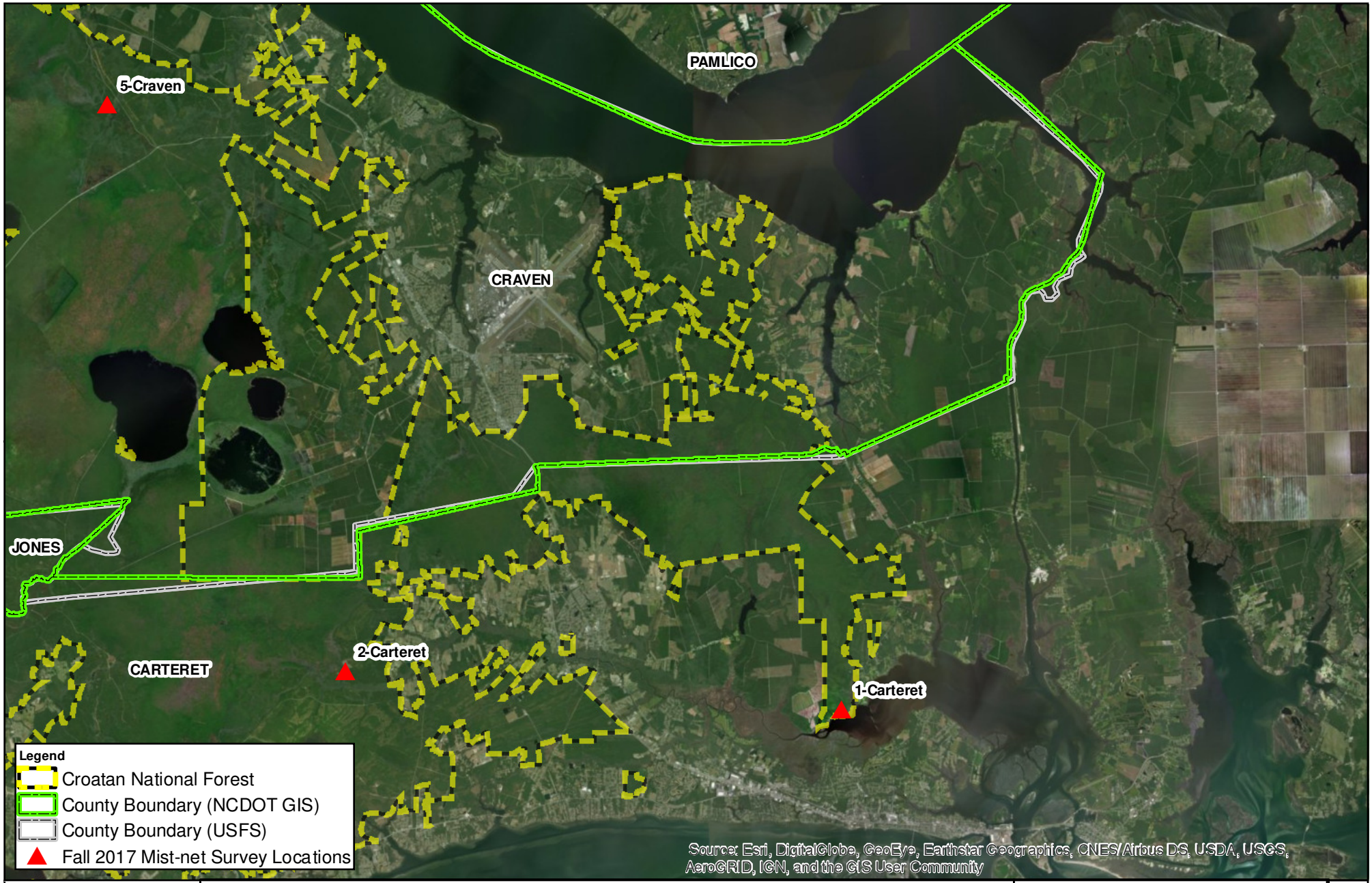

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FIGURE 4b: Mist-net Survey Locations Fall 2017 Map

0 1.5 3 6 9 12 15
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (Myotis septentrionalis)
Research Study Fall 2018/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

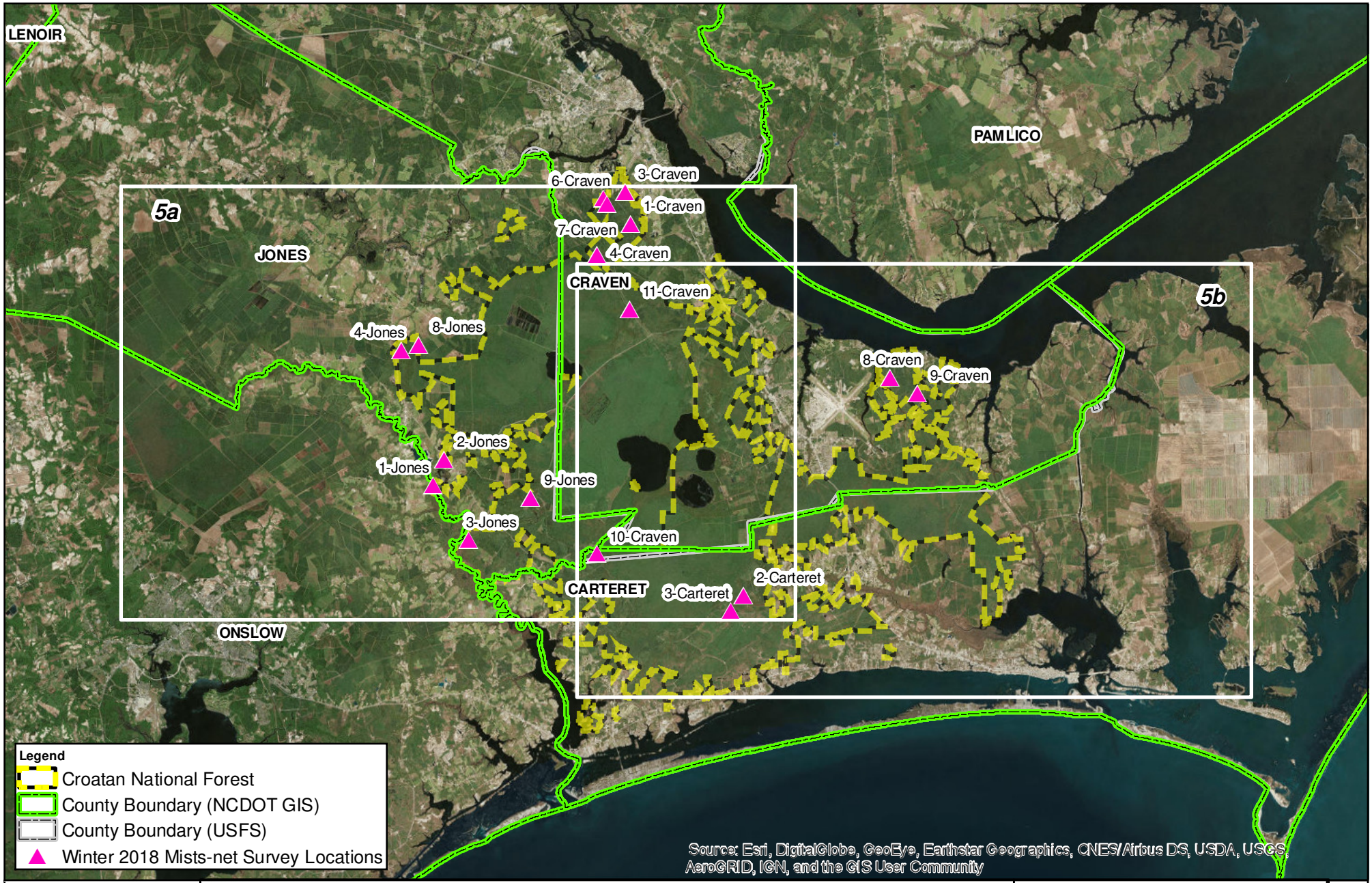

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FIGURE 5: Mist-net Survey Locations Winter 2018 - Index

0 3 6 12 18 24 30
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (Myotis septentrionalis)
Research Study Fall 2018/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

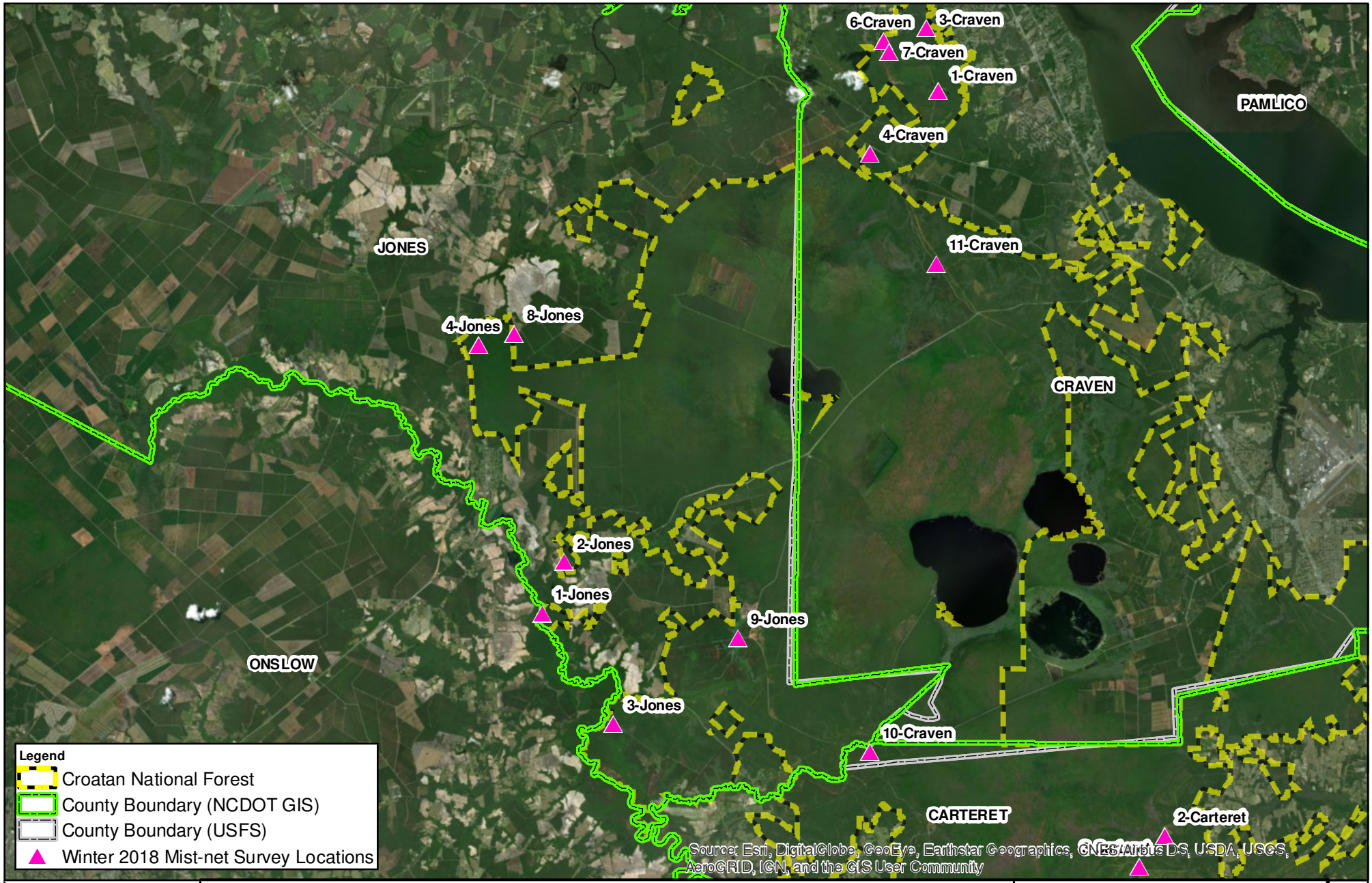

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FIGURE 5a: Mist-net Survey Locations Winter 2018 Map

0 1.5 3 6 9 12 15
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (Myotis septentrionalis)
Research Study Fall 2018/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

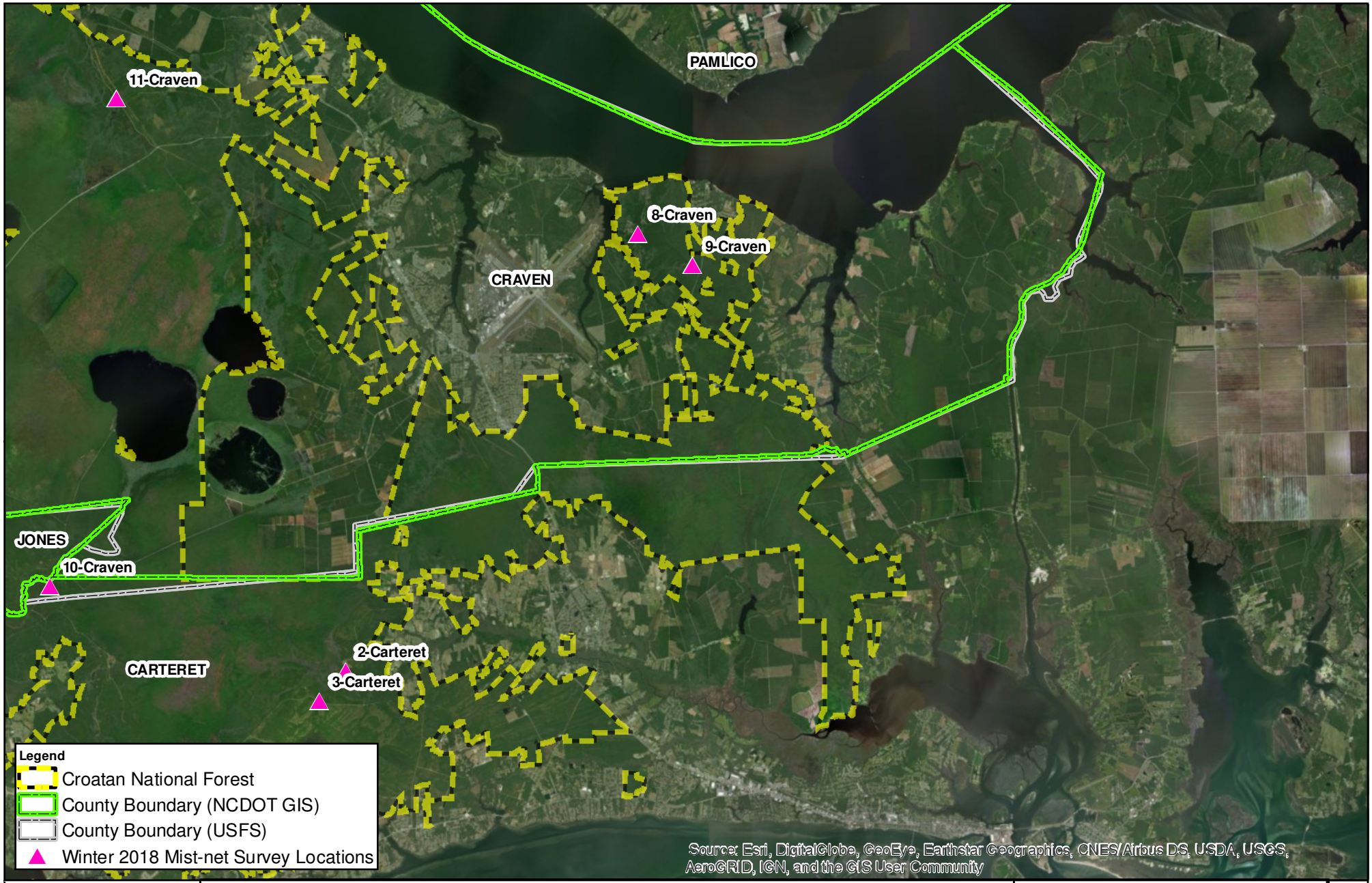

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FIGURE 5b: Mist-net Survey Locations Winter 2018 Map

0 1.5 3 6 9 12 15
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (Myotis septentrionalis)
Research Study Fall 2018/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

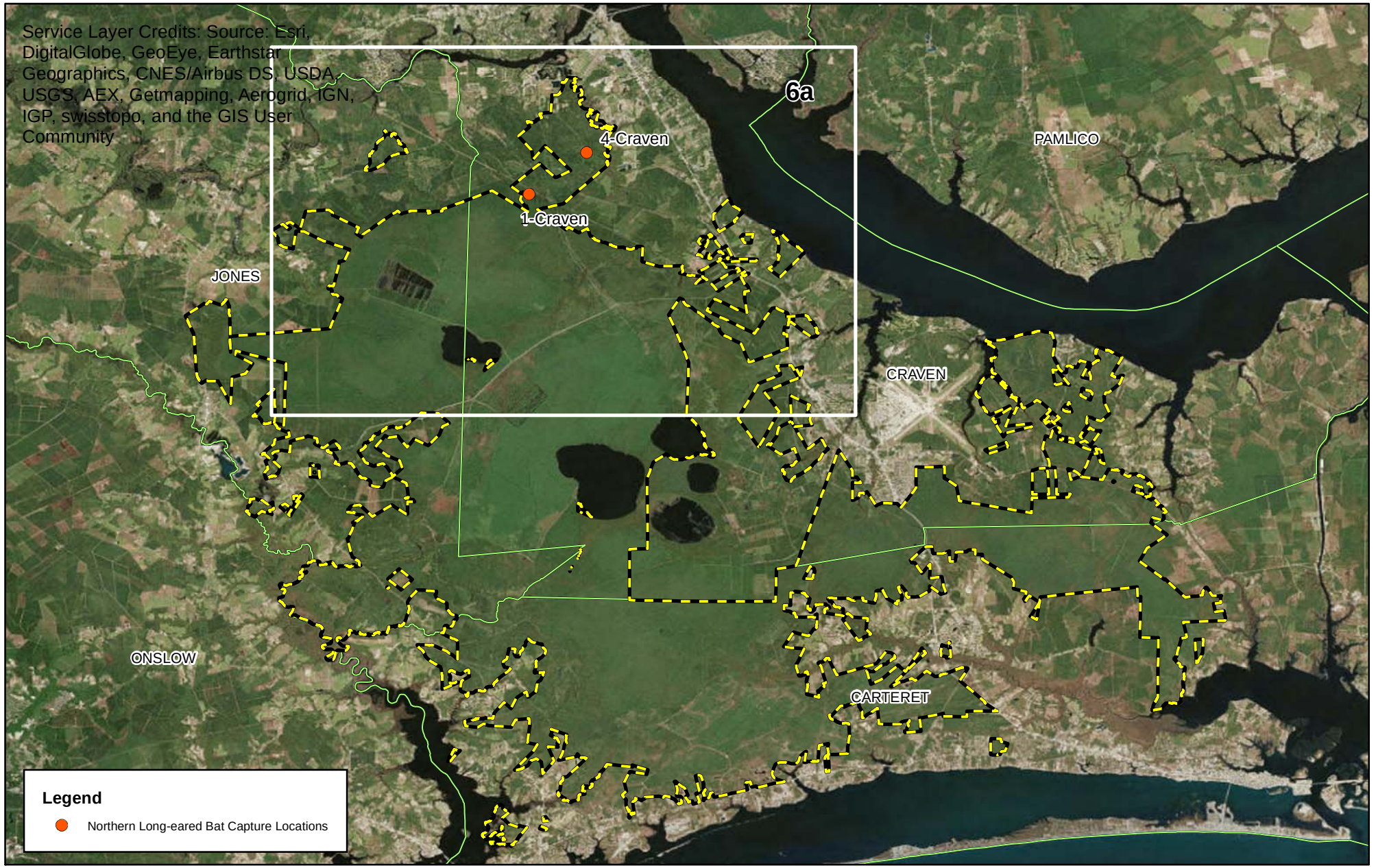

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FIGURE 6: Northern Long-eared Bat Capture Locations
Fall 2017 - Index

0 2 4 8 12 16 20
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (*Myotis septentrionalis*)
Research Study Fall 2017/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

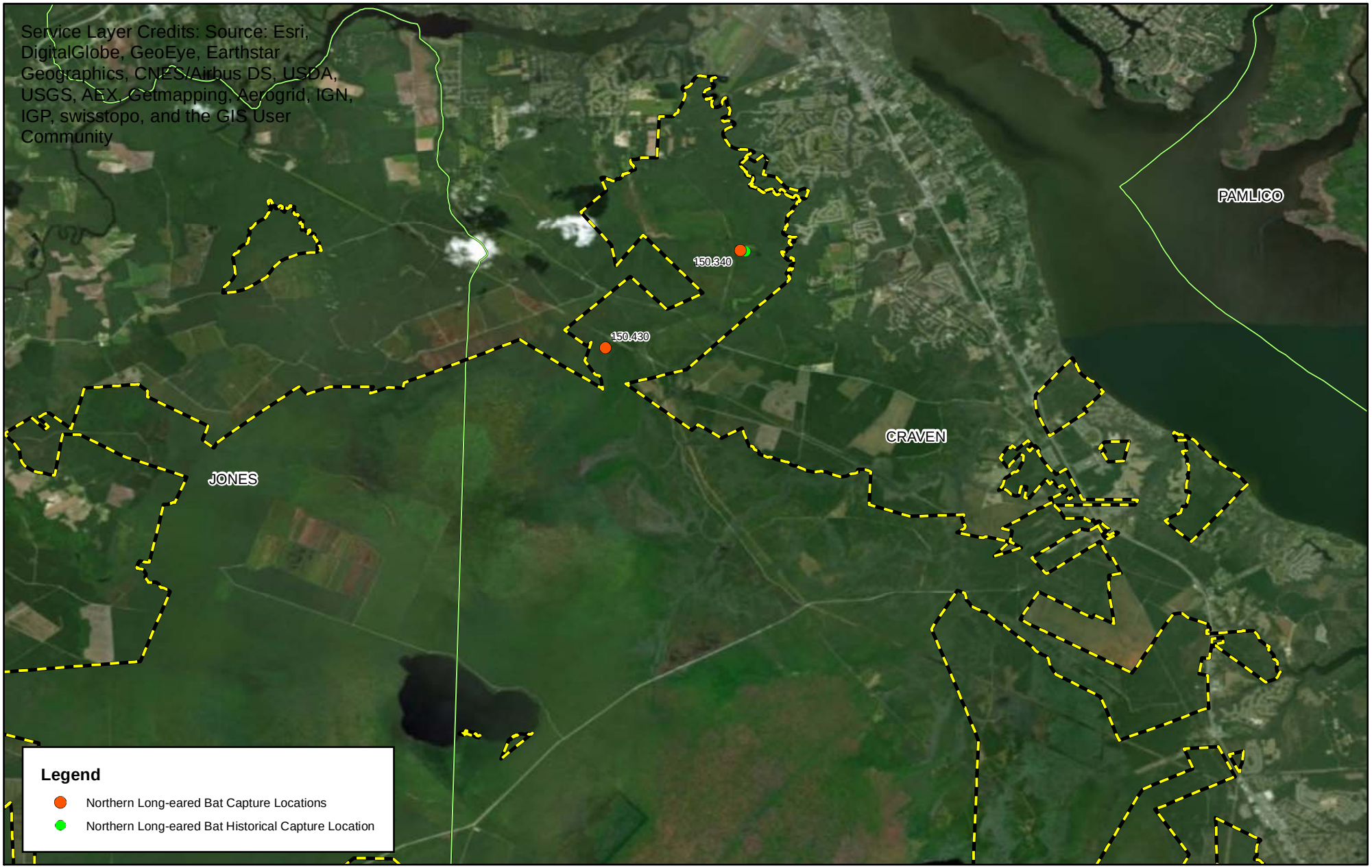

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FIGURE 6a: Northern Long-eared Bat Capture Locations
Fall 2017

0 1 2 4 6 8
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (*Myotis septentrionalis*)
Research Study Fall 2017/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

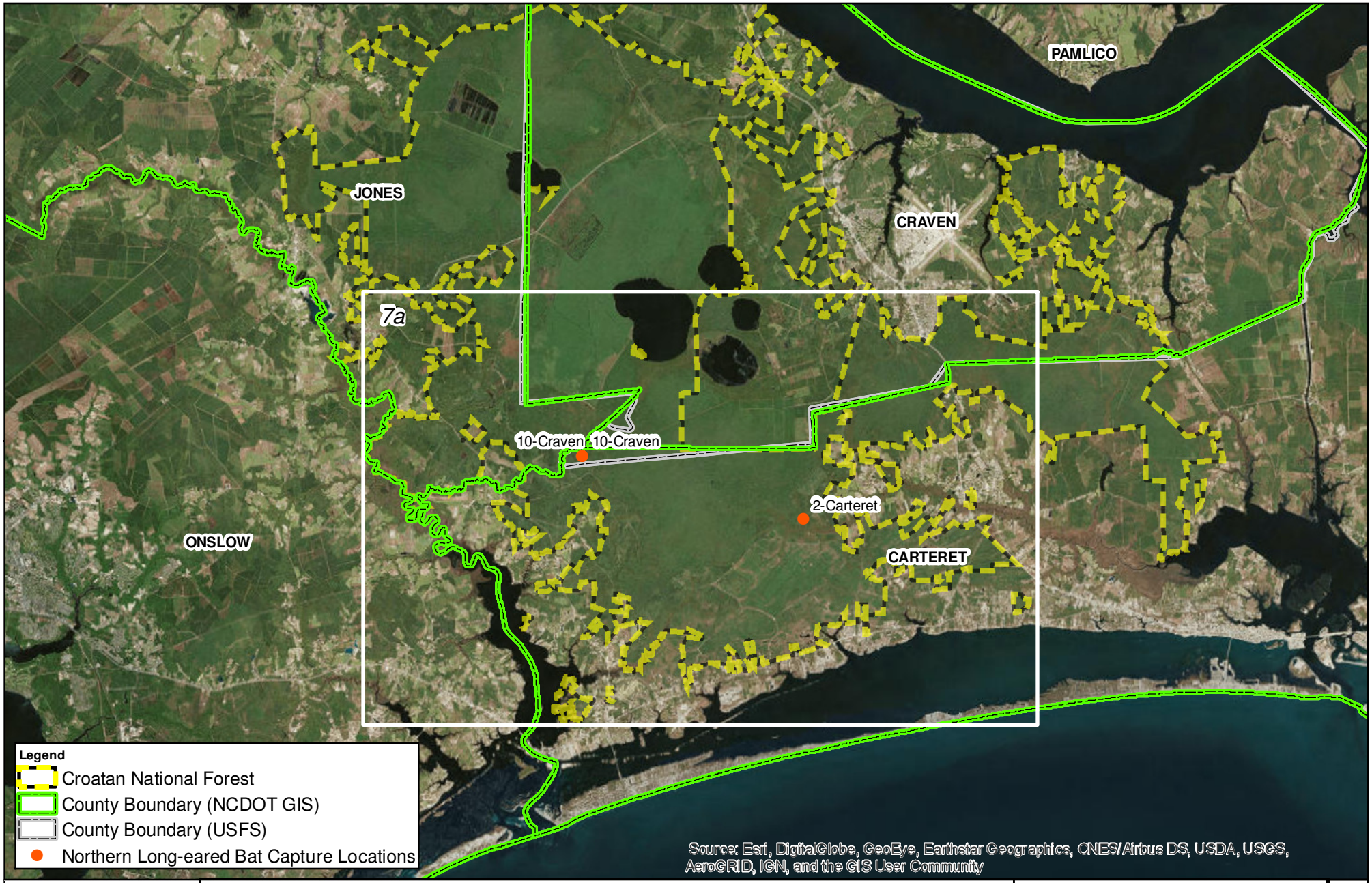

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FIGURE 7: Northern Long-eared Bat Capture Locations Winter 2018 - Index

0 2 4 8 12 16 20
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (Myotis septentrionalis) Research Study Fall 2018/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

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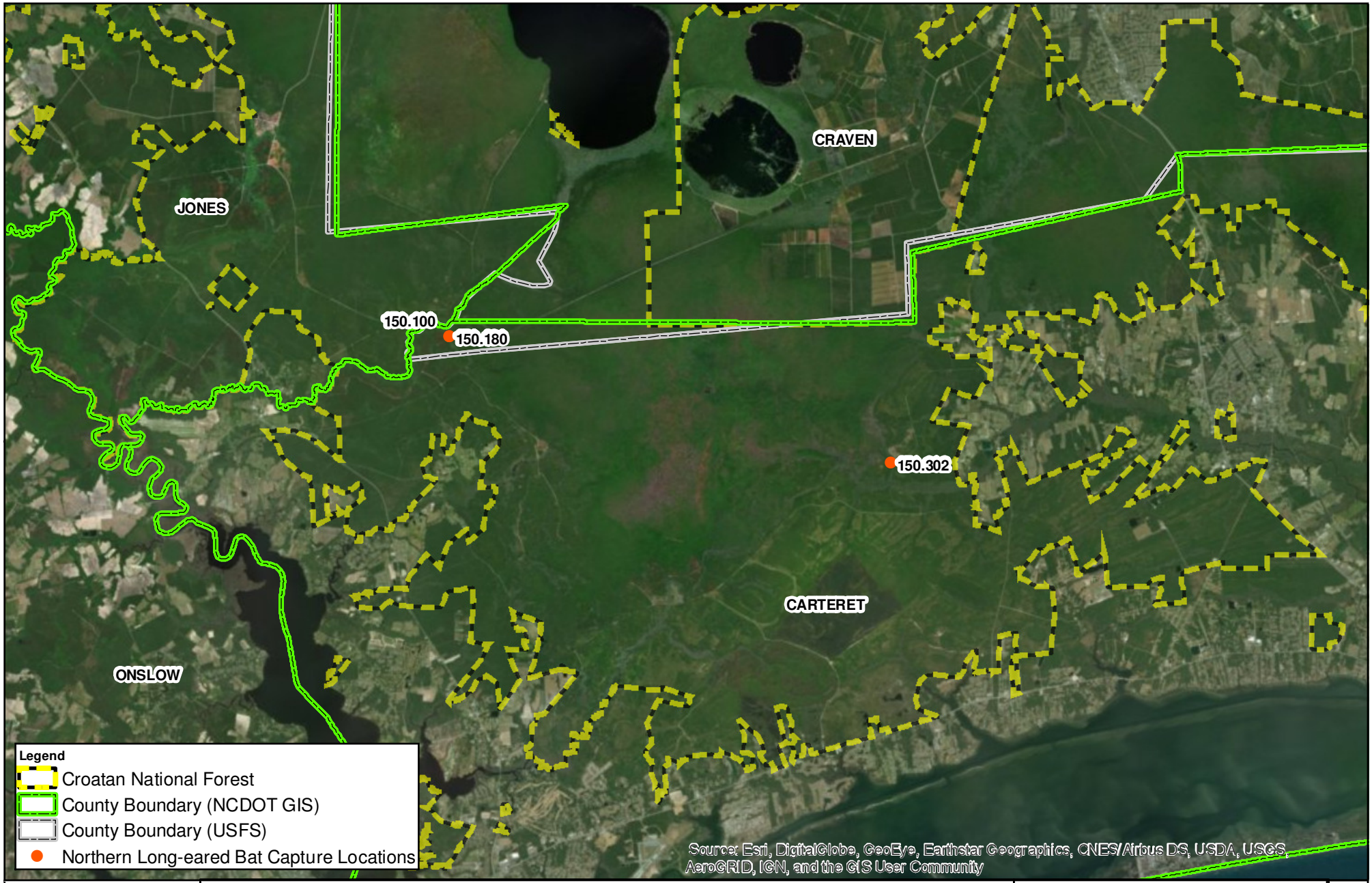

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FIGURE 7a: Northern Long-eared Bat Capture Locations Winter 2018

0 1 2 4 6 8 10
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (Myotis septentrionalis) Research Study Fall 2018/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

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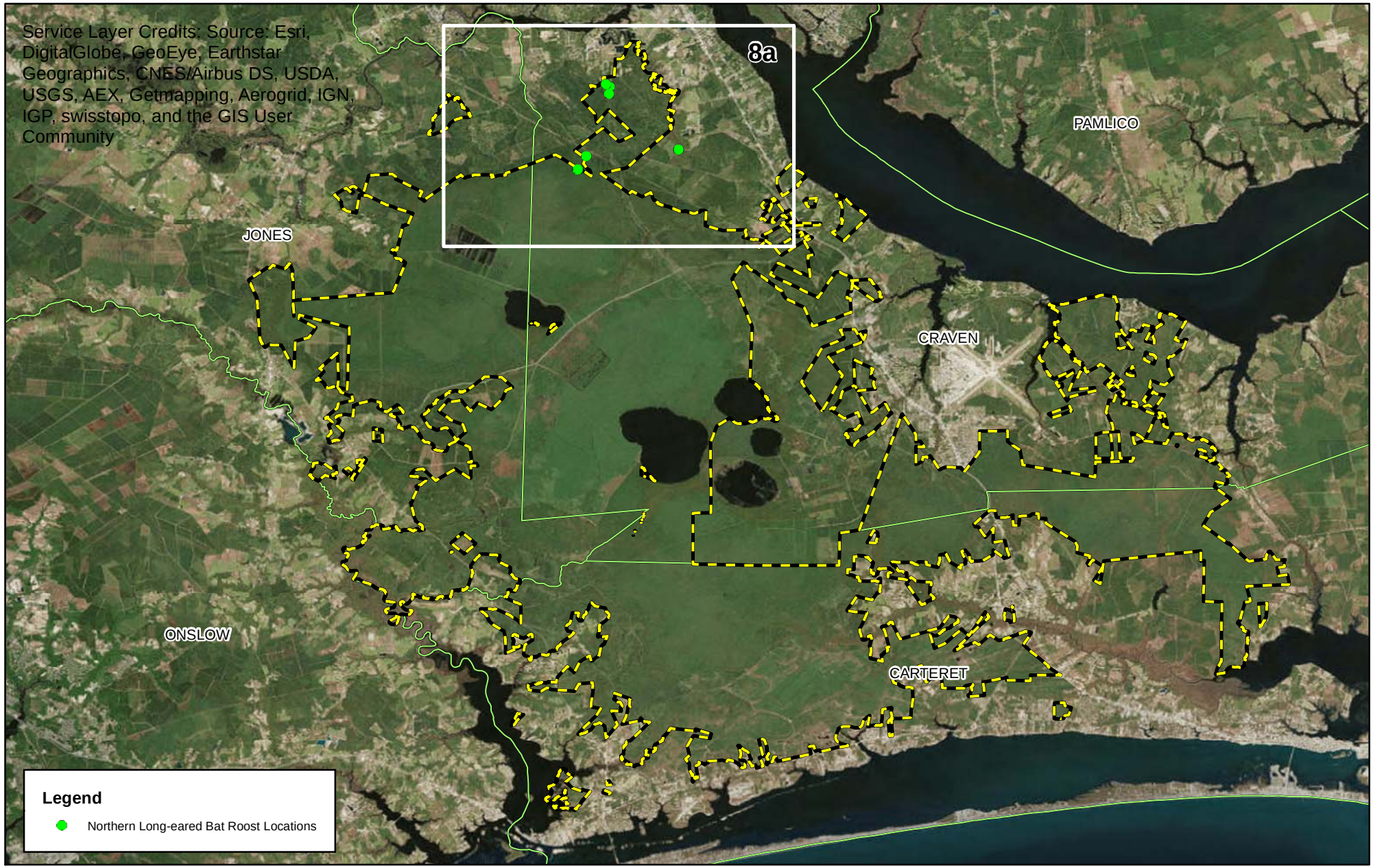

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FIGURE 8: Northern Long-eared Bat Roost Tree Locations Fall 2017 - Index

0 2 4 8 12 16 20

Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (*Myotis septentrionalis*)
Research Study Fall 2017/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

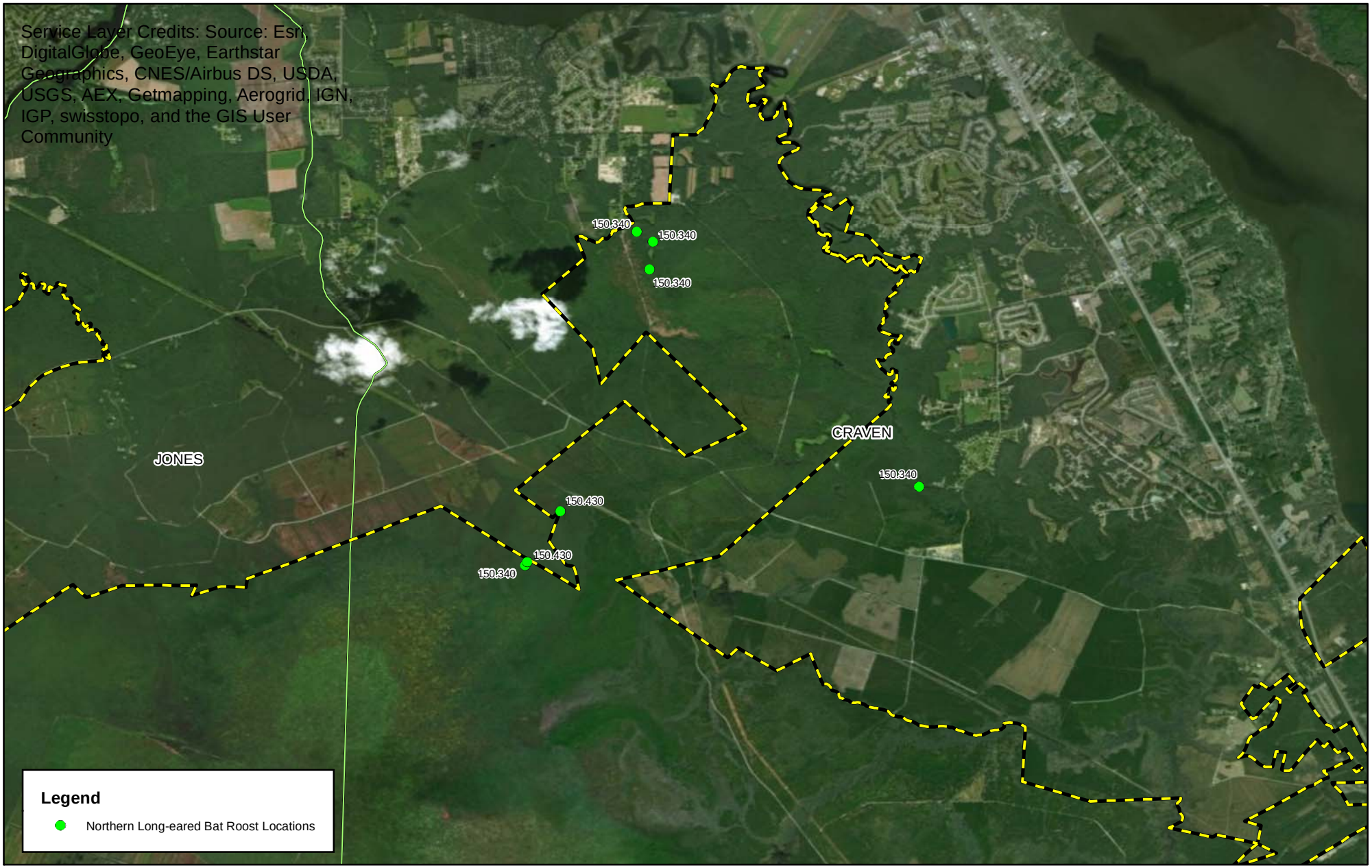

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FIGURE 8a: Northern Long-eared Bat Roost Tree Locations Fall 2017

0 0.5 1 2 3 4 5

Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (*Myotis septentrionalis*)
Research Study Fall 2017/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

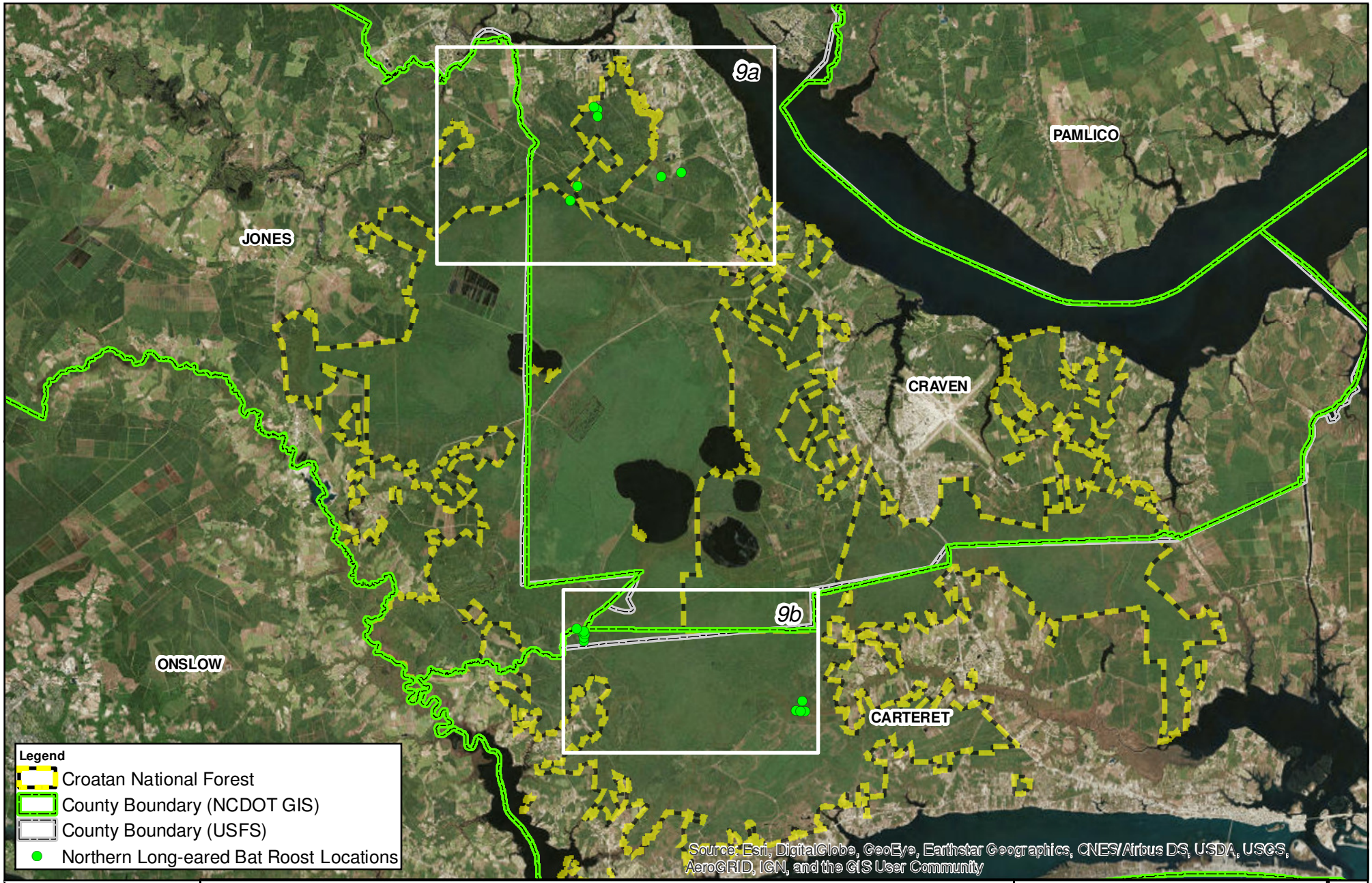

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FIGURE 9: Northern Long-eared Bat Roost Tree Locations Winter 2018 - Index

0 2 4 8 12 16 20
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (Myotis septentrionalis) Research Study Fall 2018/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

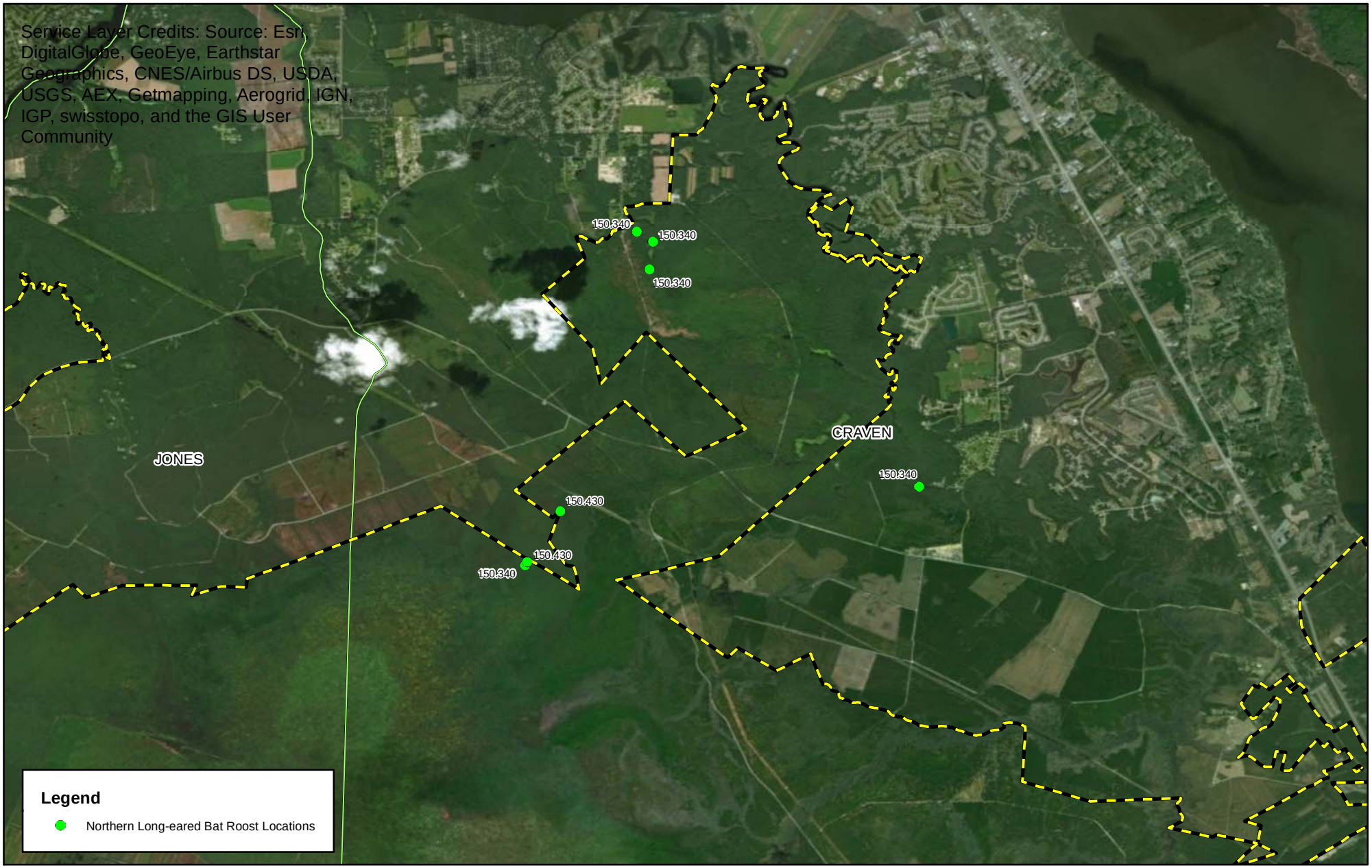

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FIGURE 9a: Northern Long-eared Bat Roost Tree Locations Winter 2018

0 0.5 1 2 3 4 5

Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (*Myotis septentrionalis*)
Research Study Fall 2017/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

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FIGURE 9b: Northern Long-eared Bat Roost Tree Locations Winter 2018

0 0.375 0.75 1.5 2.25 3 3.75
Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (Myotis septentrionalis)
Research Study Fall 2018/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

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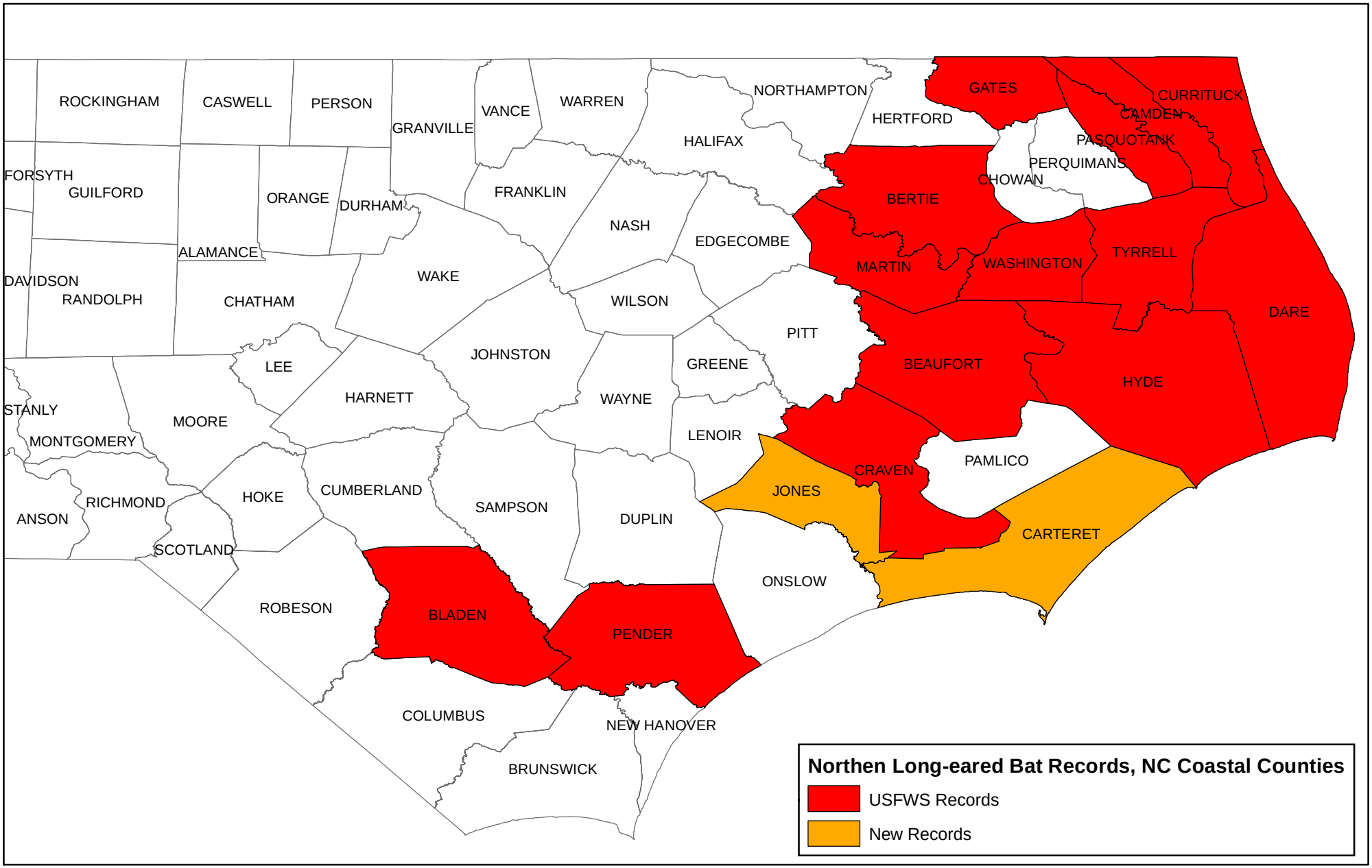


FIGURE 10: Northern Long-eared Bat New North Carolina Coastal Plain County Records

0 10 20 40 60 80 100 120 140 160

Miles

North Carolina Department of Transportation
Eastern North Carolina Northern Long-eared Bat (*Myotis septentrionalis*)
Research Study Fall 2017/Winter 2018
Carteret, Craven, and Jones Counties within the Croatan National Forest, NC

N

Appendix A
Mist-net Site Photographs

1-Carteret Mist Net Site in Carteret County

2-Carteret Mist Net Site in Carteret County

3-Carteret Mist Net Site in Carteret County

1-Craven Mist Net Site in Craven County

2-Craven Mist Net Site in Craven County

3-Craven Mist Net Site in Craven County

4-Craven Mist Net Site in Craven County4-Craven

5-Craven Mist Net Site in Craven County

6-Craven Mist Net Site in Craven County

7-Craven Mist Net Site in Craven County

8-Craven Mist Net Site in Craven County

9-Craven Mist Net Site in Craven County

10-Craven Mist Net Site in Craven County

11-Craven Mist Net Site in Craven County

1-Jones Mist Net Site in Jones County

2-Jones Mist Net Site in Jones County

3-Jones Mist Net Site in Jones County

4-Jones Mist Net Site in Jones County

5-Jones Mist Net Site in Jones County

6-Jones Mist Net Site in Jones County

7-Jones Mist Net Site in Jones County

8-Jones Mist Net Site in Jones County

9-Jones Mist Net Site in Jones County

Appendix B
NLEB Captured Bat Photographs

NLEB 150.430 Craven County 12-2-2017

NLEB 150.304 Craven County 12-18-2017

NLEB 150.100 Craven County 2-16-2018

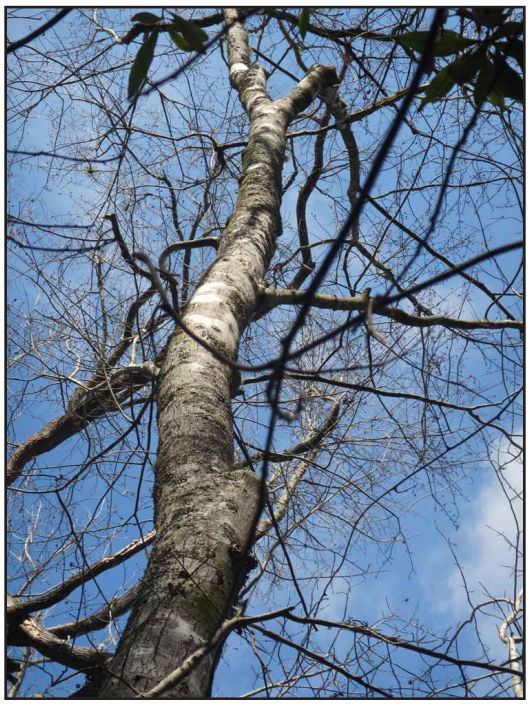
NLEB 150.302 Carteret County 2-20-2018

NLEB 150.180 Craven County 2-28-2018

Appendix C
NLEB Roost Photographs

NLEB 150.430 Roost-A Craven County

NLEB 150.430 Roost-A Habitat



NLEB 150.430 Roost-B Craven County

NLEB 150.430 Roost-B Habitat

NLEB 150.430 Roost-C Craven County

NLEB 150.430 Roost-C Habitat

NLEB 150.340 Roost-A Craven County

NLEB 150.340 Roost-A Cavity

NLEB 150.340 Roost-A Habitat

NLEB 150.340 Roost-B Craven County

NLEB 150.340 Roost-B Cavity

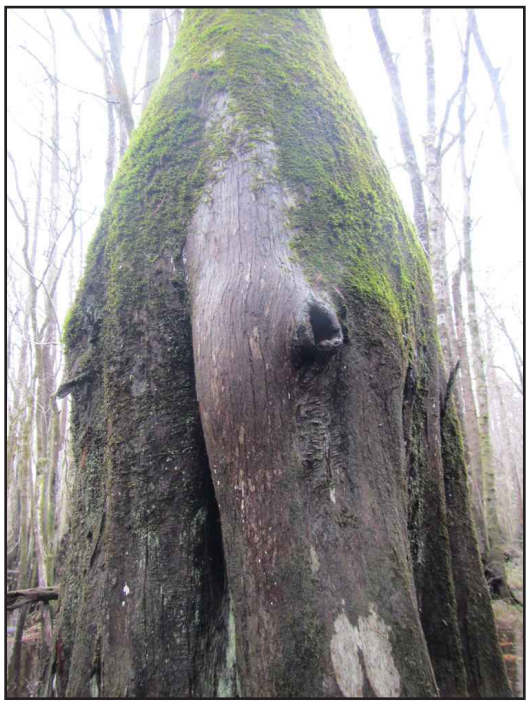
NLEB 150.340 Roost-B Habitat

NLEB 150.340 Roost-C Craven County

NLEB 150.340 Roost-C Cavity

NLEB 150.340 Roost-C Habitat

NLEB 150.340 Roost-D Craven County

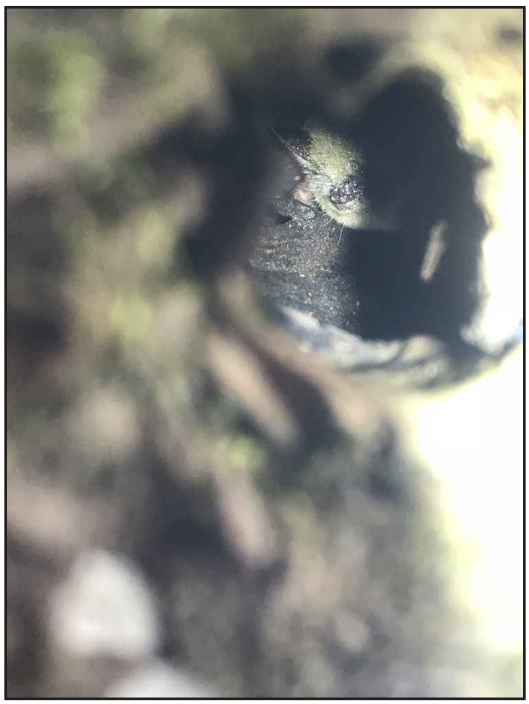


NLEB 150.340 Roost-D Cavity I

NLEB 150.340 Roost-D Cavity II

NLEB 150.340 Roost-D Habitat

NLEB 150.340 Roost-D Bat



NLEB 150.340 Roost-D Bat Condensation

NLEB 150.100 Roost-A & Habitat Craven County

NLEB 150.100 Roost-B & Habitat Jones County

NLEB 150.302 Roost-A & Habitat Carteret County

NLEB 150.302 Roost-B & Habitat Carteret County

NLEB 150.302 Roost-C Carteret County

NLEB 150.302 Roost-C Habitat

NLEB 150.302 Roost-D Carteret County

NLEB 150.302 Roost-D Habitat

NLEB 150.180 Roost-A & Habitat Craven County

NLEB 150.180 Roost-B Cavity Craven County

NLEB 150.180 Roost-B & Habitat

NLEB 150.180 Roost-C & Cavity Craven County

NLEB 150.180 Roost-C Habitat

NLEB 150.180 Roost-D & Habitat Craven County

Appendix D
Representative Captured Bat Species Photographs

Northern long-eared Bat (*Myotis septentrionalis*)

Southeastern Myotis Bat (*Myotis austroriparius*)

Tri-colored Bat (*Perimyotis subflavus*)

Rafinesque's Big-eared Bat (*Corynorhinus rafinesquii*)

Big Brown Bat (*Eptesicus fuscus*)

Eastern red Bat (*Lasiurus borealis*)

Seminole Bat (*Lasiurus seminolus*)

Silver Haired Bat (*Lasionycteris noctivagans*)

Evening Bat (*Nycticeius humeralis*)

Hoary Bat (Lasiurus cinereus)

Seminole Bat (Lasiurus seminolus) Injured by a Screech Owl

Appendix E
Representative Habitat and Community Type Photographs

Mesic Mixed Hardwood Forest (Coastal Plain Subtype) and Managed Row Pine

Managed Row Pine (Not a Natural Community)

Coastal Plain Small Stream Swamp (Blackwater Subtype)

Coastal Plain Small Stream Swamp (Blackwater Subtype)

Mesic Mixed Hardwoods (Coastal Plain Subtype)

Coastal Plain Semipermanent Impoundment

Coastal Plain Bottomland Hardwood (Blackwater Subtype)

Coastal Plain Bottomland Hardwood (Blackwater Subtype)

Managed Herbaceous (Not a Natural Community)

Tidal Cypress-Gum Swamp

Nonriverine Wet Hardwood Forest

Nonriverine Wet Hardwood Forest

Dry-Mesic Oak-Hickory Forest (Coastal Plain Subtype)

Bay Forest

Cypress-Gum Swamp (Blackwater Subtype)

Upland Mixed Pine and Hardwood

Appendix F
Mist-net Data Sheets

A: 34.76029 -76.772 D: 34.76072 -77.76650
B: 34.76086 -76.76752
C: 34.76070 -76.76702
E: 34.76064 -76.76636

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research Project	County:	Carteret	Site#:	carteret	Night#:	1	Site Name:	Oyster Point FS 183	Date:	12-12-2017
Latitude:	34.761987	Longitude:	-76.762163					Datum:	NAD 83	Elevation:	50'
Observers:	Drew Powell, + Meredith Hoggatt							Start Time:	1630	End Time:	20:10

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	16:45	57°	2	0	18:45	47°	0	0	19:50	44°	0	0

Moon Effect: waning Crescent — Start: — Stop: —

Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43

NETS/TRAPS:	A: 1x2Hx12m	B: 1x2Hx9m	C: 1x3Hx12m	D: 1x2Hx12m	E: 1x2Hx9m	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 #						

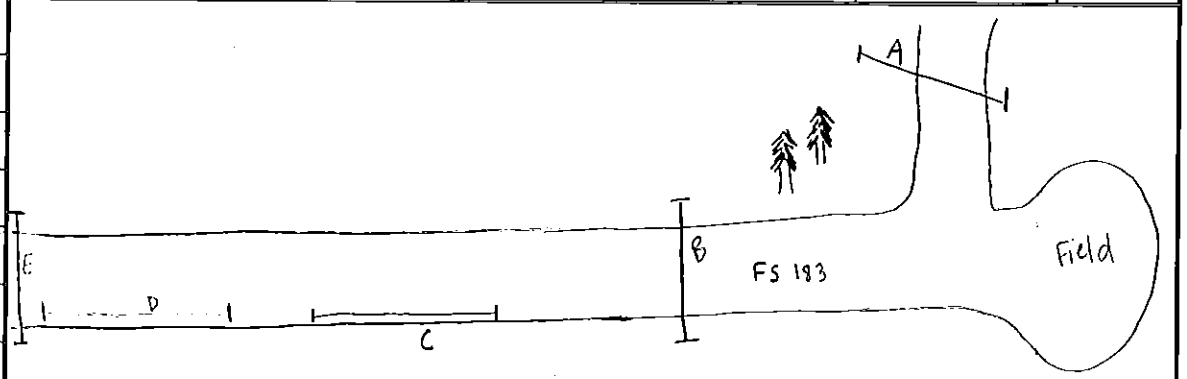
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland/managed/mature/natural
medium clutter (3)

Sweet gum, loblolly pine, longleaf pine, live oak, water oak,

Community Habitat Type = Upland Longleaf Pine / managed Pine; Pine Mixed Upland mixed Pine/Hardwood Hardwoods



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

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

Closed early due to temprature dropping below 45° but was open 3 hours following scope of NCDOT + USFWS guidelines

Bat Survey Data Form

Project: NCDOT NLEB Research County: Carteret Site# 1- Carteret Night# 1 Site Name: Oyster Point FS 183 Date: 12-12-2017

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

other species in park Anasimus

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

Pine / hardwood / (mixed) / unforested

(Upland) / bottomland

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype

1. 34.77833 -76.96148
2. 34.77828 -76.96162
3. 34.77821 -76.96153
4. 34.77818 -76.96169
5. 34.77803 -76.96204

} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research project	County:	Carteret	Site#:	2 carteret	Night#:	1	Site Name:	Swamp Mills Rd FS 177	Date:	12/12/2017
Latitude:	34.77446	Longitude:	-76.964050					Datum:	NAD 83	Elevation:	63ft
										ID By:	KRISTI CONFORTIN
Observers:	Julia Hoeh							Start Time:	1643	End Time:	2009

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1700	51.5	2	25	1846	38	0	0	2005	36	0	0

Moon Effect: waning crescent — Start: — Stop: —

Land Use: Urban / Agriculture / (Forest) 4-43 / Water / (Wetland) 6-61 / Barren *(describe)*:

NETS/TRAPS:	A:	B:	C:	D:	E:	F:
	1x2Hx9m	1x2Hx12m	1x3Hx12m	1x2Hx12m	1x2Hx12m	
Pool size WxL	Na	stream	stream	stream	Na	
Swoop WxL	Na	unlimited	unlimited	unlimited	Na	
Photo? or #	yes	yes	yes	yes	yes	

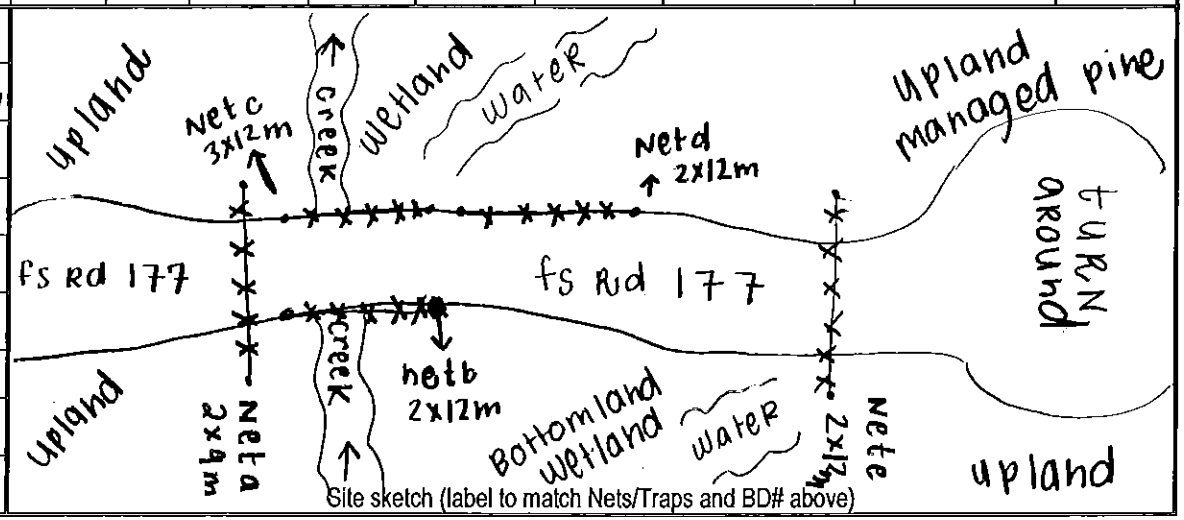
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed / upland & bottomland / managed / mature forest / natural / clutter med

loblolly pine, sweet, bald cypress, tupelo, american holly

Habitat Community = coastal plain small stream swamp, blackwater subtype



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

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

* closed early due to low tempratures dropping below 45

Bat Survey Data Form

Project: NCDOT NVEB Bat Research project County: Carteret Site# 2-Carteret Night# 1 Site Name: Swamp Millis Rd FS Rd 177 Date: 12/12/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1738	LASE	m	A	NR	41	17.5-9.5	10	E	2.5m	NC-WRC A3230 / 0	NIKKI FUR # 2-carteret 1	45
2	1752	LABO	m	A	NR	40	17-7.5	9.5	B	3m	NC-WRC A3229 / 0	NIKKI FUR # 2-carteret 2	41
3	1806	LABO	m	A	NR	37	17-7.5	9.5	C	3m	NC-WRC A3228 / 0	NIKKI FUR # 2-carteret 3	41
4	1853	NYHU	m	A	NR	34	16.5-7.5	9	A	3m	ESGA 491 / 0	NIKKI FUR # 2-carteret 4	38
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: Coastal plain small stream swamp, blackwater subtype

1. 34.77833 -76.96148
2. 34.77828 -76.96162
3. 34.77821 -76.96153
4. 34.77818 -76.96169
5. 34.77803 -76.96204
} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Carteret	Site#:	2 Carteret	Night#:	2	Site Name:	Swamp Rollis Rd FS 177	Date:	12-15-2017
Latitude:	34.77446	Longitude:	-76.96405					Datum: NAD83	Elevation: 63'	ID By:	Kristi Contortin
Observers:	Meredith Hoggatt							Start Time: 1628		End Time: 21:40	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1628	53	0	100	2020	46	2	100	2140	42	1	100

Moon Effect: waxing crescent — Start: — Stop: —

Land Use: Urban / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*: 4-43 6-61

NETS/TRAPS:	A:	B:	C:	D:	E:	F:
	1x2Hx9m	1x2Hx12m	1x3Hx12m	1x2Hx12m	1x2Hx12m	
Pool size WxL	Na	unlimited	unlimited	Na	Na	
Swoop WxL	Na	Unlimited	Unlimited	Na	Na	
Photo? or #	yes	yes	yes	yes	yes	

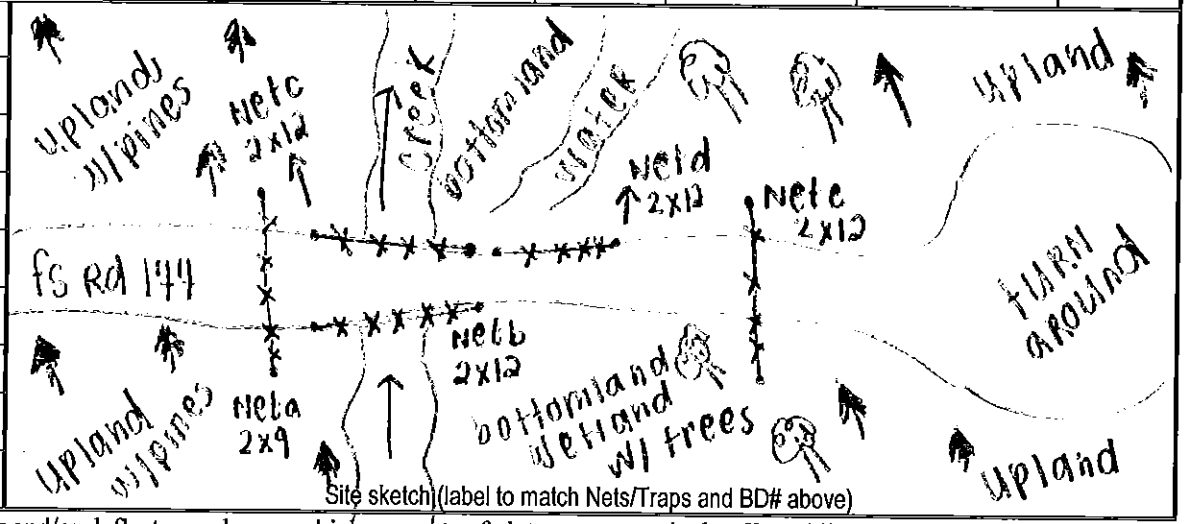
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland & bottomland/managed mature forest/natural/clutter med

loblolly pine, sweetgum, bald cypress, tupelo, american holly

Community habitat type: coastal plain small stream swamp, blackwater subtype



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

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

Bat Survey Data Form

Project: NCDOT NLEB Research project County: Carteret Site# 2-Carteret Night# 2 Site Name: swamp millis Road fs 177 Date: 12/15/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1725	LABO	m	A	NR	35	15.5-7.5	8	A	3m	NC-WRC A3227 / 0	pin hole Right wing	47.5
2	1725	LASE	m	A	NR	40	17-7.5	9.5	A	1 m	NC-WRC A3226 / 0	pin hole Right wing	47.5
3	1752	LABO	m	A	TD	39	17.5-7.5	10	A	3 m	NC-WRC A3225 / 0	pin hole right wing NiKKi FUR # 2-Carteret 5	49
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: Coastal plain small stream swamp, blackwater subtype

1. 34.77833 -76.96148
2. 34.77828 -76.96162
3. 34.77821 -76.96153
4. 34.77818 -76.96169 } GPS net points
5. 34.77803 -76.96204

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NUEB Research Project	County:	Carteret	Site#: 2-Carteret	Night#: 3	Site Name:	Swamp Mills Road FS Road 177	Date:	12/17/2017		
Latitude:	34.77496	Longitude:	-76.964050	Datum:	Nad 83	Elevation:	63ft	ID By:	Krish Confortin		
Observers:	Drew Powell			Start Time:	1642	End Time:	2226				
Conditions:	Time 1900	Temp 51	Wind 0	Clouds 100	Time 2006	Temp 46	Wind 0	Clouds 100	Time 2209	Temp 47	Wind 0	Clouds 100
Moon Effect:	waning crescent	Start: —	Stop: —	Land Use: Urban / Agriculture / (Forest 4-43) / Water / (Wetland 6-61) / Barren *(describe)*:								

NETS/TRAPS:	A: 1x2Hx9m	B: 1x2Hx12m	C: 1x3Hx12m	D: 1x2Hx12m	E: 1x2Hx12m	F:
Pool size WxL	Na	stream	stream	stream	Na	
Swoop WxL	Na	Unlimited	Unlimited	Unlimited	Na	
Photo? or #	yes	Yes	yes	Yes	yes	

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

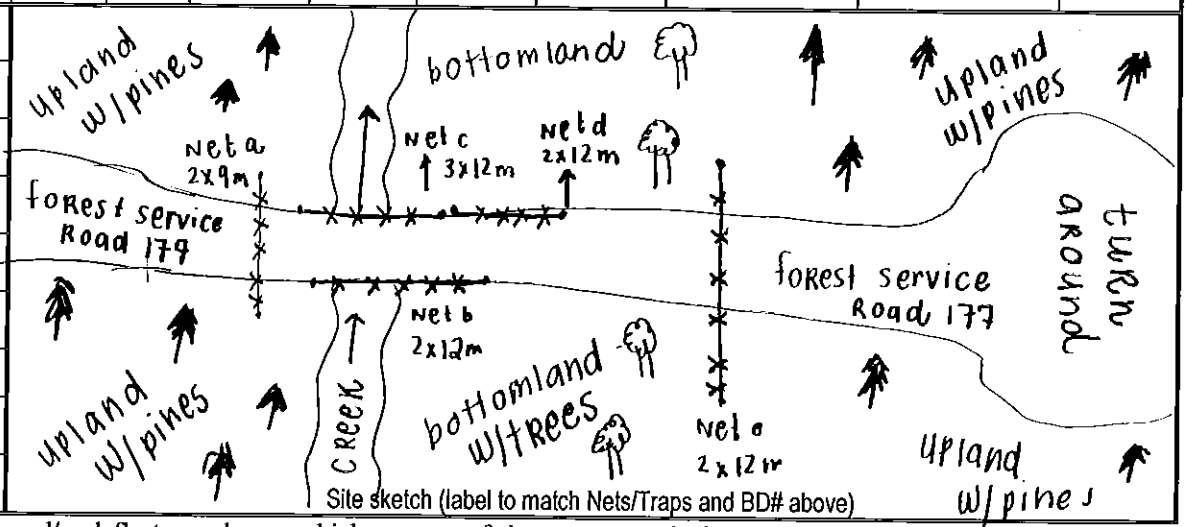
mixed/upland & bottomland/managed

mature forest/natural/clutter med

loblolly pine, sweet gum, bald cypress,

tupelo, sweet bay magnolia, american holly

community habitat type: coastal plain small stream swamp black water subtype



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

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

KC USFWS 12/29/17 KC ESdata 12/29/17 KC lat long 12/29/2017

Bat Survey Data Form

Project: NCDOT NLEB Research project County: Carteret Site# 2 - Carteret Night# 3 Site Name: Swamp Millis Road FS Road 177 Date: 12/17/2017

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

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

Pine / hardwood /(mixed)/ unforested

(Upland) /(bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: Coastal plain small stream swamp, blackwater subtype

a. 35.02739 -77.04559
B. 35.02748 -77.04613
C. 35.02749 -77.04637 3 GPS net points
d. 35.02738 -77.04684

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	Craven	Night#:	1	Site Name:	NCWRC game land mushroom pond	Date:	11-19-17
Latitude:	35.027270	Longitude:	-77.046536					Datum:	Nad 83	Elevation:	45ft
ID By:	KRISTI CONFORTIN										
Observers:	Julia Hoeh							Start Time:	17:00	End Time:	20:20

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	17:00	60	1	25	20:00	44	1	0				

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

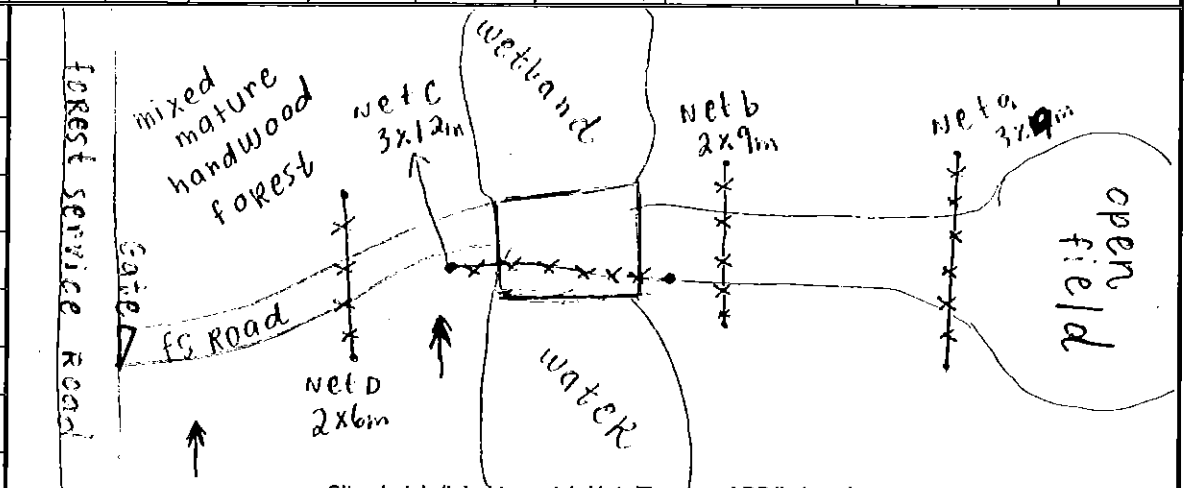
Land Use: Urban / Agriculture / (Forest / Water / Wetland) / Barren *(describe)*: 4-43 5-52 6-61

NETS/TRAPS:	A: GPS 1x3Hx9m 35.02676 -77.04977	B: GPS 1x2Hx9m 35.02744 -77.04613	C: GPS 1x3Hx12m 35.02752 -77.04631	D: GPS 1x2Hx6m 35.02741 -77.04688	E:	F:
Pool size WxL	NA	NA	20x30m	NA		
Swoop WxL	NA	NA	unlimited	NA		
Photo? or #	yes	yes	yes	yes		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

bald cypress, turkey oak, red maple
water tupelo, sweet gum, white oak, loblolly pine
habitat community type: mesic mixed hardwood, coastal plain
subtype, & coastal plain small stream swamp,
blackwater subtype
mixed forest/mangged/mature forest
Natural/medium clutter 40-75%
upland & bottomland



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

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

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Bat Survey Data Form

* closed early due to temps dropping below 45° but was able to survey 3 hours following scope and NCDOT & USFWS guidelines

Project: NCDOT NLEB Research study County: Craven Site# 1-Craven Night# 1 Site Name: Croatan game land mushroom pond Date: 11/19/17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	19:00	PESU	f	A	NR	33	14-7.5	6.5	D	4	ESGA198	WNS SWAB #87
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

temp 47

other species in net: brown creeper

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype

Net-A 35.01534, -77.05048
B 35.01493, -77.05057
C 35.01456, -77.05074
D 35.01446, -77.05077
3 GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Eastern NC Croatan NF, NC 2-

Project:	NLEB research	County:	Craven	Site#:	Craven	Night#:	1	Site Name:	Washout FS 170	Date:	11-19-17
Latitude:	35.01611	Longitude:	-77.05026	Datum:	NAD 83	Elevation:	42 ft	ID By:	Dottie Brown
Observers:	Dottie Brown & Drew Powell			Start Time:	16:56			End Time:	2000

Conditions:	Time	Temp	Wind	Clouds
	17:00	56° F	0	few
	19:00	49° F	0	0
	20:00	45° F	0	0

Moon Effect: 2.1% waxing crescent Start: NA Stop: NA

Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43, 5-57, 6-61

NETS/TRAPS:	A:	B:	C:	D:	E:	F:
	1X3H-12m	1X3H-12m	1X3H-12m	1X2H-12m		
Pool size WxL	100'X 50'	NA	NA	NA		
Swoop WxL	NA	UNLIM	NA	NA		
Photo? or #	yes					

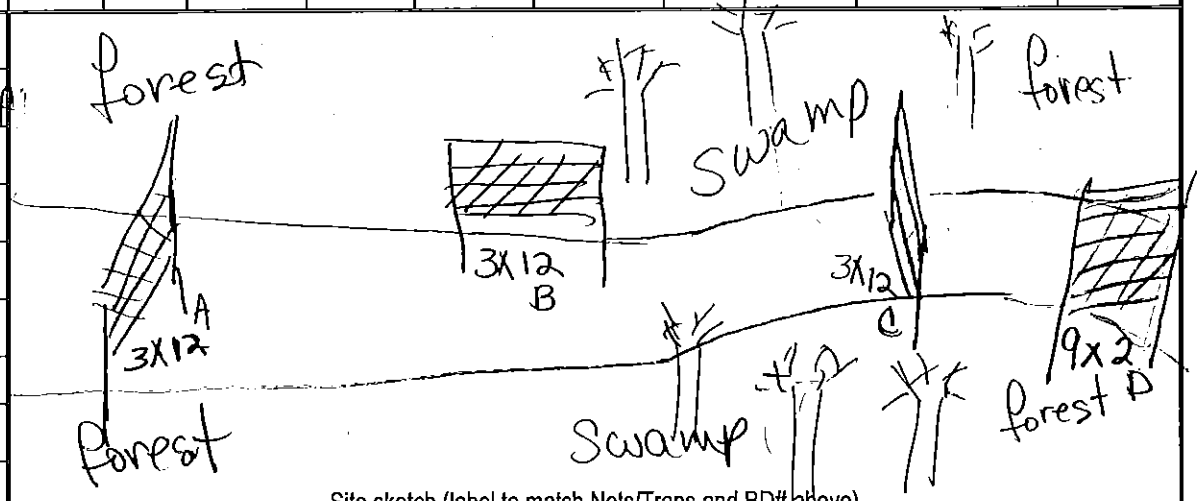
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop-Time	Photo?

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

Clutter 3 / mixed Pine + Hard wood / Mix of bottom land + upland managed Pine w/ mature forest along swamp/wetland/natural / Clutter (3)

W. Oak, loblolly pine, cypress, water white oak, oak, Myrtle, Sweet Bay, Poplar, Gum, cedar, water tupelo

Habitat community type: Mesic mixed hardwoods, coastal plain subtype, coastal plain semiper manent, impoundment & coastal plain small stream swamp, blackwater subtype



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

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

MH CS_Full_Data 12-8-2017 MH USFWS DB All Projects 12-9-2017 MH Lat_Long_2017 12-10-17

Bat Survey Data Form

*closed early due to temps dropping below 45° but was able to survey 3 hours following scope and NCDOT & USFWS guidelines

Project: Eastern NC NLEB research County: Craven Site# 2-Craven Night# 1 Site Name: Washout FS170 Date: 11-19-2017

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

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

Pine / hardwood / (mixed) / unforested

(Upland) / bottomland

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype, coastal plain semipermanent impoundment + coastal plain small stream swamp, blackwater subtype

1. 35.02739 -77.04559
2. 35.02748 -77.04613
3. 35.02799 -77.04631
4. 35.02738 -77.04684
5. 35.02751 -77.04653
6. 35.02709 -77.04736

} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research project	County:	Craven	Site#:	1-Craven	Night#:	2	Site Name:	NCWRC game land mushroom pond	Date:	11/21/2017
Latitude:	35.027270	Longitude:	-77.046536					Datum:	Nad 83	Elevation:	45ft
Observers:	Julia Hoeh							Start Time:	16:50	ID By:	Kristi Confortin
										End Time:	22:05

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1703	59	1	100	2011	53	1	100	2140	53	0	100

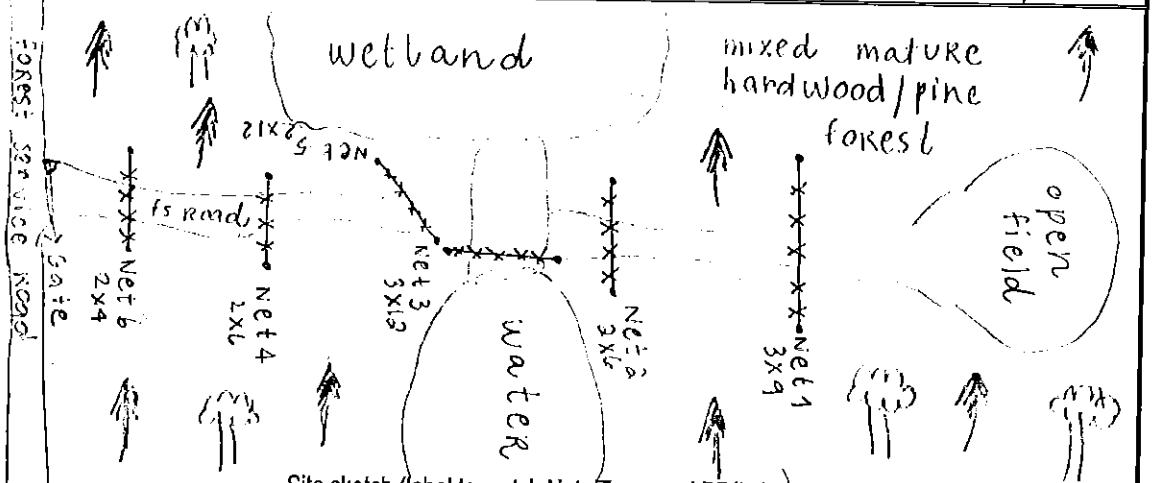
Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Wax-CRES	Start: NA	4-43 5-52 6-61
	Stop: NA	

NETS/TRAPS:	A:1 1x3Hx9m	B:2 1x2Hx6m	C:3 1x3Hx12m	D:4 1x2Hx6m	E:5 1x2Hx12m	F:6 1x2Hx9m
Pool size WxL	Na	Na	20x30m	Na	Na	Na
Swoop WxL	Na	Na	Unlimited	Na	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

Sweetgum, bald cypress, turkey oak
Red maple, water tupelo, white oak, loblolly pine
habitat community type: mesic mixed hardwoods coastal plain
subtype & coastal plain small stream swamp, blackwater subtype
mixed / forest / managed / mature forest
Natural / medium clutter 40-75%
Upland & bottomland



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

Bat Survey Data Form

Project: NCDOT NLEB Research project County: Craven Site# 1-Craven Night# 2 Site Name: Croatan game land mushroom pond Date: 11/21/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	17:30	LaBo	m	A	NR	40	17-7	10	4	2m	NC-WRC A3250 / 0	Right wing pin hole / NIKKI FUR sample #. 1-craven 1	56
2	18:27	LaBo	m	A	NR	36	18.5-7.5	11	6	3m	NC-WRC A3249 / 0	NIKKI FUR sample # 1-craven 2	55
3													
4													
5													
6													
7													
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12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood /(mixed)/ unforested

(Upland) /bottomland

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

(Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype

1. 35.02739 -77.04559
2. 35.02748 -77.04613
3. 35.02749 -77.04637
4. 35.02738 -77.04684
5. 35.02751 -77.04653
6. 35.02709 -77.04736

} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Study	County:	Craven	Site#:	1-Craven	Night#:	3	Site Name:	NCWRC game land mushroom pond	Date:	11/22/2017
Latitude:	35.027270	Longitude:	-77.046536					Datum:	Nad 83	Elevation:	45ft
Observers:	Julia Hoeh							Start Time:	1645	End Time:	2120

Conditions:	Time	Temp	Wind	Clouds
	1650	58	0	25
	2010	19	0	0
	2120	14	1	0

Moon Effect: waxing gibbous

Start: 1709

Stop: 2010

Land Use: Urban / Agriculture / (Forest / Water / Wetland) / Barren *(describe)*: 4-43 5-52, 6-61

NETS/TRAPS:	A:1 1x3Hx9m	B:2 1x2Hx6m	C:3 1x3Hx12m	D:4 1x2Hx6m	E:5 1x2Hx12m	F:6 1x2Hx4m
Pool size WxL	Na	Na	20x30m	Na	Na	Na
Swoop WxL	Na	Na	unlimited	Na	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

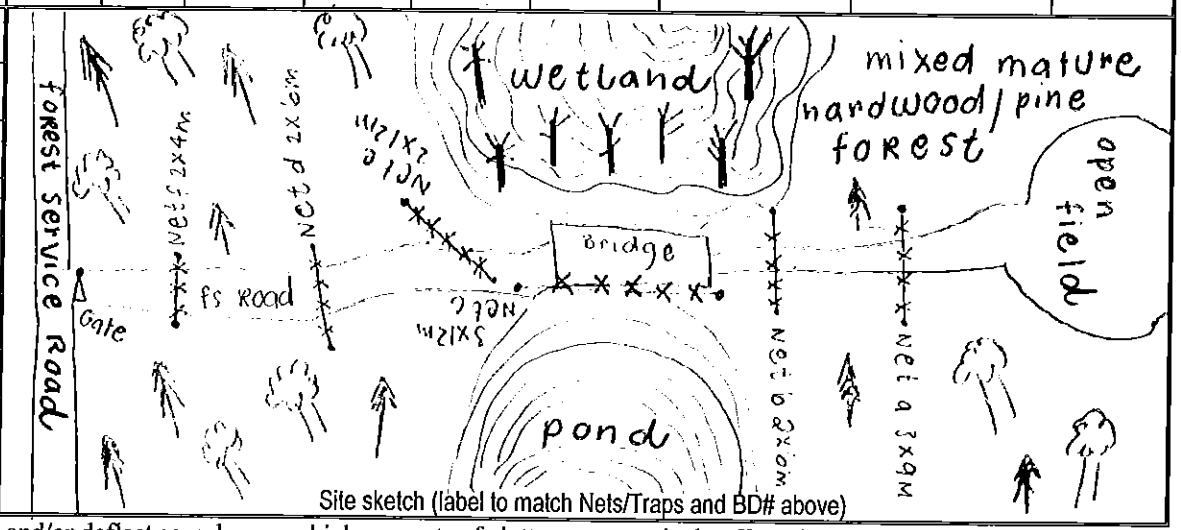
mixed forest/managed/mature forest

Natural/ medium clutter 40-75%

upland & bottomland

Sweet gum, loblolly pine, bald cypress, red maple, eastern white oak, water oak, american turkey oak

habitat community type: • mesic mixed hardwoods, coastal plain subtype and coastal plain small stream swamp, blackwater subtype



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

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

Bat Survey Data Form

* closed early due to temperatures dropping below 45 but was able to survey 3 hours following scope and NCDOT & USFWS guidelines

Project: NCDOT NLEB research project County: Craven Site# 1-Craven Night# 3 Site Name: Croatan game land mushroom pond Date: 11/22/2017

	TIME	SPECIES	Sex	Age	P/L/PL/NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1828	EPFU	f	A	NR	47	29-7.5	19.5	2	3m	NC-WRC A1849 / 0	WNS SWAB #37 NIKKI fur sample 1-Craven 3	48
2	1848	EPFU	m	A	TD	46	25-7	18	4	2.5m	NC-WRC A1995 / 0	* recap WNS SWAB #32 NIKKI fur sample 1-Craven 4	49
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

other species in net: southern flying squirrel, Northern cardinal

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

1. 35.02739 -77.04559
2. 35.02748 -77.04613
3. 35.02749 -77.04637
4. 35.02738 -77.04684
5. 35.02751 -77.04653
6. 35.02709 -77.04736

} GPS net points

Project:	NCDOT NUEB Research project	County:	Craven	Site#:	1-Craven	Night#:	4	Site Name:	NCWRC game land mushroom pond	Date:	11/24/2017
Latitude:	35.027270	Longitude:	-77.046536					Datum: Nad 83	Elevation: 45 ft	ID By:	KRISTI CONFORTIN
Observers:	Julia Hoeh							Start Time: 1630		End Time: 2115	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	17.00	55	2	100	2000	45	1	0	2116	43.5	1	50

Moon Effect: waxing gibbous

Start: 1718

Stop:

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

NETS/TRAPS:	A:1 1x3Hx9m	B:2 1x2Hx6m	C:3 1x3Hx12m	D:4 1x2Hx6m	E:5 1x2Hx12m	F:6 1x2Hx4m
Pool size WxL	Na	Na	20x30m	Na	Na	Na
Swoop WxL	Na	Na	unlimited	Na	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

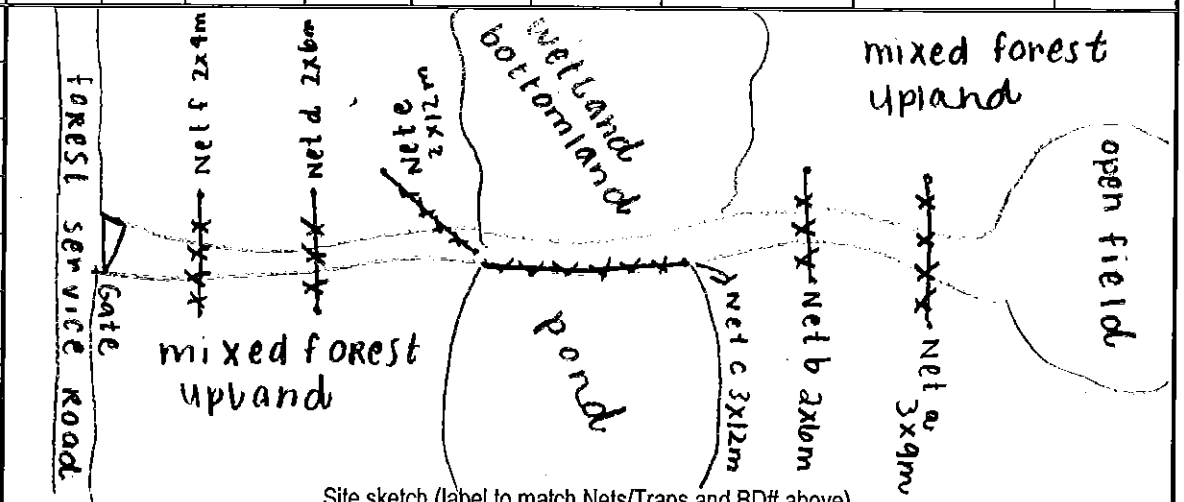
mixed forest/ managed / mature forest

Natural / medium clutter 40-75%

Upland & bottomland

American turkey oak, water oak sweet gum, loblolly pine, bald cypress, red maple, white oak

habitat community type: mesic mixed hardwoods, coastal plain subtype & coastal plain small stream swamp, blackwater subtype



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

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

Mtt ES_Full_Data 12-7-2017 Mtl USFWS_XC_All Raised 12-10-17 Mtl Lat. Long. 20:1 12-10-17

Bat Survey Data Form

*closed early due to temperatures dropping below 45 but was able to survey 3 hours following scope and NCDOT & USFWS guidelines

Project: NCDOT NUEB Research project County: Craven Site# 1-Craven Night# 4 Site Name: Croatan game land mushroom pond Date: 11/24/17

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

other species in net: ovenbird, brown creeper

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype

1. 35.04523 -77.04962
2. 35.04530 -77.04967
3. 35.04534 -77.04999
4. 35.04521 -77.05002
5. 35.04570 -77.05043
} GPS Net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF NC

Project:	NCDOT NUEB Research project	County:	Craven	Site#:	3 Craven	Night#:	1	Site Name:	Brice Creek Boat Ramp	Date:	12/1/2017
Latitude:	35.04836,	Longitude:	-77.05100					Datum: NAD83	Elevation: 32ft	ID By:	KRISTI CONFORTIN
Observers:	Julia Hoch							Start Time: 1639		End Time:	2235

Conditions:	Time	Temp	Wind	Clouds
	1631	60	0	0
	2000	49	2	0
	22	47	2	0

Moon Effect: waxing gibbous

Start: 1719
Stop:

Land Use: Urban / Agriculture (Forest) (Water) (Wetland) Barren *(describe)*:
4-43 5-52 6-61

NETS/TRAPS:	A:1 1x3Hx12m	B:2 1x2Hx9m	C:3 1x2Hx6m	D:4 1x3Hx12m	E: 5 1x3Hx12m	F:
Pool size WxL	Na	Na	Na	Na	Na	
Swoop WxL	Na	Na	Na	Na	Na	
Photo? or #	yes	yes	yes	yes	yes	

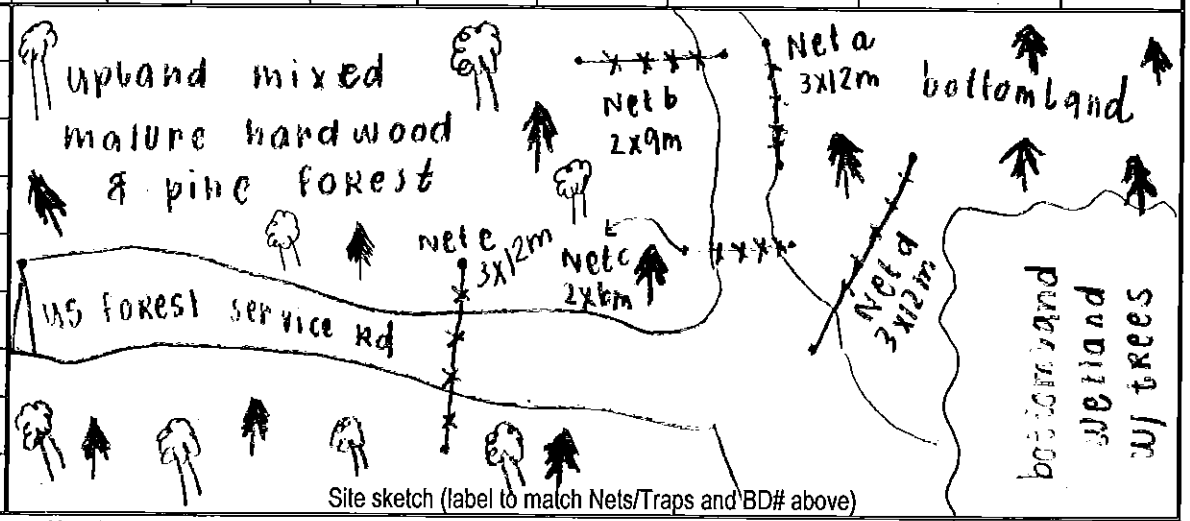
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

loblolly pine, flowering dogwood, turkey oak
sweetgum, bald cypress, water oak

habitat community type: mesic mixed hardwoods, coastal plain subtype, coastal plain semipermanent impoundment & coastal plain small stream swamp, blackwater subtype

mixed/upland & bottomland/managed
mature forest/ natural
medium 40-75% cover clutter.



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

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

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 3-Craven Night# 1 Site Name: Brice Creek Boat Ramp Date: 12/1/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1758	myAU	m	A	TD	37	14-7.5	6.5	5	2m	NC-WRC A3235 / 0	WNS SWAB #42 B13-GA Jesse	53
2	1758	myAU	m	A	TD	37	13.5-7.5	6	5	2m	NC-WRC A3234 / 0	WNS SWAB #31 B11-GA Jesse	53
3	1758	myAU	F	A	NR	NA	15.5-7.5	8	5	2m	NCURC A3233 / 0	WNS SWAB #44 B8-GA Jesse	53
4													
5													
6													
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16													
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18													
19													
20													

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype, coastal plain semipermanent impoundment + coastal plain small stream swamp, blackwater subtype

1. 35.04523 -77.04962
2. 35.04530 -77.04967
3. 35.04534 -77.04999
4. 35.04521 -77.05002
5. 35.04510 -77.05093

} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	3-Craven	Night#:	2	Site Name:	Brice Creek Boat Ramp			Date:	12/2/2017		
Latitude:	35.04836	Longitude:	-77.05100					Datum:	Nad 83	Elevation:	32ft	ID By:	KRisti Confortin		
Observers:	Julia Hoeh							Start Time:	1642			End Time:	2249		
Conditions:	Time 1640	Temp 54	Wind 0	Clouds 100	Time 2002	Temp 51.5	Wind 0	Clouds 100	Time 2200	Temp 52	Wind 0	Clouds 100			
Moon Effect:	waxing gibbous	Start: 1811	Stop: —		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43 5-52 6-61										

NETS/TRAPS:	A: 1 1x3Hx12m	B: 2 1x2Hx9m	C: 3 1x2Hx6m	D: 4 1x3Hx12m	E: 5 1x3Hx12m	F:
Pool size WxL	NA	NA	NA	NA	NA	
Swoop WxL	NA	NA	NA	NA	NA	
Photo? or #	yes	yes	yes	yes	yes	

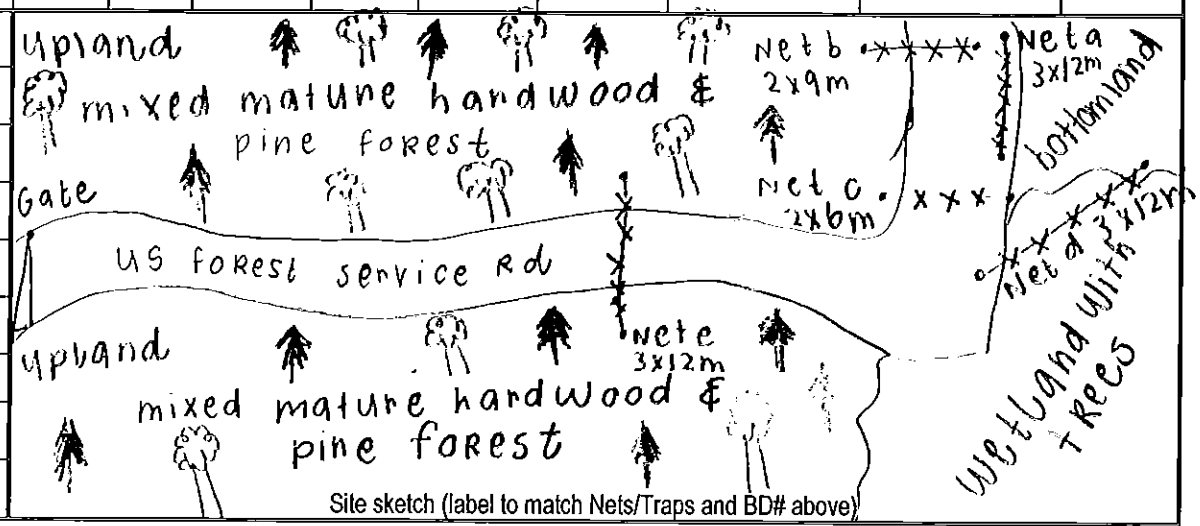
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

loblolly pine, flowering dogwood sweetgum, bald cypress, water oak, turkey oak

habitat community type: mesic mixed hardwoods, coastal plain subtype, coastal plain semipermanent impoundment & coastal plain small stream swamp, blackwater subtype

mixed/upland & bottomland/ managed/mature forest/natural medium 40-75% cover clutter



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

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

Bat Survey Data Form

Project: NCDOT NLEB research project County: Craven Site# 3-Craven Night# 2 Site Name: Brice Creek Boat Ramp Date: 12/2/2017

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

Other species in Net: brown thrasher, hermit thrush, & Southern flying squirrel

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype, Coastal plain semipermanent Impoundment & coastal plain small stream swamp, blackwater subtype

A: 35.00680, -77.07679
B: 35.00686, -77.07665
C: 35.00695, -77.07550
D: 35.00725, -77.07353
E: 35.00721, -77.07349
F: 35.00731, -77.07329
} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research	County:	Craven	Site#:	4-Craven	Night#:	1	Site Name:	Forest Service Road 178 wetland	Date:	12-2-2017
Latitude:	35.00707	Longitude:	-77.07463					Datum: NAD83	Elevation: 136'	ID By:	Dottie Brown
Observers:	Drew Powell, Meredith Hoggatt							Start Time:	1630	End Time:	20:00

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1630	56°F	0	75%	20:10	52	0	25%	20:00	51	0	25%

Moon Effect: waxing gibbous (75%) — Start: 16:30 — Stop: NA

Land Use: Urban / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*: 4-43 6-61

NETS/TRAPS:	A: 1×2ft×12m	B: 1×2ft×12m	C: 1×2ft×6m	D: 1×2ft×12m	E: 1×2ft×12m	F: 1×2ft×12m
Pool size WxL	NA	unkim	NA	unkim	unkim	unkim
Swoop WxL	NA	unkim	NA	unkim	unkim	unkim
Photo? or #	Y	Y	Y	Y	Y	Y

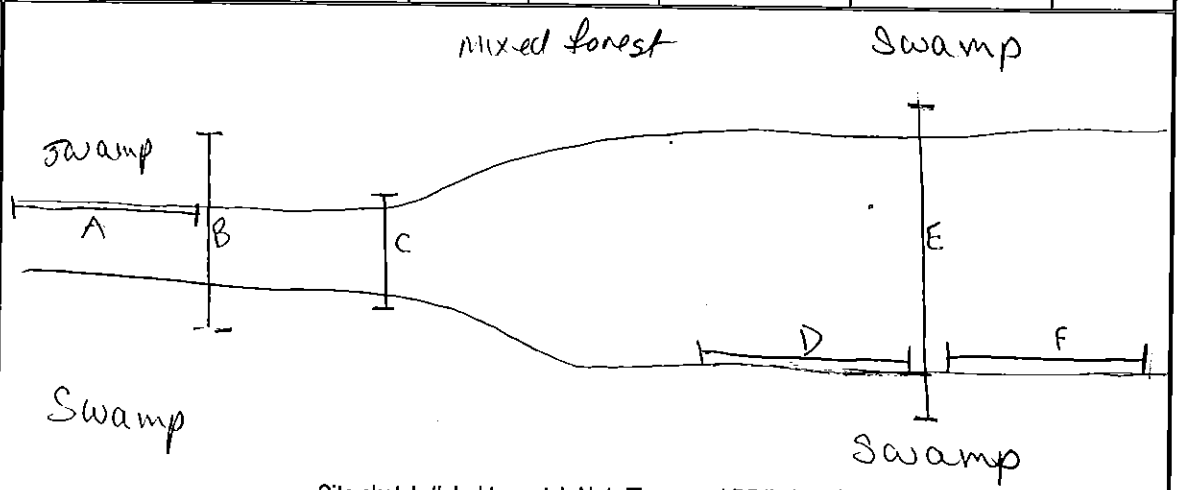
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed bottomland unmanaged mature natural medium canopy (3)

longleaf + loblolly pine, red maple, swamp chestnut oak, sweet gum

habitat community type: coastal plain small stream swamp, blackwater subtype



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

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

Bat Survey Data Form

Project: NCDOT NLEB research County: Craven Site# 4-Craven Night# 1 Site Name: Forest Road 1-78 Wetland Date: 12-2-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	17:42	LABO	M	A	NR	38	7.5 / 16.5	9	E	2m	N/A / 0	
2	1908	MYSE	M	A	TD	34	8 / 15	7	F	3.5m	NC-WRC / A3291 /	51.5° Tissue USFS/B K5u guano 88
3	\						tradchy #430	20.45	52° He	.c foragig		transmitter 150.430 wns 8 guano 6
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

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

Pine / hardwood (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: coastal plain small stream swamp, blackwater subtype

a. 35.00680, -77.07679
b. 35.00686, -77.07665
c. 35.00695, -77.07550
d. 35.00725, -77.07353
e. 35.00721, -77.07349
f. 35.00731, -77.07329
GPS NET POINTS

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research project	County:	Craven	Site#:	4 Craven	Night#:	2	Site Name:	Forest Service Rd 178 wetland	Date:	12-3-2017
Latitude:	35.00707	Longitude:	-77.07463					Datum: NAD83	Elevation: 136'	ID By:	Dottie Brown
Observers:	Meredith Hoggatt, Julia Hoch							Start Time:	16:55	End Time:	22.05

Conditions:	Time	Temp	Wind	Clouds
	16.56	52.5	♡	0
	2020	46°	0	0
	2128	46°	0	0

Moon Effect: Waxing Gibbous — Start: 16.30 — Stop:

Land Use: Urban / Agriculture / (Forest) 4-43 / Water / (Wetland) 6-61 / Barren *(describe)*:

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

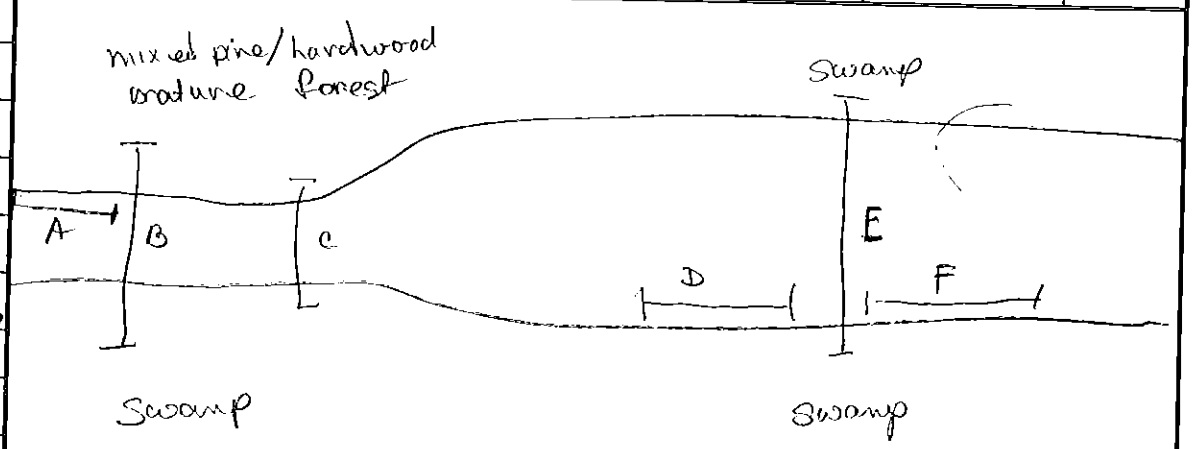
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed bottomland unmanaged mature natural medium cover (3)

Sweetgum, longleaf pine, red maple, Sweetgum swamp Chestnut oak.

habitat community type: coastal plain small stream swamp, blackwater subtype



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

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

52. MH ES Full Data 12-8-2017 MH USFWS DB. All Projects 12.9.2017 | MH Lat Long 2017 12-10-17

Bat Survey Data Form

Project: NCDOT NLEB Research County: Craven Site# 4-Craven Night# 2 Site Name: FS Road 178 Wetland Date: 12-3-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	2020	LABO	M	A	NR	39	17.5 / 8	9.5	E	3m	NC-WRC A3290 10	Nicki hair 4-Craven 1
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

4/6°

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: coastal plain small stream swamp, blackwater subtype

a. 35.02748 -77.04613
b. 35.02749 -77.04637 3 GPS net points
C. 35.02738 -77.04684
d. 35.02709 -77.04736

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC — NCWRC Gamelands

Project:	NCDOT NLEB Research	County:	Craven	Site#:	1-Crave	Night#:	5	Site Name:	Mushroom Pond	Date:	12-4-2017
Latitude: 35.027270		Longitude: -77.046536						Datum: NAD 83	Elevation: 40ft	ID By:	Dottie Brown
Observers: Julia Hoch, Meredith Hoggatt								Start Time: 1656		End Time: 2201	

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1656	58°	1	0	2030	51	0	75	2201	53°	1	75%

Moon Effect: Full — Start: 19:48 — Stop: 20:34

Land Use: Urban / Agriculture / (Forest) 1-13 / Water / (Wetland) 6-61 / Barren *(describe)*:

NETS/TRAPS:	A: 1×2H×4m	B: 1×3H×12m	C: 1×2H×6m	D: 1×2H×9m	E:	F:
Pool size WxL	NA	30×40	NA	NA		
Swoop WxL	NA	Unlimited	NA	NA		
Photo? or #	none	none	None	none		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

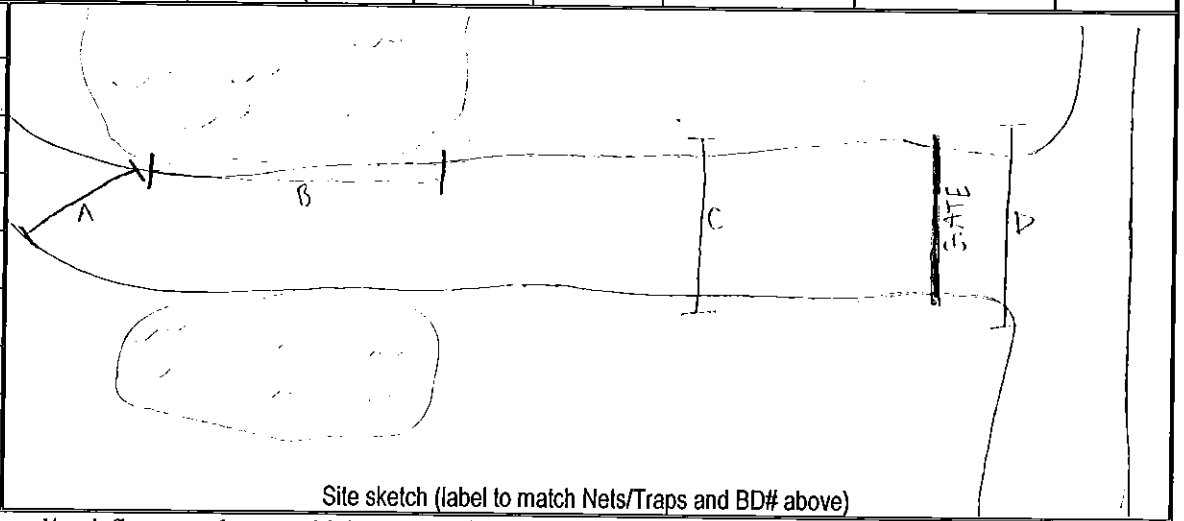
Site Description, other than Habitat Info covered on pg 3:

bottomland, mixed, mature, unmanaged, natural

medium (3) cover

sweetgum, loblolly pine, bald cypress, maple (red), white oak, water oak, southern red oak,

habitat community type: mesic mixed hardwoods, coastal plain subtype & coastal plain, small stream swamp, blackwater subtype



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

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

Bat Survey Data Form

Project: NCDOT NLEB Research County: Craven Site# 1-Craven Night# 1 Site Name: Mushroom Pond Date: 12-4-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1720	LABO	M	A	NR	39	17 7.5	9.5	A	2m	NC-WFC A3121 / 0	3 pinholes in left wing Nikki For sample 1-Craven D	58°
2	1935	CORA	F	A	NR	42	15.5 7.5	8	A	1m	NA / 0	KSU: 59 guano Jessie B8 for	48°
3													
4													
5													
6													
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16													
17													
18													
19													
20													

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype

1. 35.02709 -77.04736
2. 35.02738 -77.04684
3. 35.02749 -77.04637
4. 35.02748, -77.04613

3 GPS Net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

NCWRC Gameland

Project:	NCDOT NLEB Research	County:	Craven	Site#:	1 · Craven	Night#:	6	Site Name:	mushroom Pond	Date:	12/5/2017
Latitude:	35.027270	Longitude:	-77.046536					Datum:	Nad 83	Elevation:	40ft
ID By:	KRISTI CONFORTIN										
Observers:	PREW POWELL, Meredith Hoggatt							Start Time:	1639	End Time:	2234

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1702	62.5	0	25	2034	58	1	25	2152	57°	1	25

Moon Effect:	Start:	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
waning gibbous	1953	4-43 5-52 6-61
	Stop: —	

NETS/TRAPS:	A: 1 1x2Hx4m	B: 2 1x2Hx6m	C: 3 1x3H x12m	D: 4 1x2.11x12m	E:	F:
Pool size WxL	NA	NA	30x40m	30.x40m		
Swoop WxL	NA	NA	unlimited	unlimited		
Photo? or #	yes	yes	yes	yes		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

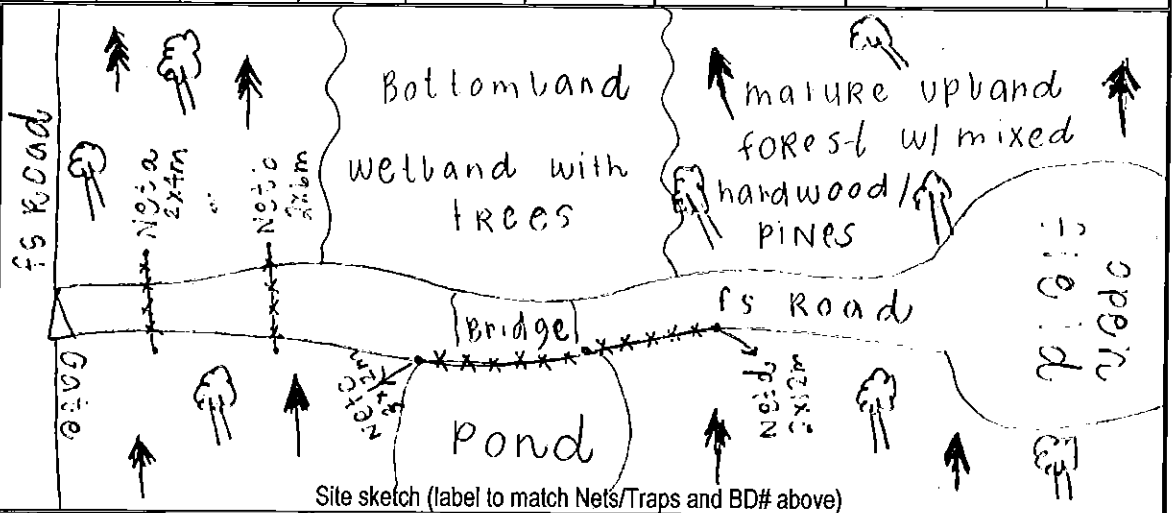
Site Description, other than Habitat Info covered on pg 3:

bottomland / mixed / mature / unmanaged / natural / medium 3 cover

sweetgum / loblolly pine / bald cypress

Red maple / white oak / water oak / southern red oak

habitat community type: mesic mixed hardwoods, coastal plain subtype & coastal plain small stream swamp, blackwater subtype



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

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

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 1-Craven Night# 2 Site Name: NCWRC Gameland mushroom pond Date: 12/5/2017

	TIME	SPECIES	Sex	Age	P/L/PL/NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1733	EPFU	m	A	TD	44	23-7.5	15.5	B	2m	NC-WRC A1797 / 0	WNS SWAB #33	60.5
2	1749	EPFU	f	A	NR	45	24-7.5	16.5	C	4m	NC-WRC A1796 / 0	WNS SWAB #48 pinholes each wing	60
3	1812	NYHU	M	A	NR	35	17.5-7.5	10	C	3m	NC-WRC A1141 / 0	Recapture	60
4	1812	NYHU	NA	NA	NA	NA	19-7.5	11.5	C	2m	N/A	escaped.	60
5	1812	NYHU	F	A	NR	34	18-7.5	10.5	C	4m	ESGA305 / 0		60
6	1812	NYHU	M	A	NR	36	16-7.5	8.5	C	2m	ESGA474 / 0		60
7	1812	NYHU	F	A	NR	34	17-8	9	C	3m	ESGA148 / 0		60
8	1837	LABO	m	A	NR	39	19.5-7.5	12	C	2m	NC-WRC A3289 / 0	NIKKI FUR # 1-Craven A	60
9	1912	NYHU	m	A	TD	36	16.75-7.5	9.25	C	3m	ESGA 146 / 0	NIKKI FUR # 1-Craven B	58.5
10	1927	NYHU	f	A	NR	38.5	18.5-7.5	11	C	2m	ESGA 172 / 0	Bald scar on back	58.5
11	2002	NYHU	m	A	TD	36	16.5-7.5	9	C	3m	NC-WRC A4138 / 0	Recapture NIKKI FUR # 1-Craven C	58.5
12	2002	NYHU	f	A	NR	40	20.25-7.5	12.75	C	2m	ESGA 143 / 0		58.5
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype

Bats seen flying in corridor

A 34.96832, -77.05380
B 34.96770, -77.05324
C 34.96773, -77.05330
D 34.96761, -77.05351
E 34.96753, -77.05369
F 34.96754, -77.05370

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research project	County:	Craven	Site#:	5 craven	Night#:	1	Site Name:	FS 202	Date:	12-15-17
Latitude:	34.96789	Longitude:	-77.05271					Datum: NAD 83	Elevation: 94'	ID By:	Dottie Brown
Observers:	Drew Powell + Julia Hoeh							Start Time:	16:58	End Time:	21:58

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	16:50	56°F	0	cloudy	19:32	48	1	Cloudy	21:58	42	1	0

Moon Effect: 5.2% waning crescent — Start: NA — Stop: NA

Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43 / 5-51 / 6-61

NETS/TRAPS:	A: 1X2H-12m	B: 1X2H-12m	C: 1X2H-12m	D: 1X2H-12m	E: 1X3H-9m	F: 1X2H-12m
Pool size WxL	multiple pools stream	NA	NA	4X12	NA	NA
Swoop WxL	unlimited	NA	NA	unlimited	NA	NA
Photo? or #	Yes	Yes	Yes	Yes	Yes	Yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

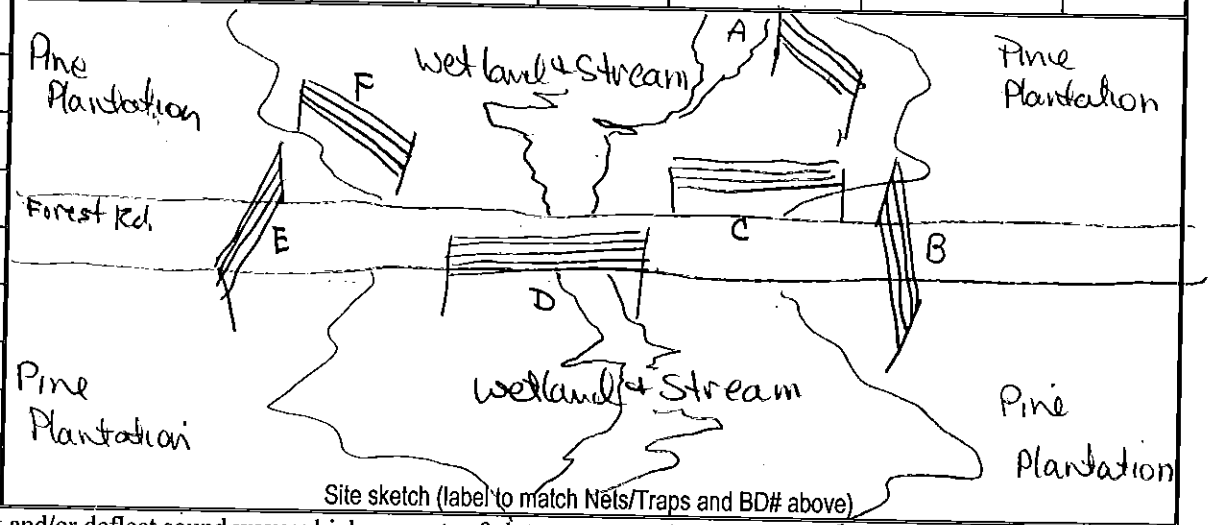
Site Description, other than Habitat Info covered on pg 3:

mixed / upland + bottomland / managed / mixed
<20 yrs / 40-75% med clutter

Wetland: Red maple, cypress, tupelo, gum, pine, water sweet Pond swamp, Giant American Ilex, smilax, bay, titter bay, cane, holly, alabra, smalii, myrtle, bush

Pine/Hard wood: loblolly pine, long leaf pine, white oak, sweet gum, swamp bay, Ilex, glabra, bobble, dog oak, turkey oak, dogwood, water oak

habitat community type: mesic mixed hardwoods, coastal plain subtype & coastal plain small stream swamp: blackwater subtype



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

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

KC USFWS 12/29/17 KC SCDNR 12/29/17 KC NationG 12/29/17

Bat Survey Data Form

Project: NCDOT Research NLEB Project County: Craven Site# 5 craven Night# 1 Site Name: FS 202 Date: 12-15-17

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

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype, coastal plain small stream swamp, blackwater subtype

A 34.96770, -77.05324
B 34.96772, -77.05330
C 34.96761, -77.05351
D 34.96753, -77.05369
E 34.96754, -77.05370

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research project	County:	Craven	Site#:	5 Craven	Night#:	2	Site Name:	FS 202	Date:	12-17-17
Latitude:	34.96789	Longitude:	-77.05271					Datum: NAD 83	Elevation: 94'	ID By:	Dottie Brown
Observers:	Meredith Hoggatt							Start Time:	16:56	End Time:	20:00

Conditions:	Time	Temp	Wind	Clouds
	16:56	53°	0	75%
	19:40	48°	0	100%
	20:00	47°	1	25%

Moon Effect: waxing gibbous — Start: NA — Stop: NA

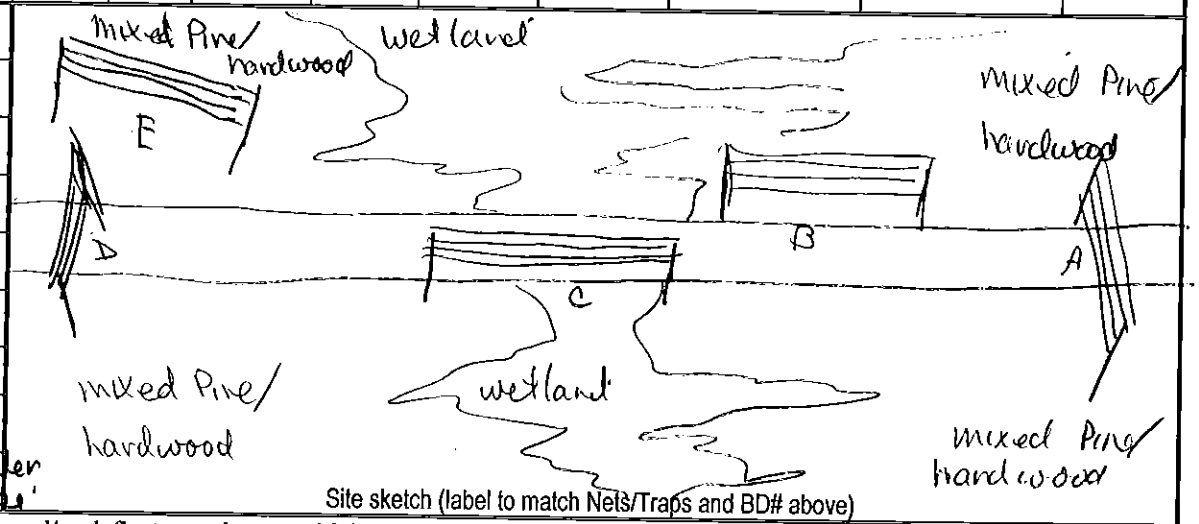
Land Use: Urban / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*:

NETS/TRAPS:	A: 1X2H-12m	B: 1X2H-12m	C: 1X2H-12m	D: 1X3H-9m	E: 1X2H-12m	F:
Pool size WxL	NA	NA	4X12	NA	NA	
Swoop WxL	NA	NA	unlimited	NA	NA	
Photo? or #	Yes	Yes	Yes	Yes	Yes	

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland + bottomland/managed/
mixed
~20yrs / 40-75% med clutter
red water sweet Pond
wetland = maple, cypress, tupelo, gum, Pine
swamp gland Ameria Ilex Smilax waxmyrtle, Leyer
bay, cane, holly, alabra, smallii, myrtle, bush
Pine/hardwood = (loblolly Pine) (longleaf Pine) myrtle sweet Oak, gum
swamp Ilex dog tupelo Dogwood, water oak
bay, glabra, huckle, oak,
HA community: upland = Mesic Mixed Hardwoods
Coastal Plain subtype
Stream Corridor = Coastal Plain Sm. Stream type Blackwater subtype



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

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

KC USFWS 12/29/17 KC ES 12/29/2017, KC lat long 12/29/17

Bat Survey Data Form

Project: NCDOT IVLEB research project County: Craven Site# 5 Craven Night# 2 Site Name: FS202 Date: 12-17-17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	18:00	LABO	m	A	NR	42	7.5 / 17	9.5	A	1m	NEWEC A3288	temp 49° F
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / (<20 years old forest or cutover)

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype, stream corridor + coastal plain small stream swamp, blackwater subtype

1. 35.02739 -77.04559
2. 35.02748 -77.04613
3. 35.02749 -77.04637
4. 35.02738 -77.04684
5. 35.02751 -77.04653
6. 35.02709 -77.04736
5 GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Bat Research	County:	Craven	Site#:	Craven 1	Night#:	7	Site Name:	NC WRC gameland mushroom pond	Date:	12/18/2017
Latitude:	35.027270	Longitude:	-77.046536					Datum: Nad 83	Elevation: 40ft	ID By:	Kristi Confortin
Observers:	Drew Powell							Start Time:	1654	End Time:	22:57

Conditions:	Time	Temp	Wind	Clouds
	1700	64	0	75
	2050	47	0	25
	2200	45.5	0	25

Moon Effect: waxing crescent

Start: --

Stop: --

Land Use: Urban / Agriculture / (Forest) 4-43 / Water / (Wetland) 6-61 / Barren *(describe)*:

NETS/TRAPS:	A: 1x3Hx12m	B: 1x2Hx6m	C: 1x2Hx9m	D: 1x3Hx12m	E: 1x3Hx12m	F: 1x2Hx4m
Pool size WxL	Na	Na	Na	Na	30x40	Na
Swoop WxL	Na	Na	Na	Na	unlimited	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

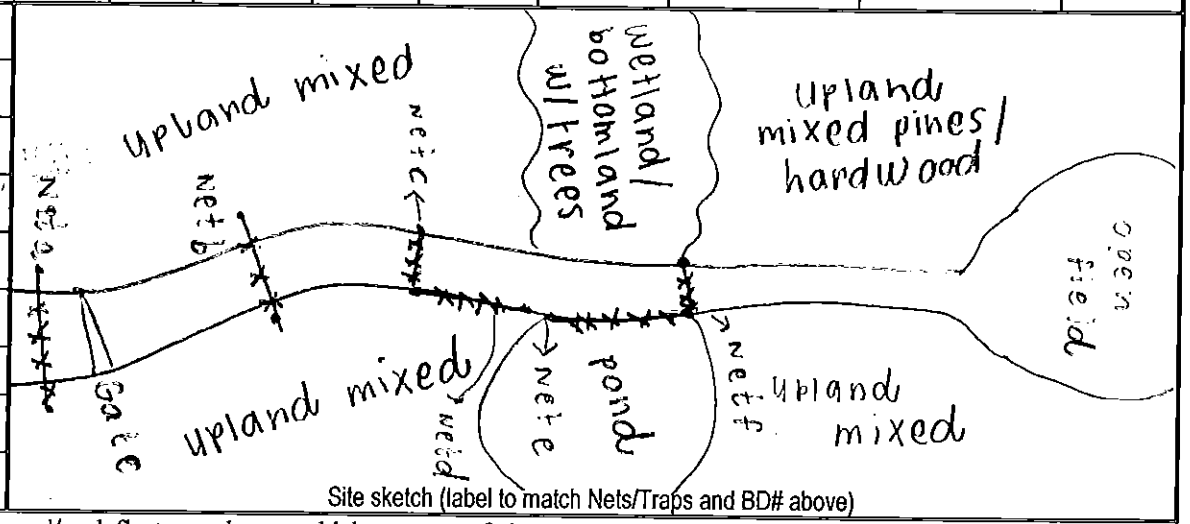
Site Description, other than Habitat Info covered on pg 3:

bottomland, mixed, mature, managed.

Natural, medium (3) cover

sweetgum, loblolly pine, bald cypress, red maple, white oak, water oak, southern red oak

habitat community type: mesic mixed hardwoods, coastal plain subtype & coastal plain small stream swamp, blackwater subtype



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

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

KC USFWS 12/29/17 KC ES 12/29/17 KC LatLong 12/29/17

Bat Survey Data Form

Project: NCDOT NLEB Research project County: Craven Site# 1-Craven Night# 1 Site Name: NCWRC gameland mushroom pond Date: 12/18/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp ↓
1	1758	myse	m	A	NR	34	14-7.5	6.5	D	2m	NC-WRC A3201 / 0	Guano #35 WNS fur 3 all in 150.340 DNA 3 bag	56
2	1802	EPFU	M	A	NR	44	22-7.25	14.75	A	3m	NC-WRC A1997 / 0	Recapture	56
3	1837	myau	f	A	NR	37	15.5-7.5	8	C	3m	NC-WRC A3229 / 0	Jesse # 83-GA KSU # 143	52
4	1914	NYHU	f	A	NR	32	19-7.5	11.5	E	4m	ESGA 485 / 0	Right 5th finger injury	50
5	1914	NYHU	m	A	TD	35	18-7.5	10.5	E	5m	NC-WRC A4140 / 0	Nikki fur # 50 recapture	50
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype

a. 35.027739 -77.04559
b. 35.027748 -77.04613
c. 35.027749 -77.04637
d. 35.027738 -77.04684
} 6PS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Bat Research	County:	Craven	Site#:	1-Craven	Night#:	8	Site Name:	NCWRC gameland mushroom pond	Date:	12/19/2017
Latitude:	35.027270	Longitude:	-77.046536					Datum:	Nad83	Elevation:	40ft.
Observers:	Drew Powell							Start Time:	1643	End Time:	2023

Conditions:	Time	Temp	Wind	Clouds
	1650	64.5	0	25
	2005	18	0	0
	2201	49	0	0

Moon Effect: waxing Crescent

Start:

Stop:

Land Use: Urban / Agriculture (Forest) Water (Wetland) Barren *(describe)*: 4-43 6-67

NETS/TRAPS:	A:	B:	C:	D:	E:	F:
Pool size WxL	1x2Hx9m	1x3Hx12m	1x3Hx12m	1x2Hx4m		
Swoop WxL	Na	Na	30x40	Na		
Photo? or #	Na	Na	unlimited	Na		
	yes	yes	yes	yes		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

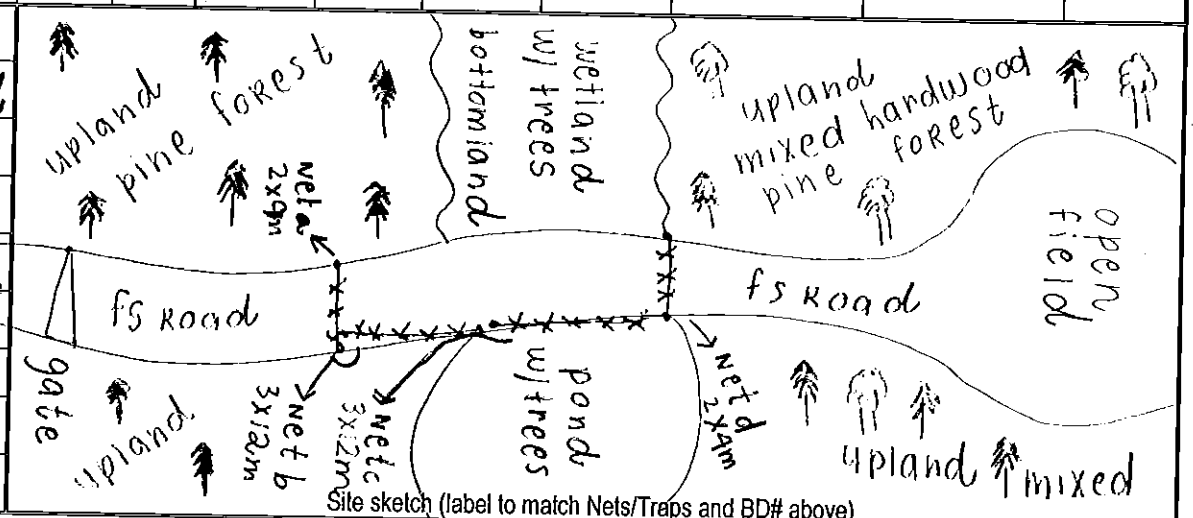
Site Description, other than Habitat Info covered on pg 3:

bottomland/mixed/mature/managed

Natural/medium (3) cover.

Sweetgum, loblolly pine, bald cypress, Red maple, white oak, water oak, southern red oak

habitat community type: • mesic mixed hardwoods, coastal plain subtype & coastal plain small stream swamp, blackwater subtype



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

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

KC USFWS 12/29/17 KCES 12/29/17 KC lat long 12/29/17

Bat Survey Data Form

Project: NCDOT NLEB Research project County: Craven Site# 1-Craven Night# 2 Site Name: NCWRC gameland mushroom pond Date: 12/19/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1746	LASE	m	A	NR	38	17.5-7.5	10	C	5m	NCWRC A3223 / 0	Left wing pin hole Nikki fur #51	55
2	1818	CORA	f	A	NR	44	17.5-7.5	10	A	1m	— / 0	Jesse # 89-GA did not band, right wing pin hole	51.5
3													
4													
5													
6													
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19													
20													

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

Pine / hardwood /(mixed)/ unforested

Upland /(bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype

1. 34.85606 -77.21016
2. 34.85606 -77.20986
3. 34.85616 -77.20980
4. 34.85621 -77.20867
} GPS Net Points

Night #1

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NC NLEB Research Study	County:	Jones	Site#:	1-Jones	Night#:	1	Site Name:	Dixon Field Boat Ramp	Date:	11/15/2017		
Latitude: 34.85598		Longitude: -77.21021						Datum: NAD 83	Elevation: 30ft	ID By: Kristi Confortin			
Observers: Julia Hoch & Sean Casker								Start Time: 17:28		End Time: 22:30			
Conditions:	Time 17:07	Temp 63°F	Wind 1	Clouds 75%	Time 20:00	Temp 48	Wind 1	Clouds 25	Time 22:30	Temp 48	Wind 1	Clouds 75	
Moon Effect: WAN-CRES	Start: 41 NAS	Stop: 100 NAS			Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Mixed Bottomland Forest 4-43 / 5-51								

NETS/TRAPS:	A: 1 1x2Hx9m	B: 2 1x2Hx9m	C: 3 1x2Hx12m	D: 4 1x3Hx12m	E:	F:
Pool size WxL	NA	NA	NA	NA		
Swoop WxL	UNLIM	NA	NA	NA		
Photo? or #	115-3501 to 115-3507 ES	115-3508 to 3512 ES	115-3514 to 3518 ES	115-3521 to 3528 ES		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

Forest composition includes bald cypress, sweet gum, Sycamore, American Holly, water oak, red maple, loblolly, oak, & Sourwood

Nets along Dixon Field Rd leading to stream; in open forest near fire ring; table.

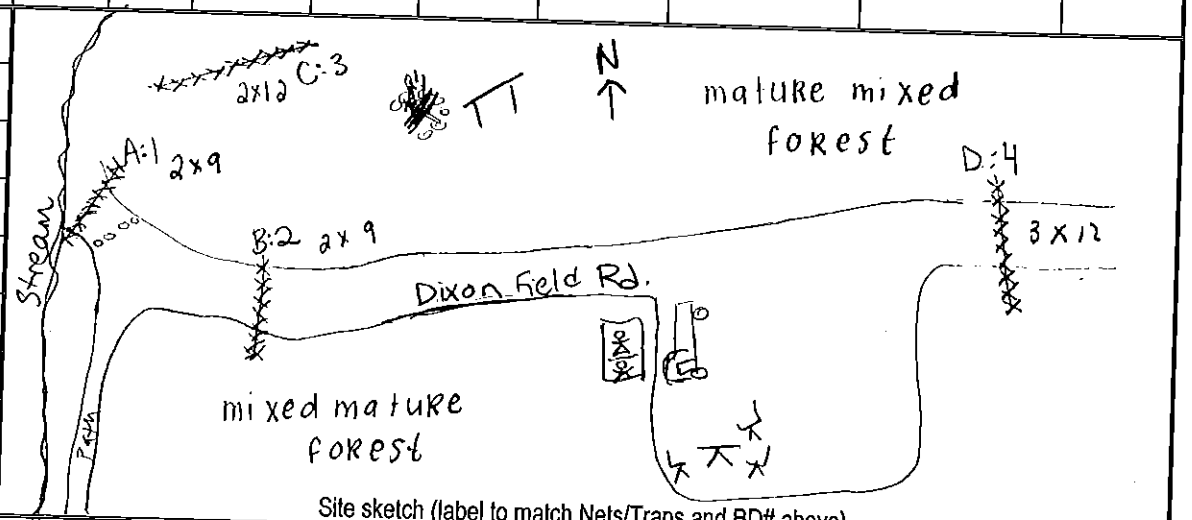
mixed forest/ managed/ mature forest

Natural medium clutter, 40-75%

upland & bottomland

=upland = Mesic Mixed hardwoods Coastal Plain Subtype

=lowland = Coastal Plain bottomland, hardwood subtype



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

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

Net Hours: 96 MH USFWS_YC_All Records 12-7-2017 MH ES Edit

Bat Survey Data Form

Project: NC.NLEB Research Study County: Jones Site# 1-Jones Night# 1 Site Name: Dixon Field Boat Ramp Date: 11/15/2017

	TIME	SPECIES	Sex	Age	P/L/PL/NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	20:45	CORRAF	M	A	NR	44	177 =	10	3	1	NA/O	guano sample KSU #51 samples for Jesse Hair & wing #B10-GA / 115-3534-3536
2												did Not feel comfortable banding
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

temp 48

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype
coastal plain bottomland / hardwood, blackwater
subtype

1. 34.85606 -77.21016
2. 34.85606 -77.20986
3. 34.85646 -77.20986 } GPS Net points
4. 34.85621 -77.20867

Night 2

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research study	County:	JONES	Site#:	1-Jones	Night#:	2	Site Name:	Dixon field boat Ramp	Date:	11/16/2017
Latitude:	34.85598	Longitude:	-77.21021					Datum:	NAD 83	Elevation:	30ft
										ID By:	Kristi Confortin
Observers:	Julia Hoeh							Start Time:	17:00	End Time:	20:30

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	17:00	50	1	25	19:50	44	1	0				

Moon Effect: WAN-CRES	Start: NA	Land Use: Urban / Agriculture / (Forest / Water) / Wetland / Barren *(describe)*:	
	Stop: NA	4-43 5-54	

NETS/TRAPS:	A: 1 1x2 H x 9m	B: 2 1x2 H x 9 m	C: 3 1x3H x 9 m	D: 4 1x3H x 12m	E:	F:
Pool size WxL	NA	NA	NA	NA		
Swoop WxL	UNLIM	NA	NA	NA		
Photo? or #	115-3501 to 3507 ES	115-3508 to 3512 ES	115-3514 to 3518 ES	115-3521 to 3528 ES		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

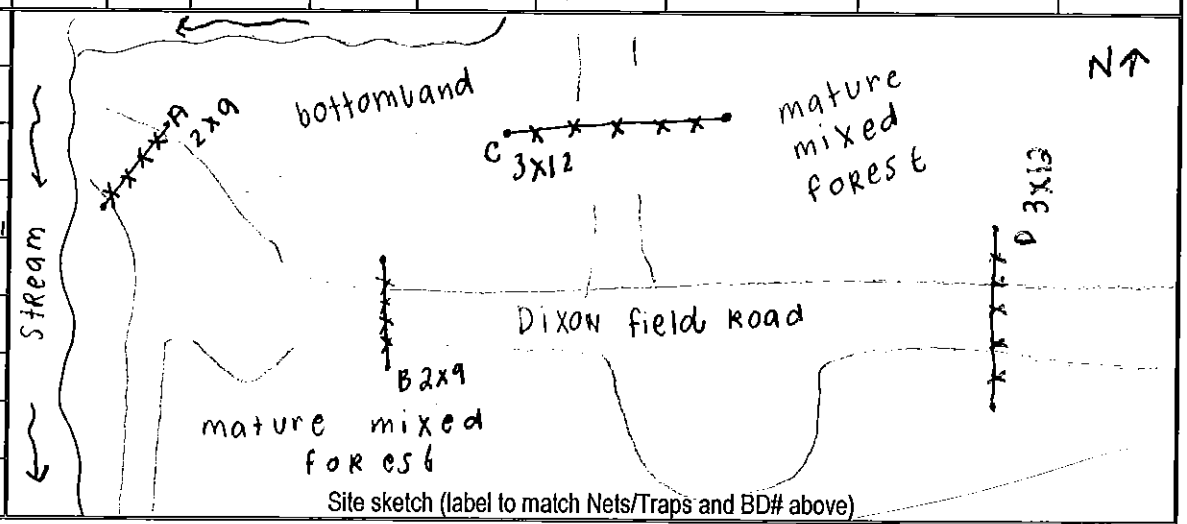
forest composition includes bald cypress, loblolly, sweetgum, water oak, Red maple, oak

upland: mesic mixed hardwood, Coastal Plain Subtype

lowland - Coastal Plain Bottomland hardwood, Blk water subtype

Nets along Dixon field Rd leading to to stream & in open forest near fire ring table upland & bottomland mixed forest/managed/mature forest

Natural/medium clutter 40-75%



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

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

closed early due to temps dropping below 45° but was able to survey 3 hours following scope and NCDOT & USFWS guidelines

Bat Survey Data Form

Project: NCDOT NLEB County: JONES Site# 1-JONES Night# 2 Site Name: Dixon Field boat ramp Date: 11/16/2015

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

*other species in Net: flying squirrel

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype, coastal plain bottomland/hardwood, black water subtype

1. 34.85606 -77.21016
2. 34.85606 -77.20986 } 3 GPS Net points
3. 34.85446 -77.20980
4. 34.85621 -77.20867

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Study	County:	Jones	Site#:	1 Jones	Night#:	3	Site Name:	Dixon Field Boat Ramp	Date:	11/17/2017
Latitude:	34.85598	Longitude:	-77.21021					Datum:	NAD83	Elevation:	30ft
Observers:	Julia Hoch							Start Time:	17:00	End Time:	18:00

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	17:00	50	1	25	18:00	40	1	0				

Moon Effect: waning crescent — Start: Nov 14 am — Stop: Nov 0

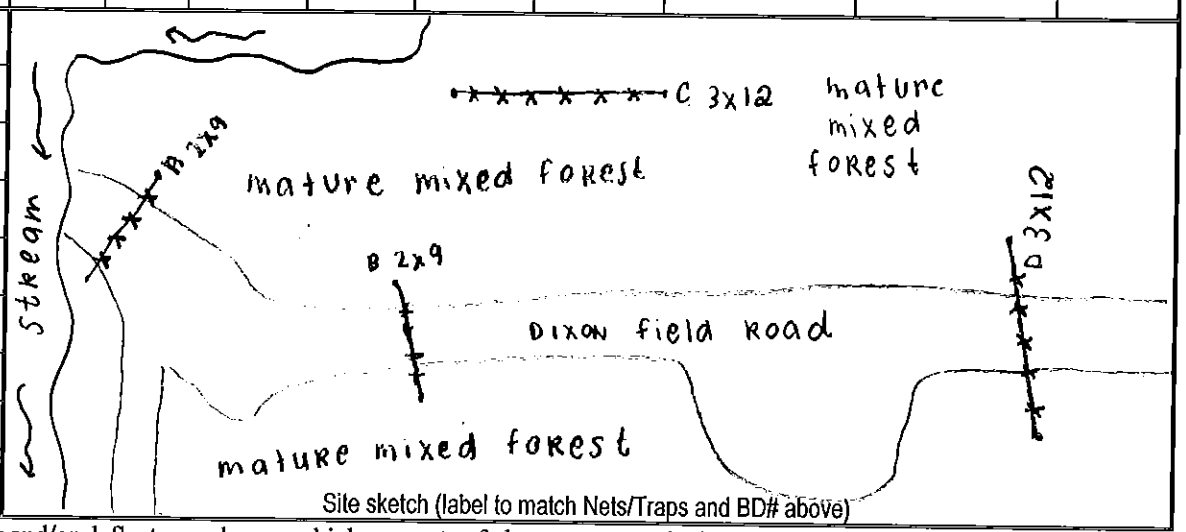
Land Use: Urban / Agriculture / (Forest / Water) / Wetland / Barren *(describe)*: mixed ... 4-43 5-51 ...

NETS/TRAPS:	A:1 1x2Hx9m	B:2 1x2Hx9m	C:3 1x3Hx9m	D:4 1x3Hx12m	E:	F:
Pool size WxL	NA	NA	NA	Na		
Swoop WxL	UNlim	Na	Na	Na		
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

forest composition includes bald cypress sweet gum, water oak, red maple
Lowland - Coastal Plain Bottomland hardwood & wetland;
upland - Mesic Mixed Hardwoods, Coastal Plain Subtype;
nets along Dixon field Rd leading to stream & in open forest near fire ring table. upland & bottomland mixed forest / managed / mature forest natural / medium clutter 40-75%



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

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

Bat Survey Data Form

*closed early due to temps dropping below 45° but was able to survey 3 hours following scope and NCDOT & USFWS guidelines

Project: NCDOT NLEB research study County: JONES Site# 1- JONES Night# 3 Site Name: Dixon Field Boat Ramp Date: 11/17/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	17:48	myAu	m	A	TD	37	14-7	7	3	4	ES GA0687 / 0	WNS swab # 60 WNS guano # 39	41
2												FUR sample # 1 NiKK	
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

* other species in Net: ovenbird MHES Full Data 12-7-2017

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain bottomland hardwood, blackwater subtype

1. 34.87236 -77.20074
2. 34.87233 -77.20073
3. 34.87293 -77.20100
4. 34.87327 -77.20122
} GPS Net places

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research study	County:	Jones	Site#:	2-Jones	Night#:	1	Site Name:	Black Swamp Creek	Date:	11/18/2017
Latitude: 34.87309		Longitude: -77.20116						Datum: NAD 83	Elevation: 5ft	ID By:	Kristi Confortin
Observers: Drew Powell								Start Time: 17:00		End Time: 21:00	

Conditions:	Time	Temp	Wind	Clouds
	17:12	58	1	25
	19:52	61	1	100
	21:00	58	1	100

Moon Effect: waxing Crescent — Start: NA am — Stop: NA

Land Use: Urban (Agriculture / Forest) Water / Wetland / Barren *(describe)*: 2-21 4-43

NETS/TRAPS:	A:1 1x3Hx12m	B:2 1x2Hx9m	C:3 1x3Hx9m	D:4 1x3Hx12m	E:	F:
Pool size WxL	NA	NA	NA	NA		
Swoop WxL	NA	NA	NA	NA		
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

Sweetgum, Red maple, loblolly pine

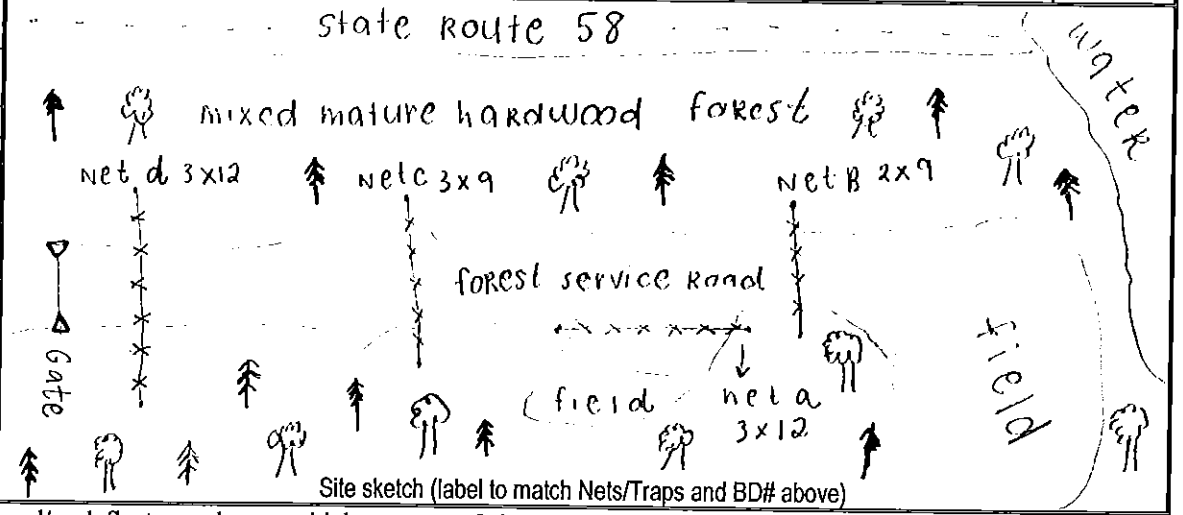
habitat community type: mesic mixed hardwoods, coastal plain subtype & managed herbaceous (Not a natural community)

Nets across forest service road

Near agriculture fields

mixed forest/managed/mature forest

Natural/medium clutter 40-75%, upland



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

*closed early due to increased winds

Bat Survey Data Form

Project: NCDOT NLEB Research Study County: Jones Site# 2-Jones Night# 1 Site Name: Black Swamp Creek Date: 11/18/2017

	TIME	SPECIES	Sex	Age	P/L/PL/NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	Temp.
1	17:30	LABO	m	A	NR	37	16-7	9	1	2.5 m	ESGA165	0	58°F
2	18:00	LABO	m	A	NR	40	17-7	10	4	5 m	ESGA0675	0	57°F
3	18:30	LABO	m	A	NR	41	18-8	10	4	4 m	ESGA0682	0	58°F
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

other species: wood thrush, worm-eating warbler, southern flying squirrel

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype, coastal plain bottomland/hardwood, blackwater subtype

A 34.81920, -77.18202
B 34.81925, -77.18340
C 34.81910, -77.18337
D 34.81948, -77.18418
E 34.81926, -77.18423
F 34.81955, -77.18418

GPS Net Points

NCDOT Mist-Netting & Acoustic Survey Data Form

Eastern NC; Croatan NF, NC

Project:	NLEB Research project	County:	Jones	Site#:	3-Jones	Night#:	1	Site Name:	Haywood Landing	Date:	11-21-17
Latitude:	34.81921	Longitude:	-77.18228					Datum: NAD 83	Elevation: 45	ID By:	Dottie Brown
Observers:	Dottie Brown + Drew Powell							Start Time:	16:58	End Time:	22:00

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	16:58	64 F	0	25%	20:00	54F	0	25%	22:00	53F	1	25%

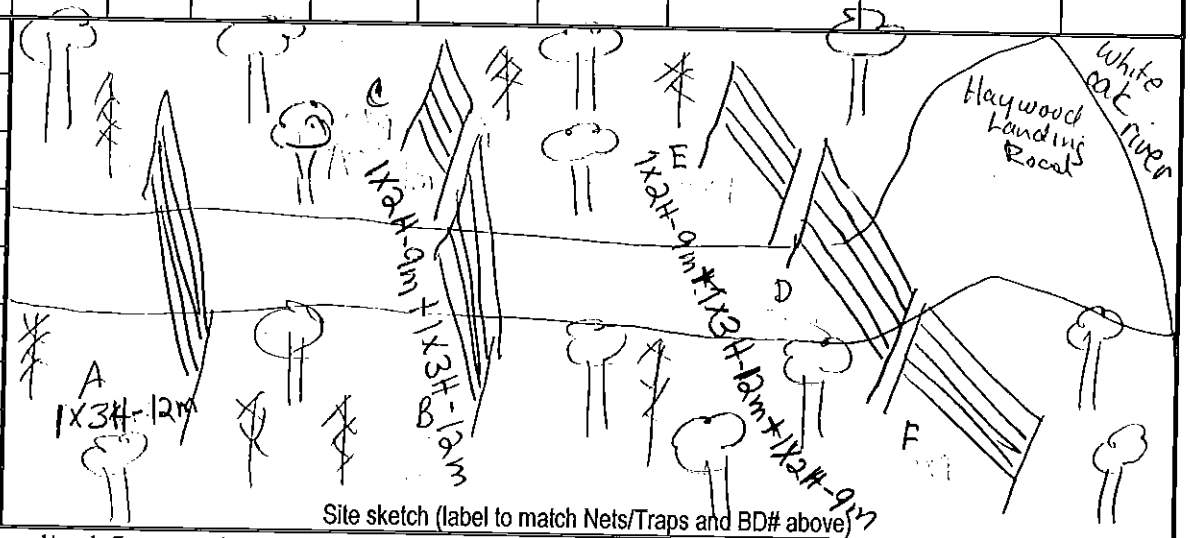
Moon Effect: 11.2% waxing crescent	Start: NA Stop: NA	Land Use: Urban / Agriculture / (Forest) / (Water) / (Wetland) / Barren *(describe)*: Forest 4-43 Water 5-51 Wetland 6-61				
NETS/TRAPS:	A: 1X3H-12m	B: 1X3H-12m	C: 1X2H-9m	D: 1X3H-12m	E: 1X2H-9m	F: 1X2H-9m
Pool size WxL	NA	NA	NA	NA	NA	NA
Swoop WxL	NA	NA	NA	UNLIM	UNLIM	UNLIM
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mix of mixed upland + bottomland managed forest NF/ mature natural with some forclutter NF along White Oak River w/ surrounding mixed Pine/hardwood mature forest bordering a large wetland Marked oak, loblolly, beech, water oak, white oak, Pignut hickory, poplar, sweet gum, cedar

habitat community type: mesic mixed hardwoods, coastal plain subtype and tidal cypress-gum swamp



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

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

Bat Survey Data Form

Project: Eastern NC NLEB research County: Jones Site# 3-Jones Night# 1 Site Name: Haywood Landing Date: 11-21-17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	17:10	LABO	M	A	NR	40	10/21	11	A	3m	NA/0	Temp 64
2	17:21	LABO	M	A	NR	40	7.5/16.5	9	A	4m	NC-WRC/0 A3104	temp 64
3	17:56	LABO	M	A	NR	41	8/18	10	A	4.5m	NC-WRC/0P A3123	Temp 56
4												
5												
6												
7												
8												
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11												
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19												
20												

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + tidal cypress - gum swamp

A 34.81920, -77.18202
B 34.81925, -77.18340
C 34.81910, -77.18337
D 34.81948, -77.18418
E 34.81926, -77.18423
F 34.81955, -77.18418
} GPS Net Points

NCDOT Mist-Netting & Acoustic Survey Data Form

Eastern NC Croatan NF, NC

Project:	NLEB Research Project	County:	Jones	Site#:	3-Jones	Night#:	2	Site Name:	Haywood Landing	Date:	11-22-17
Latitude:	34.81921	Longitude:	-77.18228					Datum: NAD 83	Elevation: 45	ID By:	Dottie Brown
Observers:	Dottie Brown + Drew Powel							Start Time:	16:58	End Time:	22:01

Conditions:	Time	Temp	Wind	Clouds
	16:58	66 F	0	0
	19:20	47 F	0	0
	22:00	45 F	0	0

Moon Effect: 16.4% waxing crescent
Start: 17:30
Stop: 18:50

Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*:
Forest 43 / water 5 / wetland 61

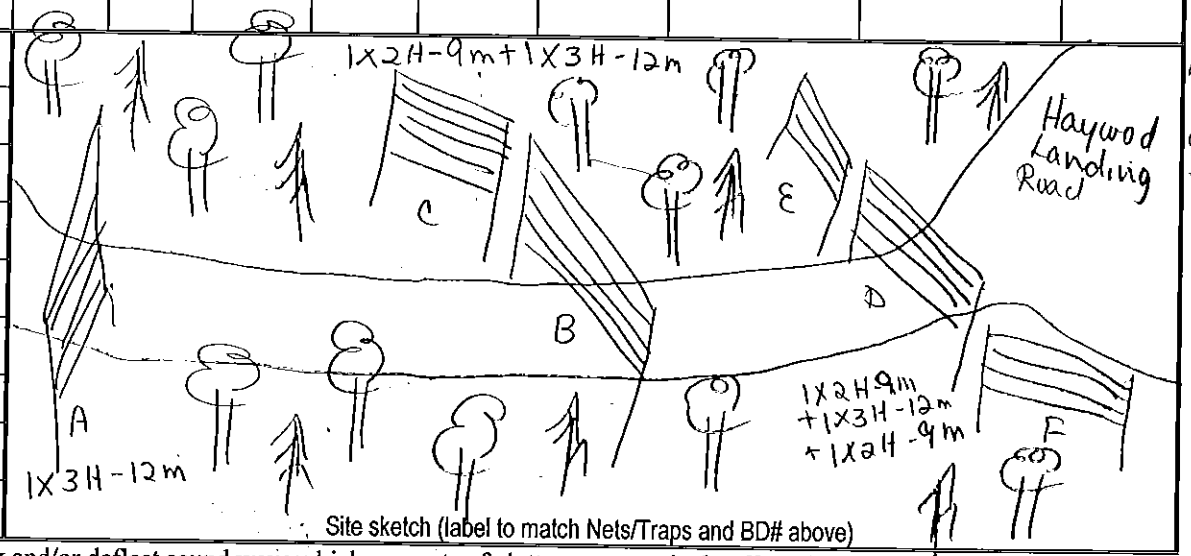
NETS/TRAPS:	A: 1X3H-12m	B: 1X3H-12m	C: 1X2H-9m	D: 1X3H-12m	E: 1X2H-9m	F: 1X2H-9m
Pool size WxL	NA	NA	NA	NA	NA	NA
Swoop WxL	NA	NA	NA	UNLIM	UNLIM	UNLIM
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland + bottomland/managed forest/mature/natural with 3 for clutter NE along White Oak River with mixed pine/hardwood mature forest bordering a very large wetland. IVR oak, loblolly pine, beech, water oak, white, Pignut oak, holly, poplar, sweet gum, cedar

habitat community type: mesic mixed hardwoods, coastal plain subtype and tidal cypress-gum swamp



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

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

Bat Survey Data Form

Project: Eastern NC NL&B research County: Jones Site# 3-Jones Night# 2 Site Name: Haywood Landing Date: 11-22-17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	19:02	NYHU	m	A	TD	35	8/21	13	A	4.5	ES GA462/0	temp 47
2	19:23	LACI	F	A	NR	52	7.5/35	27.5	A	4	NCWRC A1798/0	temp 48
3	21:00	NYHU	M	A	NR	52	—	—	—	4	—	→ recapture temp ESGA462 46
4	21:00	NYHU	F	A	NR	51	8/18.5	10.5	A	4	no band/0	temp 46
5	21:45	LABO	m	A	NR	38	7.5/18	10.5	E	1.5	NCWRC A3299/0	temp 45
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype
↳ tidal cypress-gum swamp

A 34.81920 -77.18202
B 34.81925 -77.18340
C 34.81910 -77.18337
D 34.81948 -77.18418
E 34.81926 -77.18423
F 34.81955 -77.18418
} GPS net sites

NCDOT Mist-Netting & Acoustic Survey Data Form

NCDOT Croatan NF, NC

Project:	NLEB Research Project	County:	Jones	Site#:	3 Jones	Night#:	3	Site Name:	Haywood Landing	Date:	11-24-17
Latitude:	34.81921	Longitude:	-77.18228					Datum: NAD 83	Elevation: 45	ID By:	Dottie Brown
Observers:	Drew Powell							Start Time:	16:58	End Time:	21:01

Conditions:	Time	Temp	Wind	Clouds
	16:58	58 °F	2	75%
	20:09	49F	1	75%
	21:01	44F	1	75%

Moon Effect: waxing crescent — Start: 18:20 — Stop: 20:10

Land Use: Urban / Agriculture / (Forest) / (Water) / (Wetland) / Barren *(describe)*: 4-43 / 5-51 / 6-61

NETS/TRAPS:	A: 1X3H-12m	B: 1X3H-12m	C: 1X2H-9m	D: 1X3H-12m	E: 1X2H-9m	F: 1X2H-9m
Pool size WxL	NA	NA	NA	NA	NA	NA
Swoop WxL	NA	NA	NA	UNLIM	UNLIM	UNLIM
Photo? or #	yes	yes	yes	yes	yes	yes

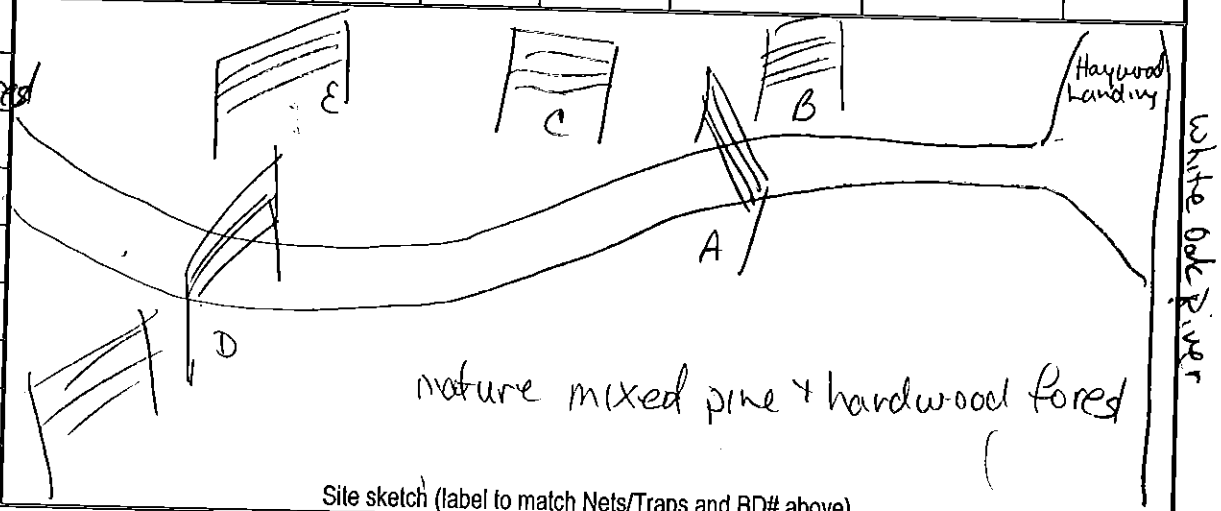
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed / upland + bottom land / managed forest nature / natural / 3 for clutter /

Redcak, loblolly pine, beech, Water Oak, White oak, N. red, P. Hky, Poplar, S. Gum, Cedar,

habitat community type: mesic mixed hardwoods, coastal plain subtype and tidal cypress-gum swamp



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

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

Closed early due to temps dropping below 45°

Bat Survey Data Form

Project: NCDOT NLEB research County: Jones Site# 3-Jones Night# 3 Site Name: Haywood Landing Date: 11-24-17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	no	bat captured;	however	bats	were	heard	in	area	via	ana	bat detector	
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + tidal cypress-gum swamp

1. 34.94646 -77.23388
2. 34.94597 -77.23419
3. 34.94543 -77.23386 } GPS net points
4. 34.94598 -77.23393
5. 34.94624 -77.23359

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Jones	Site#:	4-Jones	Night#:	1	Site Name:	Crooked Run Road	Date:	11/25/2017				
Latitude: 34.946018		Longitude: -77.233817						Datum: Nad 83	Elevation: 70ft	ID By: Kristi Confortin					
Observers: Julia Hoeh								Start Time: 16:35		End Time: 22:12					
Conditions:	Time 1650	Temp 56	Wind 0	Clouds 50	Time 2030	Temp 47	Wind 0	Clouds 50	Time 2140	Temp 48	Wind 0	Clouds 50			
Moon Effect: waxing gibbous	Start: 1650	Stop: —			Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 4-43										

NETS/TRAPS:	A:1 1x2H1x6m	B:2 1x3H1x12m	C:3 1x2H1x9m	D:4 1x2H1x6m	E:5 1x3H1x9m	F:
Pool size WxL	Na	Na	Na	3 x 3 m	Na	
Swoop WxL	Na	Na	Na	Unlimited	Na	
Photo? or #	yes	yes	yes	Yes	yes	

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

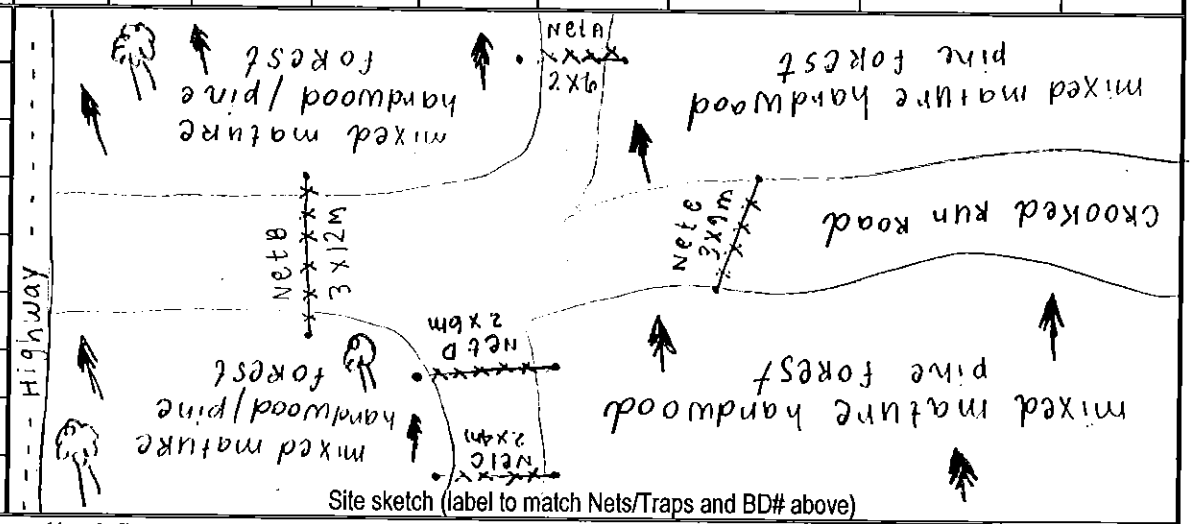
Site Description, other than Habitat Info covered on pg 3:

sweetgum, loblolly pine, Red maple

mixed/upland/managed/mature forest

Natural / medium clutter 40-75% cover

habitat community type: nonriverine west hardwood forest



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

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

Bat Survey Data Form

Project: NC DOT NVEB research project County: Jones Site# 4-NJones Night# 1 Site Name: Crooked Run Road Date: 11/25/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1735	LaBO	m	A	TD	40	17-7	10	5	0 m	NC-WRC A3247 / 0	Right wing pin holes	52
2	1857	LaBO	m	A	NR	38	18-7.5	10.5	4	1 m	NC-WRC A3246 / 0	NIKKI fur sample # 4-JONES 1	47
3	1932	myAU	f	A	NR	39	16-7.5	8.5	3	2 m	NC-WRC A3245 / 0	WNS Swab #35	47
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

4 Northern cardinal, 2 ovenbird, 3 savannah sparrow, 1 ruby-crowned kinglet

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

Pine / hardwood /(mixed)/ unforested

(Upland) / bottomland

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

A 34.91925, -77.23139
B 34.91878, -77.23146
C 34.91867, -77.23131
D 34.91847, -77.23148
E 34.91858 -77.23132
F 34.91784 -77.23125 } GPS Net Points

NCDOT Mist-Netting & Acoustic Survey Data Form

NCDot Croatan NF, NC

Project: NLEB research	County: Jones	Site#: 5 Jones	Night#: 1	Site Name: Old Railroad Bed			Date: 11-25-17		
Latitude: 34.917830	Longitude: -77.231235			Datum: NAD83	Elevation: 115		ID By: Dottie Brown		
Observers: Drew Powell + Meredith Haggatt				Start Time: 1649			End Time: 22:20		
Conditions:	Time 1649	Temp 57F	Wind 0	Clouds 0	Time 19:47	Temp 48° F	Wind 0	Clouds 0	Time 22:15	Temp 48F	Wind 0	Clouds
Moon Effect: waxing crescent	Start: 735	Stop: 21:02			Land Use: (Urban) / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*: Forest 4-43 Wetland 6-61 Urban 1-16.							

NETS/TRAPS:	A: 1X2H-9m	B: 1X3H-12m	C: 1X3H-12m	D: 1X3H-12m	E: 1X2H-9m	F: 1X2H-6m
Pool size WxL	NA	6'X156'	6'X156'	6'X156'	3'X12'	NA
Swoop WxL	NA	UNLIM	UNLIM	UNLIM	UNLIM	NA
Photo? or #	Yes	Yes	Yes	Yes	Yes	Yes

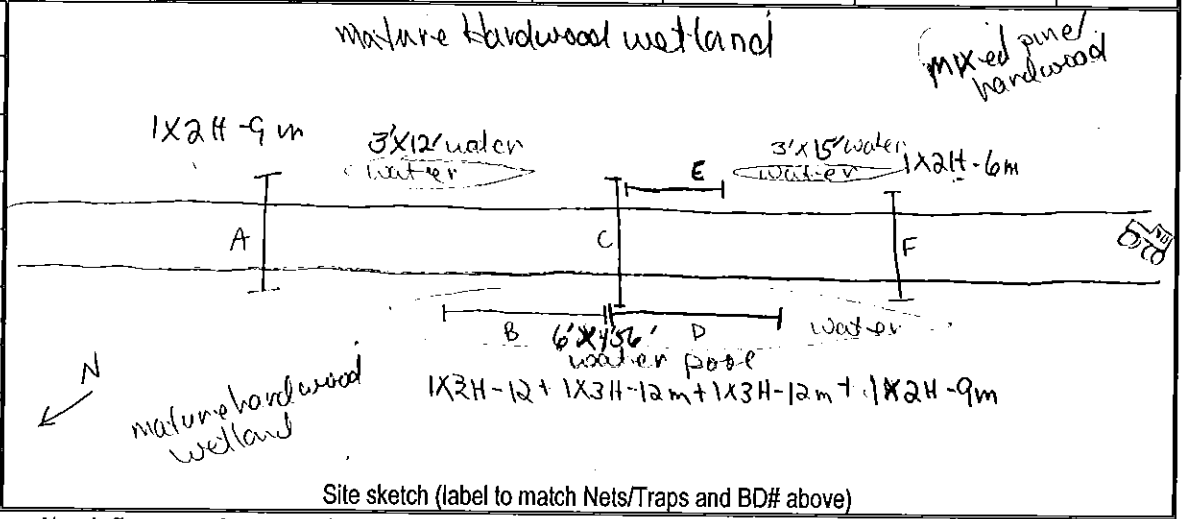
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed / bottomland / unmanaged / mature / forest / mixed / clutter mod /

redmaple, sweet gum, black gum, water oak, loblolly pine, water tupelo,

habitat community type: nonriverine west hardwood forest



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

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

156 MH C.S. Full Data 12-8-2017 MH USFWS DB. All Projects 12-9-2017 MH Lat. Long 2017 12-10-17

Bat Survey Data Form

Project: NCDOT NLEB research County: Jones Site# S-Jones Night# 1 Site Name: Old Railroad Bed Date: 11-25-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1749	MYAU	F	A	NR	39	15.5 - 7.5	8.0	C	1.5	NCWRC A3298 / 0	temp 53 | swab | guano 21 WNS WNS8
2	1822	MYAU	F	A	NR	40	15.5 >7.5	8.0	A	0.25	NCWRC A3297 / 0	temp 52 | swab 24
3												
4												
5												
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17												
18												
19												
20												

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

1. 34.94646 -77.23388
2. 34.94597 -77.23419
3. 34.94543 -77.23386
4. 34.94598 -77.23393
5. 34.94624 -77.23359
} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	Research NCDOT NLEB project	County:	Jones	Site#:	4 Jones	Night#:	2	Site Name:	Crooked Run Road	Date:	11/26/2017
Latitude:	34.946018	Longitude:	-77.233817					Datum:	Nad 83	Elevation:	70ft
Observers:	Julia Hoeh							Start Time:	1632	End Time:	2018

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1630	55.5	0	0	2008	43	0	0				

Moon Effect: waxing gibbous	Start: 1745 Stop: ———	Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 4-43	

NETS/TRAPS:	A:1 1x2Hx6m	B:2 1x3Hx12m	C:3 1x2Hx4m	D:4 1x2Hx6m	E:5 1x2Hx9m	F:
Pool size WxL	NA	NA	NA	3X3m	NA	
Swoop WxL	NA	NA	NA	unlimited	NA	
Photo? or #	yes	yes	yes	yes	yes	

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

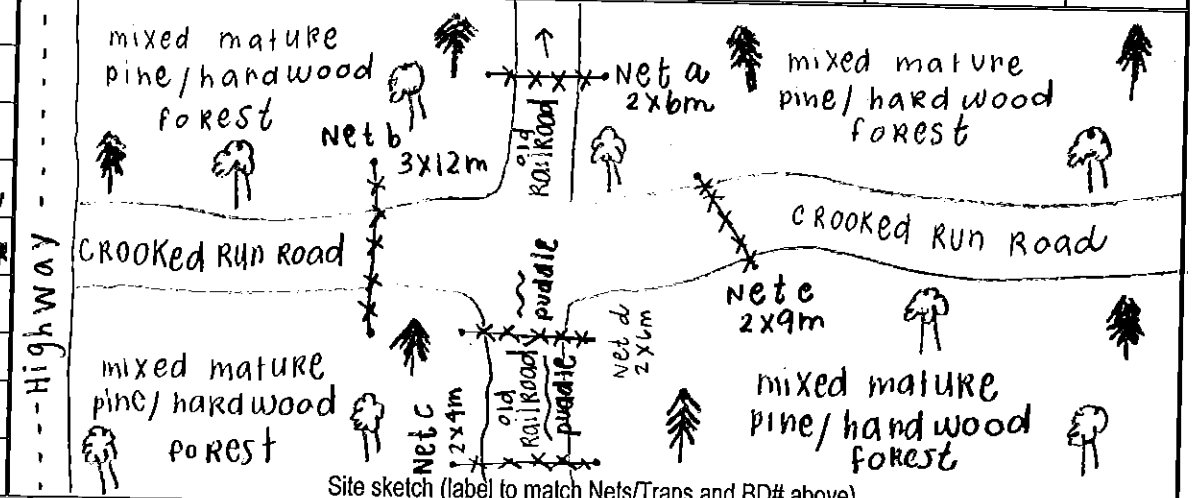
Site Description, other than Habitat Info covered on pg 3:

Sweetgum, loblolly pine, red maple

mixed/upland/managed/mature forest

Natural/medium clutter 40-75% cover

habitat community type: nonriverine west hardwood forest



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

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

Bat Survey Data Form

* closed early due to temperatures dropping below 45° but was able to survey 3 hours following scope and NCDOT & USFWS guidelines

Project: NCDOT NUEB Research project County: JONES Site# 4-JONES Night# 1 Site Name: Crooked Run Road Date: 11/26/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1812	LASE	m	A	NR	40	18-7.5	10.5	2	3m	NC-WRC A3244 / 0	NIKKI FUR sample # 4-JONES 2	45
2	1855	LABO	m	A	NR	39	17-7	10	5	5m	NC-WRC A3243 / 0	left wing pin holes NIKKI FUR sample #4-JONES3	45
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

# of species: bat 2, fox sparrow, Northern cardinal, ruby crowned Kinglet

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

Pine / hardwood /(mixed)/ unforested

(Upland)/ bottomland

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

(Mature forest)/ <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: Nonriverine west hardwood forest

A 34.91925 -77.23139
B 34.91878 -77.23146
C 34.91867 -77.23131
D 34.91847 -77.23148
E 34.91858 -77.23132
F 34.91784 -77.23125
3 GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project: NCDOT NLEB research	County: Jones	Site#: 5-Jones	Night#: 2	Site Name: Old Railroad Bed			Date: 11-26-17				
Latitude: 34.917830	Longitude: -77.231235			Datum: NAD83	Elevation: 125		ID By: Dottie Brown				
Observers: Drew Powell & Meredith Hoggatt				Start Time: 16:48			End Time: 20:37				
Conditions:	Time 16:48	Temp 54°F	Wind 1	Clouds 25%	Time 19:45	Temp 46°F	Wind 0	Clouds 0	Time 20:37	Temp 44°F	Wind 0	Clouds 0
Moon Effect: waxing gibbous	Start: 17:12	Stop: 20:01		Land Use: (Urban) / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*: Forest 4-43 Wetland 6-61 Urban 1-16							

NETS/TRAPS:	A: 1x2H-9m	B: 1x3H-12m	C: 1x3H-12m	D: 1x3H-12m	E: 1x2H-9m	F: 1x2H-6m
Pool size WxL	NA	6'x156'	6'x156'	6'x156'	3'x12'	NA
Swoop WxL	NA	unlim	unlim	unlim	unlim	NA
Photo? or #	Yes	Yes	Yes	Yes	Yes	Yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

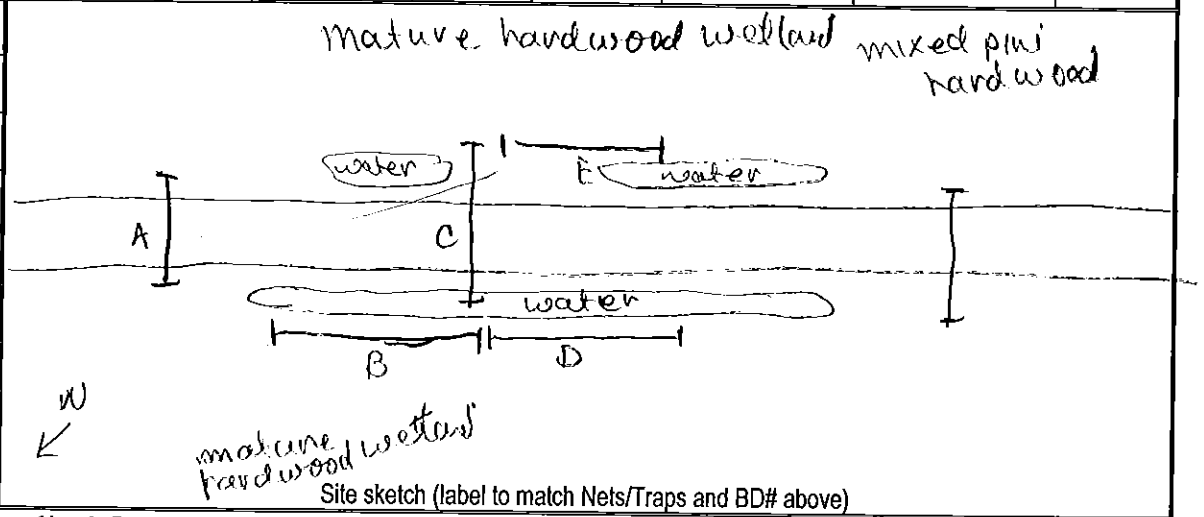
Site Description, other than Habitat Info covered on pg 3:

mixed/bottomland/unmanaged/mature forest

mixed/clutter 3 med.

red maple, sweetgum, blk gum, water oak, loblolly, water tupelo, swamp chestnut

habitat community type: nonriverine wet hardwood forest



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

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

156 Mtt FS Full Data 12-8-2017 Mtt USGS DB All Visit Data 12-8-2017 Mtt Lat Lon NAD83

* closed early due to temps dropping below 45° but was able to survey 3 hours following scope and NCDOT & USFWS guidelines

Bat Survey Data Form

Project: NCDOT NLEB research County: Jones Site# S-Jones Night# 2 Site Name: Old Railroad Bed Date: 11-26-17

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

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

1. 34.94646 - 77.23388
2. 34.94597 - 77.23419
3. 34.94543 - 77.23386
4. 34.94598 - 77.23393
5. 34.94624 - 77.23359
6.

3 Gps net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Jones	Site#:	4-Jones	Night#:	3	Site Name:	Crooked Run Road	Date:	11/27/2017
Latitude:	34.946018	Longitude:	-77.233817					Datum: Nad83	Elevation: 70ft	ID By:	Krish Confortin
Observers:	Julia Hoeh							Start Time:	1630	End Time:	2102

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1630	51.5	0	0	2102	44	0	0				

Moon Effect: waxing gibbous — Start: 1708 — Stop: —

Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 4-43

NETS/TRAPS:	A:1 1x2Hx6m	B:2 1x3Hx12m	C:3 1x2Hx4m	D:4 1x2Hx6m	E:5 1x2Hx9m	F:6 1x1Hx6m
Pool size WxL	NA	NA	NA	3x3m	NA	3x2m
Swoop WxL	NA	NA	NA	Unlimited	NA	Unlimited
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

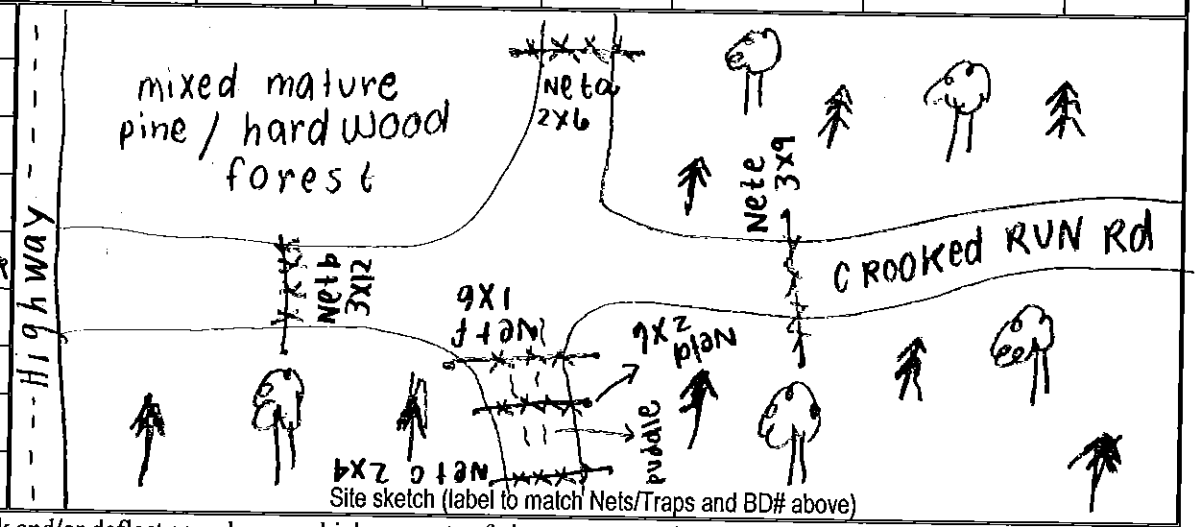
Site Description, other than Habitat Info covered on pg 3:

Sweetgum, loblolly pine, Red maple

mixed/upland/managed/mature forest

Natural/medium clutter 40-75% clutter

habitat community type: nonriverine west hardwood forest



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

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

MH ES_Full_Data 12-7-2017 MH USFWS_YC_All Points 12-10-17 MH Cat Long-2017 12-10-17

*closed early due to temperatures dropping below 45° but was able to survey 3 hours following scope and NCDOT and USFWS guidelines

Bat Survey Data Form

Project: NCDOT NUEB Research Project County: JONES Site# 4-JONES Night# 3 Site Name: Crooked Run Road Date: 11/27/2017

	TIME	SPECIES	Sex	Age	P/L/PL/NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	2008	PESU	M	A	NR	34	13.5-7	6.5	6	2m	ESGA 191 / 0	WNS SWAB#47 NIKKI FUR SAMPLE #4-JONES4
2												closed net and caught bat while closing 38°
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

4 - Jones 11/27/2017

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

Pine / hardwood / (mixed) / unforested

(Upland) / bottomland

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

A 34.92432, -77.23191
B 34.92417, -77.23196
C 34.92540, -77.23200
D 34.92616, -77.23199
E 34.92617, -77.23199
F 34.92608, -77.23209
* GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research	County:	Jones	Site#:	6-Jones	Night#:	1	Site Name:	Railroad Swamp 1	Date:	11-27-17
Latitude:	34.92310	Longitude:	-77.23143					Datum: NAD83	Elevation: 70'	ID By:	DoHie Brown
Observers:	Drew Powell & Meredith Hoggatt							Start Time:	16:40	End Time:	20:37

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	16:50	53°F	0	0	19:51	45F	0	0	20:30	44F	0	0

Moon Effect: waxing gibbous	Start: 17:31 Stop: 20:37	Land Use: Urban / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*: Forest -43	Wetland -61

NETS/TRAPS:	A: 1X2H-9m	B: 1X2H-6m	C: 1X2H-9m	D: 1X3H-12m	E: 1X3H-12m	F: 1X2H-9m
Pool size WxL	NA	NA	UNLIM	UNLIM	UNLIM	UNLIM
Swoop WxL	NA	NA	UNLIM	UNLIM	UNLIM	UNLIM
Photo? or #	Yes	Yes	Yes	Yes	Yes	Yes

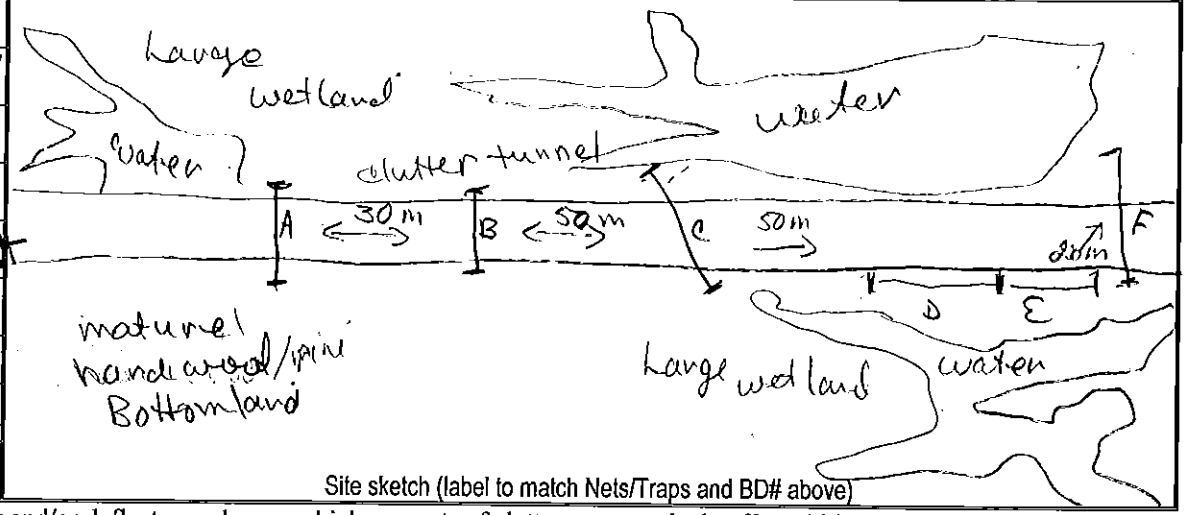
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed / bottomland / unmanaged / mature forest / mixed / clutter 3med.

red maple, sweetgum, swamp oak, black gum, water oak, loblolly, water tupelo, live oak, tupelo, oak, chestnut

habitat community type: nonriverine west hardwood forest



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

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

Bat Survey Data Form

Project: NCDOT NLEB research County: Jones Site# 6-Jones Night# 1 Site Name: Railroad Swamp Date: 11-27-19

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

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

A1. 34.94646 -77.23388
B2. 34.94597 -77.23419
C3. 34.94543 -77.23386
D4. 34.94598 -77.23393
E5. 34.94624 -77.23359
F6. 34.94603 -77.23377
G7. 34.94662 -77.23380

3 GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NUEB Research Project	County:	Jones	Site#:	4-Jones	Night#:	4	Site Name:	Crooked Run Road	Date:	11/28/2017
Latitude:	34.946018	Longitude:	-77.233817					Datum:	Nad83	Elevation:	70ft
ID By:	Krish Confortin										
Observers:	Julia Hoeh, Meredith Hoggatt							Start Time:	1635	End Time:	2238

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1630	61.5	0	0	2015	48.5	1	25	2157	46	0	0

Moon Effect: waxing gibbous — Start: 1648 — Stop: ——

Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 4-93

NETS/TRAPS:	A:1 1x2Hx6m	B:2 1x3Hx12m	C:3 1x2Hx4m	D:4 1x2Hx6m	E:5 1x2Hx9m	F:6 1x1Hx6m
Pool size WxL	Na	Na	Na	3x3m	Na	3x2m
Swoop WxL	Na	Na	Na	unlimited	Na	unlimited
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
		G.7 1x1Hx4m									
	Net #7	Na									
		Na									
		yes									

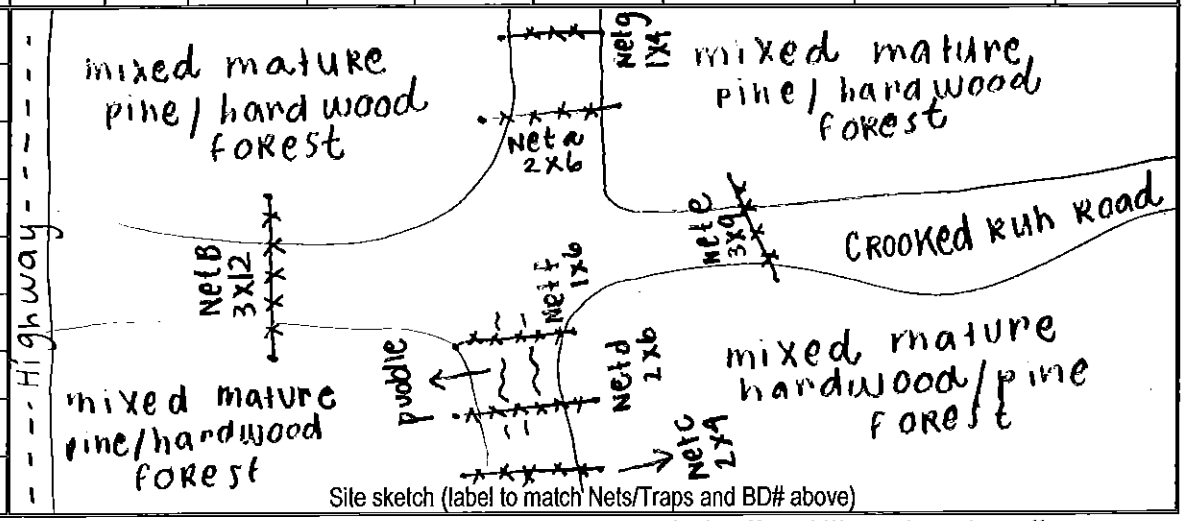
Site Description, other than Habitat Info covered on pg 3:

sweetgum, loblolly pine, Red maple

mixed/upland/managed/mature forest

Natural/clutter medium 40-75%

habitat community type: nonriverine west hardwood forest



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

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

Bat Survey Data Form

Project: NCDOT NLEB research project County: JONES Site# 4-JONES Night# 4 Site Name: Crooked Run Road Date: 11/28/2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1732	LABO	M	A	NR	40	16.5-7.5	9	5	2m	NC-WRC A3242 / 0	sm hole Lwing Nikki fur # 4-Jones 5	54.5
2	1803	PESU	M	A	NR	34	14.5-7.5	7	4	1m	ES GA 499 / 0	WNS swab # 38	52.5
3	1820	LABO	M	A	NR	40	17.5-9.5	10	5	2m	NC-WRC A3241 / 0	6m hole Rwing	52.5
4	1820	EPFU	m	A	TD	44.5	23.5-7.5	16	2	3m	NC-WRC A1833 / 0	WNS swab # 54 Nikki fur # 4-Jones 6	52.5
5	1836	LABO	m	A	NR	38	18.5-7.5	11	5	3m	NC-WRC A3209 / 0		52
6	1836	LABO	m	A	TD	38	16.5-7.5	9	5	2m	NC-WRC A3240 / 0	Right & left wing pinholes Nikki fur # 4-Jones 7	52
7	2116	MYAU	m	A	TD	37	15-7.5	7.5	2	4m	NC-WRC A3239 / 0	WNS swab # 51 Jesse # B14-GA	46
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

other species in net: hermit thrush, NORTHERN cardinal, eastern phoebe

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

A 34.9232, -77.23191
B 34.92479, -77.23196
C 34.92540, -77.23200
D 34.92616, -77.23199
E 34.92647, -77.23199
F 34.92668, -77.23209
* GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT N/S EB research	County:	Jones	Site#:	6-Jones	Night#:	2	Site Name:	Railroad Swamp	Date:	11-28-17
Latitude:	34.92310	Longitude:	-77.23143					Datum: NAD 83	Elevation: 70'	ID By:	Dottie Brown
Observers:	Drew Powell							Start Time:	16:40	End Time:	22:32

Conditions:	Time	Temp	Wind	Clouds
	16:40	58°F	0	0
	20:02	50°F	0	0
	22:20	47	0	0

Moon Effect: Waxing Gibbous	Start: 17:10	Land Use: Urban / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*:	
	Stop: 22:20	Forest-43	wetland-61

NETS/TRAPS:	A: 1X2H -9m	B: 1X2H -6m	C: 1X2H -9m	D: 1X3H -12m	E: 1X3H -12m	F: 1X2H -9m
Pool size WxL	NA	NA	UnLim	UnLim	UnLim	UnLim
Swoop WxL	NA	NA	UnLim	UnLim	UnLim	UnLim
Photo? or #	Yes	Yes	Yes	Yes	Yes	Yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

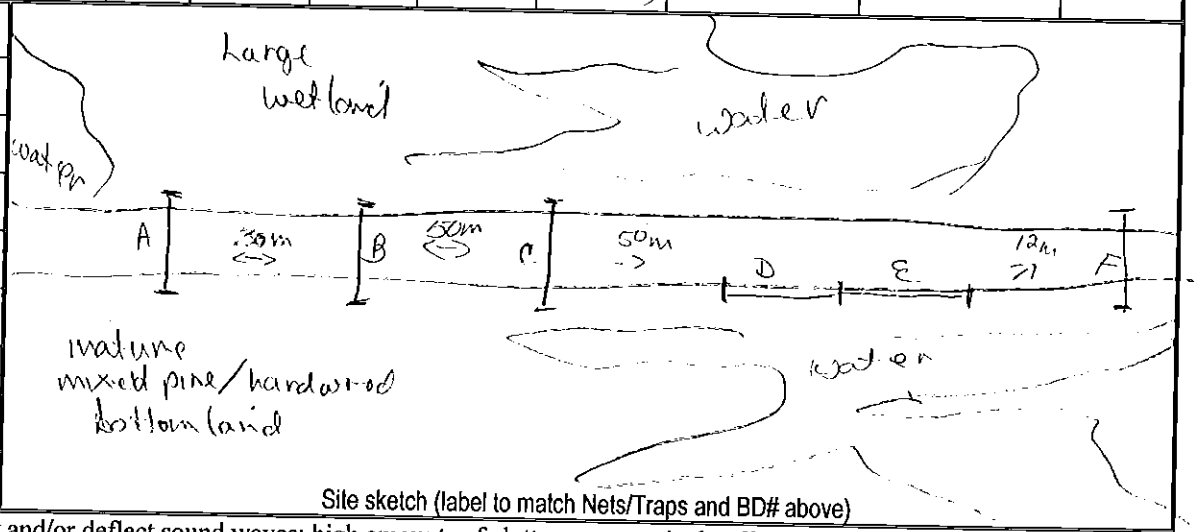
Site Description, other than Habitat Info covered on pg 3:

mixed/ bottomland/ unmanged/ mature forest/ mixed/ clutter 3 med.

sweet swamp black water tupelo, red maple, gum, ash, gum, oak, pine, water pine swamp tupelo, oak, chestnut

habitat community type: nonriverine

west hardwood forest



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

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

Bat Survey Data Form

Project: NCDOT WLSB research County: Jones Site# 6-Jones Night# 2 Site Name: Railroad swamp Date: 11-28-17

	TIME	SPECIES	Sex	Age	P/L/PL/NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	17:52	LABO	M	A	NR	41	7.5 / 19.5	OP	C	2m	NCWRC A3107	Hair for Nikki 6-Jones 1
2	17:50	MYAU	F	A	NR	38	7.5 / 16	O	B	1.5m	NCWRC A3105	DNA Jessie B1-GA AB 6:30 WNS swab 20 - quano 14
3	17:52	MYAU	F	A	NR	38	7.5 / 17	OP	F	2m	NCWRC A3106	DNA Jessie B1-GA AB 6:45 WNS swab 23 - quano 26
4	19:13	MYAU	F	A	NR	39	7.5 / 17	OP	A	2.5m	NCWRC A3122	DNA Jessie B7-GA AB 7:38 WNS swab 27 quano 11
												2 Bat Flies collected in unlabled vial
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

temp 56
temp 56
temp 56
temp 51

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

1. 34.94646 -77.23388
2. 34.94597 -77.23419
3. 34.94543 -77.23386
4. 34.94598 -77.23393
5. 34.94624 -77.23359
6. 34.94603 -77.23377
7. 34.94662 -77.23380

} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research project	County:	Jones	Site#:	4-Jones	Night#:	5	Site Name:	Crooked Run Road
Date:	11/29/2017								
Latitude:	34.946018	Longitude:	-77.233817	Datum:	Nad 83	Elevation:	70ft	ID By:	Krish Confortin
Observers:	Julia Hoeh, meredith Hoggatt							Start Time:	1642
End Time:	2235								

Conditions:	Time	Temp	Wind	Clouds
	1703	63	0	0
	2015	49.5	0	0
	2152	47	0	0

Moon Effect: waxing gibbous

Start: 1657
Stop: —

Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 4-48

NETS/TRAPS:	A:1	B:2	C:3	D:4	E:5	F:6
	1x2Hx6m	1x3Hx12m	1x2Hx4m	1x2Hx6m	1x3Hx9m	1x1Hx6m
Pool size WxL	NA	NA	NA	3x3m	NA	3x3m
Swoop WxL	NA	NA	NA	Unlimited	NA	Unlimited
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
		6.7 1x1Hx4m									
	Net #7	NA									
		NA									
		yes									

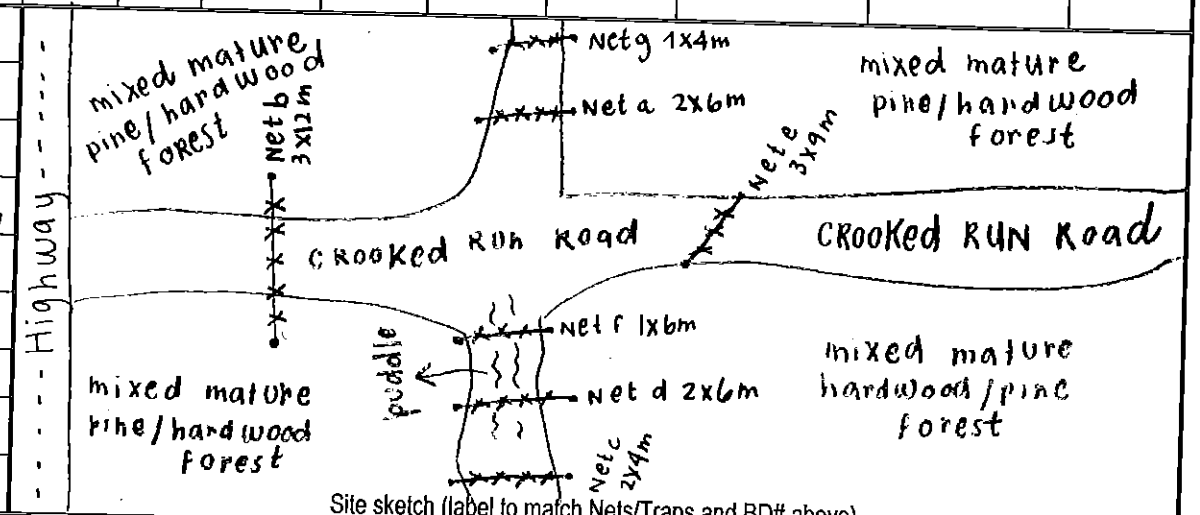
Site Description, other than Habitat Info covered on pg 3:

sweetgum, loblolly pine, red maple

mixed/upland/managed/mature forest

Natural/medium clutter 40-75%

habitat community type: nonriverine wet hardwood forest



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

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

MH ES-Fill Data 12-7-2017 MH USFWS V.C. Allowed 9-10-17 MH Lab

Bat Survey Data Form

Project: NCDOT NLEB Research project County: JONES Site# 4-JONES Night# 4 Site Name: CROOKED RUN ROAD Date: 11/29/2017

	TIME	SPECIES	Sex	Age	P/L/PL/NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1818	PESU	m	A	NR	33	14-7.5	6.5	6	0m	ESGM 167 / 0	WNS SWAB #53 NIKKI fur sample 4-Jones9	53
2	1837	LABO	m	A	NR	39	17-7.5	9.5	5	4m	NC-WRC A3238 / 0	Pin holes right wing NIKKI fur sample 4-Jones10	53
3	1857	NYHU	m	A	TD	35	18.5-7.5	11	4	0m	Eco-Tec 00695 / 0	Recapture	52.5
4	1857	EPFU	m	A	NR	42	23.5-7.5	16	2	2m	NC-WRC A1833 / 0	5 pin hole Right wing Recapture	52.5
5	1857	EPFU	m	A	TD	47	21.75-1.5	20.25	2	2m	NC-WRC A1834 / 0	pin hole Right wing WNS SWAB # 59	52.5
6	1857	LANO	m	A	NR	40	20-7.5	12.5	2	2m	NC-WRC A3237 / 0	NIKKI fur sample # 4-Jones11	52.5
7	2015	PESU	F	A	NR	35.5	14.75-7.5	7.25	2	2m	ESGA 187 / 0	WNS SWAB #40 4-Jones12- NIKKI FUR	49.5
8	2035	LASE	m	A	TD	38	31.5-21	10.5	6	0m	NC-WRC A3236 / 0		50
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / (mixed) / unforested

(Upland) / bottomland

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

A 34.9232, -77.23191
B 34.92479, -77.23196
C 34.92540, -77.23200
D 34.92616, -77.23199
E 34.92647, -77.23199
F 34.92668, -77.23209
* GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF NC

Project:	NCDOT NLEB research	County:	Jones	Site#:	6 Jones	Night#:	3	Site Name:	Railroad swamp	Date:	11-29-17
Latitude:	34.92310	Longitude:	-77.23143					Datum:	NAD 83	Elevation:	70'
Observers:	Drew Powell,							Start Time:	16:45	End Time:	22:20

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	16:47	66°F	0	0	19:40	52°F	0	0	22:20	49°F	1	25%

Moon Effect: waxing Gibbous

Start: 16:47
Stop: —

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

NETS/TRAPS:	A: 1X2H - 9m	B: 1X2H - 6m	C: 1X2H - 9m	D: 1X3H - 12m	E: 1X3H - 12m	F: 1X2H - 9m
Pool size WxL	NA	NA	unlim	unlim	unlim	NA
Swoop WxL	NA	NA	unlim	unlim	unlim	NA
Photo? or #	Yes	Yes	Yes	Yes	Yes	Yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

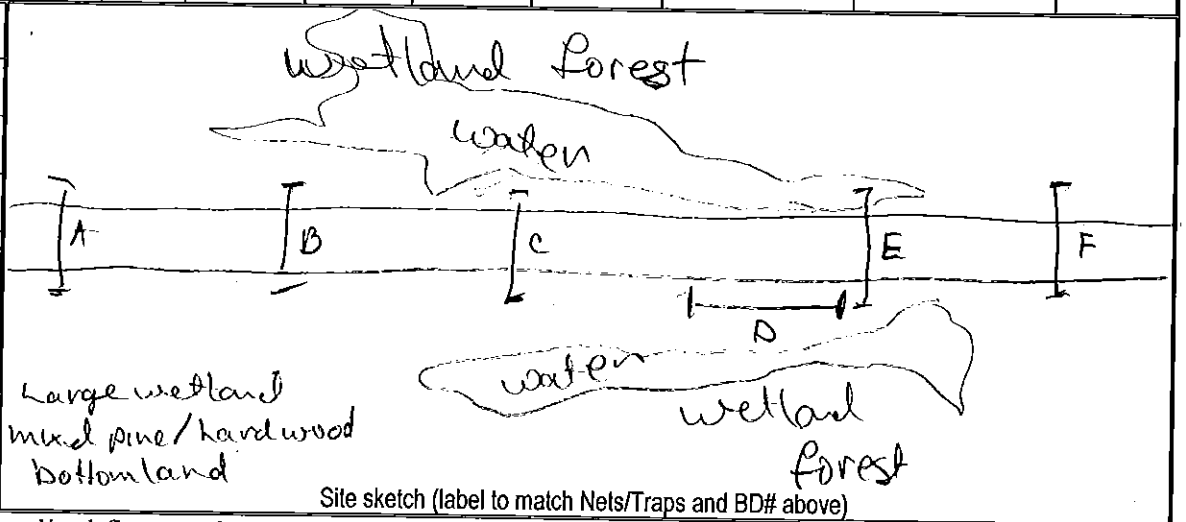
mixed / bottomland / unmanaged / mature forest

mixed / clutter 3 med

red maple / sweet gum / swamp oak / black gum / water oak

loblolly pine / water tupelo / live oak / swamp chestnut

habitat community type: nonriverine wet hardwood forest



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

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

Bat Survey Data Form

Project: NCDOT NLEB research County: Jones Site# To Jones Night# 3 Site Name: Railroad swamp Date: 11-29-17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	
1	17:49	MYAU	F	A	NR	40	8 / 15.5	7.5	C	1m	NCWRC A3296 / O	WNS Swab 3 Guano 4 Jessie B5-GA AB 6:14	Temp 56
2	17:50	MYAU	F	A	NR	38	8 / 15	7	D	1.5m	NCWRC A3295 / OP	WNS swab 1 AB 6:37 Jessie B2-G1 ID ED Butterfly 119	temp 56
3	17:52	MYAU	F	A	NR	39	8 / 15	7	B	1.5m	NCWRC A3294 / O	WNS Swab 14 AB 6:45 Jessie B6 GA	temp 56
4	19:16	MYAU	F	A	NR	38	8 / 16.5	8.5	B	.75m	NCWRC A3293	WNS swab 9 Guano 20 AB 7:32 Nikki Hair Clones 2	temp 53
5	20:02	MYAU	F	A	NR	39	7.5 / 16	8.5	E	2.5m	NCWRC A3292	WNS Swab 29 AB 8:15	temp 54
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

1. 34.94646 -77.23388
2. 34.94597 -77.23419
3. 34.94593 -77.23386
4. 34.94598 -77.23393
5. 34.94624 -77.23359
6. 34.94603 -77.23377
7. 34.94662 -77.23380

} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Jones	Site#:	4-Jones	Night#:	6	Site Name:	Crooked Run Road	Date:	11/30/2017
Latitude: 34.946018		Longitude: -77.233817						Datum: NAD83	Elevation: 70ft	ID By:	Krish Confortin
Observers: Julia Hoeh								Start Time: 1632		End Time:	2240

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1630	63	0	25	2010	48	0	0	2142	47	0	25

Moon Effect: waxing gibbous — Start: 1713 — Stop: —

Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 4-43

NETS/TRAPS:	A: 1 1x2H x6m	B: 2 1x3 Hx 12 m	C: 3 1X2H x4m	D: 4 1X2Hx 6m	E: 5 1x2Hx9m	F: 6 1X1Hx6m
Pool size WxL	NA	NA	NA	3x3m	NA	3 X 2m
Swoop WxL	NA	NA	NA	Unlimited	NA	Unlimited
Photo? or #	Yes	Yes	Yes	Yes	Yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
		6.7 1x1Hx4m									
	NET#7	NA									
		NA									
		yes									

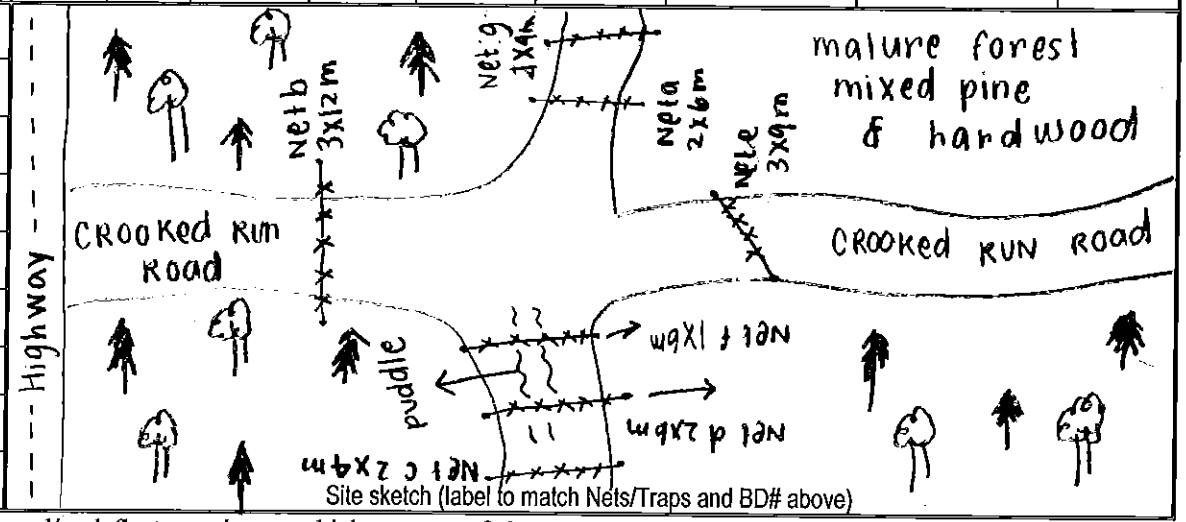
Site Description, other than Habitat Info covered on pg 3:

Sweetgum, Loblolly pine, red maple

mixed/upland/managed/mature forest

Natural/medium clutter 40-75%

habitat community type: nonriverine west hardwood forest



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

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

Bat Survey Data Form

Project: NCDOT NLEB research project County: Jones Site# 4-Jones Night# 5 Site Name: Crooked Run Road Date: 11/30/2017

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

other species in net: fox sparrow, American woodcock

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

Pine / hardwood / (mixed) / unforested

(Upland) / bottomland

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

A. 34.88814, -77.16331
B. 34.88841, -77.16336
F 34.88855, -77.16356
C 34.88850, -77.16373

D 34.88855, -77.16438
E 34.88875, -77.16549

* GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, nc

Project:	NCDOT NLEB research	County:	Jones	Site#:	Jones	Night#:	1	Site Name:	Forest Road 172	Date:	11-30-17
Latitude:	34.88871	Longitude:	-77.16588					Datum: NAD83	Elevation:	ID By:	Dottie Brown
Observers:	Drew Powell + Meredith Hoggatt, Lane Sauls, Drew Sauls, Ella Sauls							Start Time:	16:45	End Time:	22:49

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	16:45	59°F	0	25%	19:15	49°F	0	25%	22:49	46°F	0	25%

Moon Effect: waxing Gibbous — Start: 16:45 — Stop: —

Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43 6-62 mature mixed Pine/hardware forest

NETS/TRAPS:	A: 1X2H-9m	B: 1X3H-12m	C: 1X2H-12m	D: 1X3H-12m	E: 1X3H-12m	F: 1X1H-4m
Pool size WxL	NA	NA	8X12	NA	NA	8X12
Swoop WxL	NA	NA	unLim	NA	NA	unLim
Photo? or #	Yes	Yes	Yes	Yes	Yes	Yes

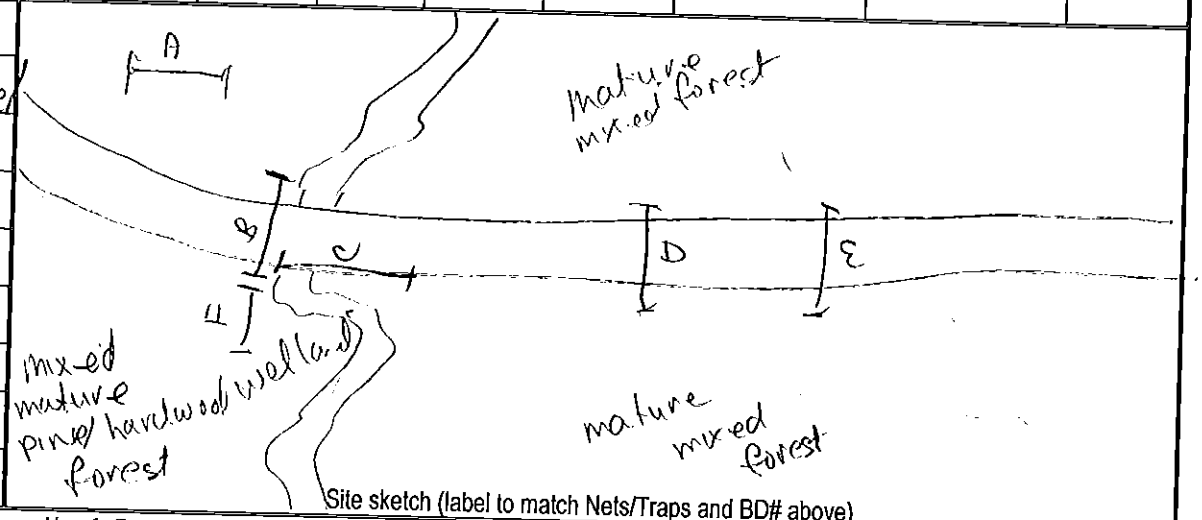
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/bottomland/unmanged/mature/natural/clutter 3 medium

sweetgum, loblolly pine, swamp chestnut oak, white oak, Black Red, water gum, maple, oak

habitat community type: mesic mixed hardwoods, coastal plain subtype and coastal plain small stream swamp, blackwater subtype



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

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

Bat Survey Data Form

Project: NCDOT NLEB research County: Jones Site# 7 Jones Night# 1 Site Name: Forest Road 172 Date: 11-30-17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	18:34	LABO	Na	Na	Na	Na	Na	Na	B	4 m	Na	escape from net
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain subtype, coastal plain small stream swamp, blackwater subtype

2nd trip moved a few nets

A 34.85610, -77.20843
B 34.85616, -77.20852
C 34.85621, -77.20973
D 34.85611, -77.20984

E 34.85609, -77.21026
F 34.85575, -7721049
G 34.85566, -77.21057
GPS Net Points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research project	County:	Jones	Site#:	Jones	Night#:	4	Site Name:	Pixley Boat Landy
Date:	12-1-17								
Latitude:	34.85598	Longitude:	-77.21021	Datum:	NAD83	Elevation:	30'	ID By:	Dottie Brown
Observers:	Drew Powell + Meredith Hoggatt							Start Time:	1630
End Time:	22:15								

Conditions:	Time	Temp	Wind	Clouds
	1630	60°F	0	0
	20:01	50°F	6	8
	22:13	44°F	0	8

Moon Effect: waxing gibbous — Start: 1719 — Stop: ——

Land Use: Urban / (Agriculture) / (Forest) / (Water) / Wetland / Barren *(describe)*: 4-43 5-51 2-21 White oak river

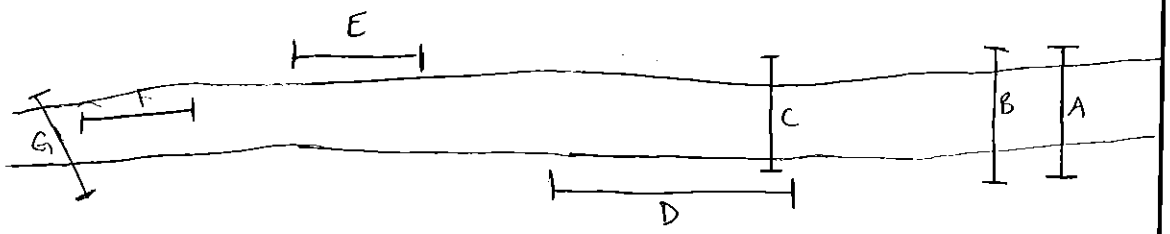
NETS/TRAPS:	A: 1×2H×9m	B: 1×3H×12m	C: 1×2H×6m	D: 1×3H×12m	E: 1×2H×9m	F: 1×2H×12m	G: 1×1H×9m
Pool size WxL	NA	NA	NA	NA	unlim	unlim	unlim
Swoop WxL	NA	NA	NA	NA	unlim	unlim	unlim
Photo? or #	Yes	Yes	Yes	Yes	Yes	Yes	Yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed, bottomland, unmanaged, mature forest
canopy cover medium (3)/natural
bald cypress, red maple, sweetgum, blk gum, loblolly pine, water oak.
habitat community type: mesic mixed hardwoods, coastal plain subtype & coastal plain bottomland hardwood, blackwater subtype

mixed pine/hardwood mature forest



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

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

Bat Survey Data Form

Project: NCDOT WLEB Research Project County: Jones Site# 1-Jones Night# 4 Site Name: Dixon Boat Ramp Date: 12-1-17

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

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plains subtype + coastal plain bottomland hardwood, blackwater subtype

A 34.94694, -77.23390
B 34.94600, -77.23412
C 34.94601, -77.23389
D 34.94533, -77.23374
E 34.94629, -77.23337

3 GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research Project	County:	Jones	Site#:	4 Jones	Night#:		Site Name:	Crooked Run Road	Date:	12-5-17
Latitude:	34.946018	Longitude:	-77.233817					Datum: NAD 83	Elevation: 30'	ID By:	Dottie Brown
Observers:	Julia Hoch							Start Time:	16:54	End Time:	22:20

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	17:01	72°F	0	0	21:01	56	0	0	22:00	55	0	0

Moon Effect: waxing gibbous — Start: 20:19 — Stop: NA

Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 4-43

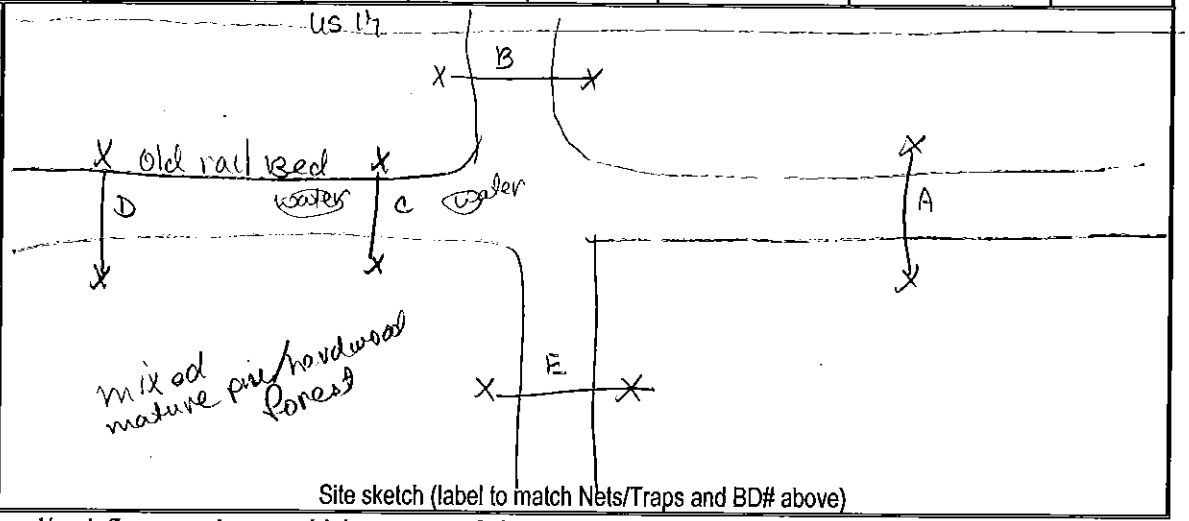
NETS/TRAPS:	A: 1X12ft 6m	B: 1X3H - 12m	C: 1X2H - 6m	D: 1X1H - 6m	E: 1X3H - 9m	F:
Pool size WxL	NA	NA	~~2x20 lb~~ (3x3m+3x2m)	NA	NA	
Swoop WxL	NA	NA	UnLim	NA	NA	
Photo? or #	yes	yes	yes	yes	yes	

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland+bottomland/unmanaged/
mature forest/natural/mod 40-75% #3
sweetgum, loblolly pine, red maple, water oak

habitat community type: nonriverine wet hardwood forest



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

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

MH FS_Full_Data 12-9-2017 MH USFWS_DB_All_Prjcts 12-9-2017 MH Lat_Long_2017 12-10-17

Bat Survey Data Form

Project: NCDOT NLEB research Project County: Jones Site# Jones 4 Night# 1 Site Name: Crooked Run Road Date: 12-5-17

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	18:40	LABO	M	A	NR	39	7.75 / 17.5	9.75	E	1 m	NCWRC A3932 / 0	Temp 61°F
2	19:45	EPFU	F	A	NR	50	8 / 28	20	C	1 m	NCWRC A1848 / 0	Temp 57.5°F Nikki Hair Tissue #61
3	20:30	MYLU	F	A	NR	36	7.5 / 20	12.5	B	4.5 m	ES GA 309 / 0	Temp 57°F Nikki Hair Band re-capture
4	20:55	MYAU	F	A	NR	39	7.75 / 17	9.25	C	1.5 m	no Band / 0	Bib not band FA Temp a little bruised 56
5	~~20:57~~	~~LACI~~										AB#9 21:13 Temp WNS Swab 35 56 BAT ID 100
5	20:57	LACI	M	A	NR	52	8 / 30	22	E	2.5 m	NCWRC A1847 / 0	Nikki Hair 13 Temp Nikki Tissue 12 56
6	22:19	MYAU	M	A	NR	38	7.5 / 17.25	9.75	C	1.5 m	NCWRC A3231 / 0	WNS Swab 12 Temp AB 22:31 55
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

A. 34.94694, -77.23390
B. 34.94533, -77.23374
C. 34.94601, -77.23389 } GPS net points
D. 34.94600, 77.23412

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project: NCDOT NLEB research project	County: Jones	Site#: 4 Jones	Night#: 8	Site Name: Crooked Run Road			Date: 12-18-2017				
Latitude: 34.946018	Longitude: -77.233817			Datum: NAD83	Elevation: 70'		ID By: Dottie Brown				
Observers: Meredith Hoggatt				Start Time: 1656			End Time: 20:08				
Conditions:	Time 1656	Temp 62°	Wind 0	Clouds 0%	Time 20:03	Temp 48°	Wind 0	Clouds 0	Time 20:08	Temp 46°F	Wind 0	Clouds
Moon Effect: waxing gibbous	Start: NA	Stop: NA	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43								

NETS/TRAPS:	A: 1X2H - 6m	B: 1X2H - 9m	C: 1X2H - 6m	D: 1X3H - 9m	E:	F:
Pool size WxL	NA	NA	3X3M + 2X1.5M	NA		
Swoop WxL	NA	NA	unlimited	NA		
Photo? or #	yes	yes	yes	yes		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

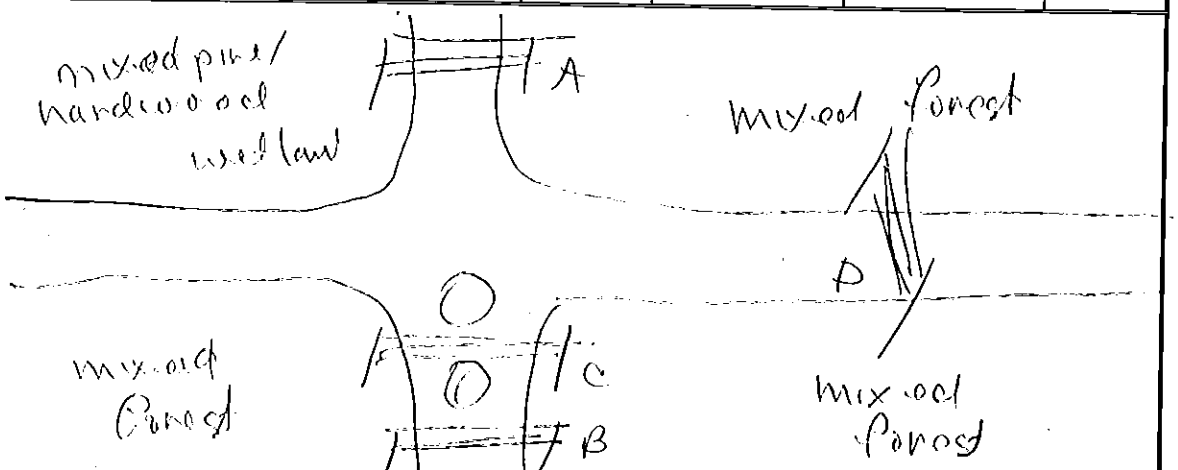
Site Description, other than Habitat Info covered on pg 3:

Sweetgum, loblolly pine, red maple

mixed/upland/managed/mature forest/natural

medium clutter 40-75% cover

habitat community type: nonriverine west hardwood forest



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

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

KC USFWS 12/29/17 KCES full 12/29/17 KC Wilson 12/29/17

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Jones Site# 4-Jones Night# 1 Site Name: Crooked Run Road Date: 12-18-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1830	EPFU	F	A	NR	49	7.75 / 26.5	18.75	C	1.5	newRC A1795/0	wnssswab 16
2												
3												
4												
5												
6			1									
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Temp 51°

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

Pine / hardwood / (mixed) / unforested

(Upland) / bottomland

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwoods forest

A. 34.94694 -77.23390
B. 34.94600 -77.23412
C. 34.94601 -77.23389
D. 34.94533 -77.23374
E. 34.94623 -77.23387
} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project: NCDOT NLEB Research Proj	County: Jones	Site#: 11-Jones	Night#: 9	Site Name: Crooked Run Road		Date: 12-19-2017			
Latitude: 34.946018	Longitude: -77.233817			Datum:	Elevation: 78'	ID By: Dottie Brown			
Observers: Meredith Haggott				Start Time: 16:40		End Time: 19:59			
Conditions:	Time 1640	Temp 57°	Wind 0	Clouds 0	Time 2030	Temp 49°	Wind 0	Clouds 0	Time 19:59	Temp 51°	Wind 0	Clouds 0
Moon Effect: waxing gibbous	Start: NA	Stop: NA			Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43							

NETS/TRAPS:	A: 1X2H-6m	B: 1X2H-9m	C: 1X2H-6m	D: 1X3H-12m	E: 1X2H-4m	F: 1X3H-9m
Pool size WxL	NA	NA	3X3m + 2X1.5m	NA	NA	NA
Swoop WxL	NA	NA	unlimited	NA	NA	NA
Photo? or #	Yes	Yes	Yes	Yes	Yes	Yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

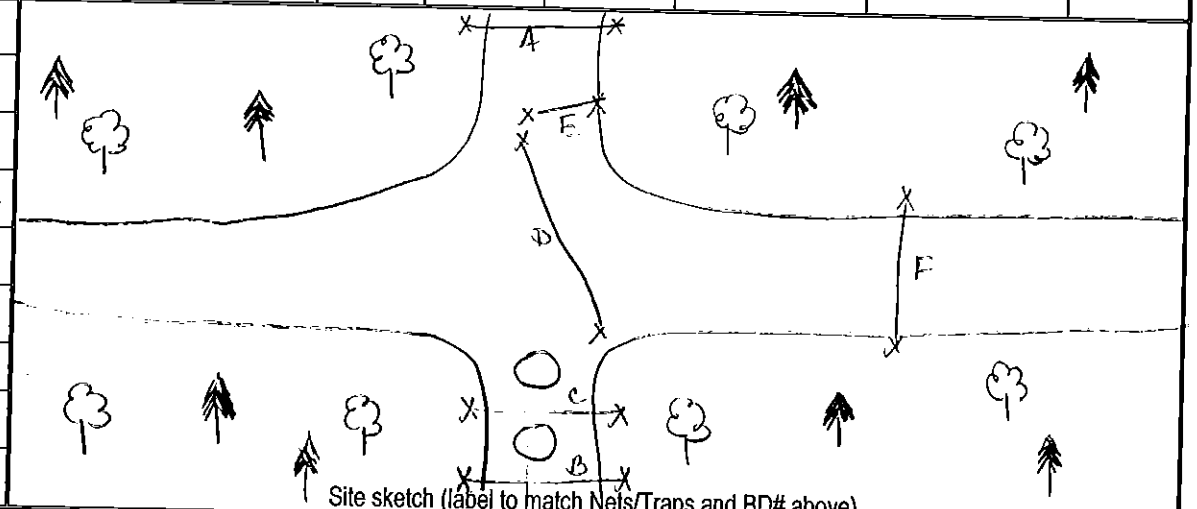
Site Description, other than Habitat Info covered on pg 3:

Sweetgum, loblolly pine, red maple

Mixed/upland/managed/mature forest/natural

Medium clutter 40-75% cover

habitat community type: nonriverine west hardwood forest



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

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

KC USFNS 12/29/17 KC ESFUll 12/29/17 KC latlong 12/29/17

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Jones Site# 4 - Jones Night# 2 Site Name: Crooked Run Road Date: 12-19-2017

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	17:14	LASE	M	A	NR	38.5	7.5 / 16.25	8.75	B	1m	/0	Band removed/recaptured previously injured (A32316 ABH9 - 17.28)
2	18:11	LABO	M	A	NR	39	7.5 / 17.5	10	F	2.5m	/0	R+ wing small pinhole Did not band
3	18:57	NYHU	M	A	TD	36	7.5 / 16.5	9	F	2.5m	ESGA 134 /0	L+ wing pinhole shoulder band (1ft)
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

tem
55
51
50

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

Pine / hardwood / (mixed) / unforested

(Upland) / bottomland

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

A1. 34.77833 -76.96148
B2. 34.77828 -76.96162
C3. 34.77821 -76.96153
D4. 34.77818 -76.96169
E5. 34.77803 -76.96204
F6. 34.77827 -76.96156
} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Carteret	Site#:	2 Carteret	Night#:	1	Site Name:	Swamp Mills Road, FS Rd 177	Date:	1/23/2018
Latitude: 34.77446		Longitude: -76.964050						Datum: Nad 83	Elevation: 63ft	ID By:	Kristi Confortin,
Observers: Drew Powell								Start Time: 1712		End Time:	2010

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1712	57	2	75	2010	16	0	25	NA	NA	NA	NA

Moon Effect: waxing crescent — Start: — Stop: —

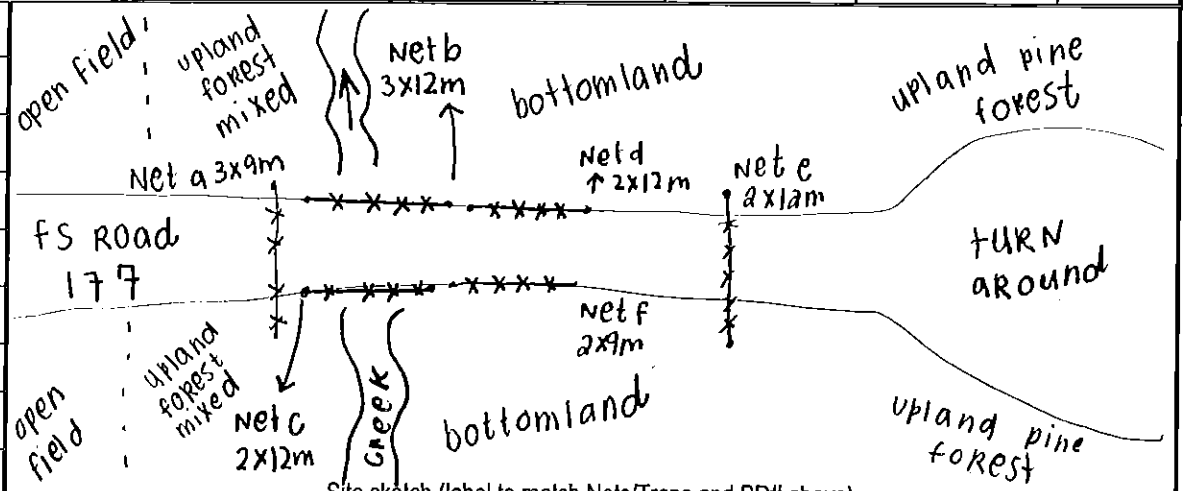
Land Use: Urban / Agriculture (Forest) Water (Wetland) Barren *(describe)*: 4-43 6-61

NETS/TRAPS:	A: 1x3Hx9m	B: 1x2Hx12m	C: 1x3Hx12m	D: 1x2Hx12m	E: 1x2Hx12m	F: 1x2Hx9m
Pool size WxL	Na	stream	stream	Na	Na	Na
Swoop WxL	Na	unlimited	Unlimited	Na	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland & bottomland/managed/
mature forest/natural/ clutter medium
loblolly pine, sweet gum, bald cypress,
water tupelo, sweet bay magnolia, american holly
community habitat type: coastal plain small stream,
swamp black water subtype



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

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

ES data KC 1/31/2018 bat long KC 2/1/18 USFWS KC 3/9/18 Samples 3/6/2018 DP

Bat Survey Data Form

* Closed early due to wind/fog unable to complete full five hour survey

Project: NCDOT NLEB Research Project County: Carteret Site# 2-Carteret Night# 1 Site Name: swamp millis Road FS 177 Date: 1/23/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	17:47	LASF	A	M	NR	42mm	16.5 - 7.5	9	A	5m	NC-WRC A3220 / 0	pin holes on both WINGS	54
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: coastal plain small stream swamp, blackwater subtype

A1. 34.77833 -76.96148
B2. 34.77828 -76.96162
C3. 34.77821 -76.96153
D4. 34.77818 -76.96169
E5. 34.77803 -76.96204
F6. 34.77823 -76.96156
} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NUEB Research project	County:	Carteret	Site#:	2 Carteret	Night#:	2	Site Name:	Swamp Mills Rd FS Rd 177	Date:	11/29/2018
Latitude:	34.77446	Longitude:	-76.964050					Datum: NAD83	Elevation: 63 ft	ID By:	Kristi Confortin
Observers:	Drew Powell							Start Time: 1704		End Time:	1900

Conditions:	Time	Temp	Wind	Clouds
	1700	50	0	5
	1900	34	0	0
	NA	NA	NA	NA

Moon Effect: waxing crescent

Start: 1100

Stop: ----

Land Use: Urban / Agriculture / (Forest) 4-43 / Water / (Wetland) 6-61 / Barren *(describe)*:

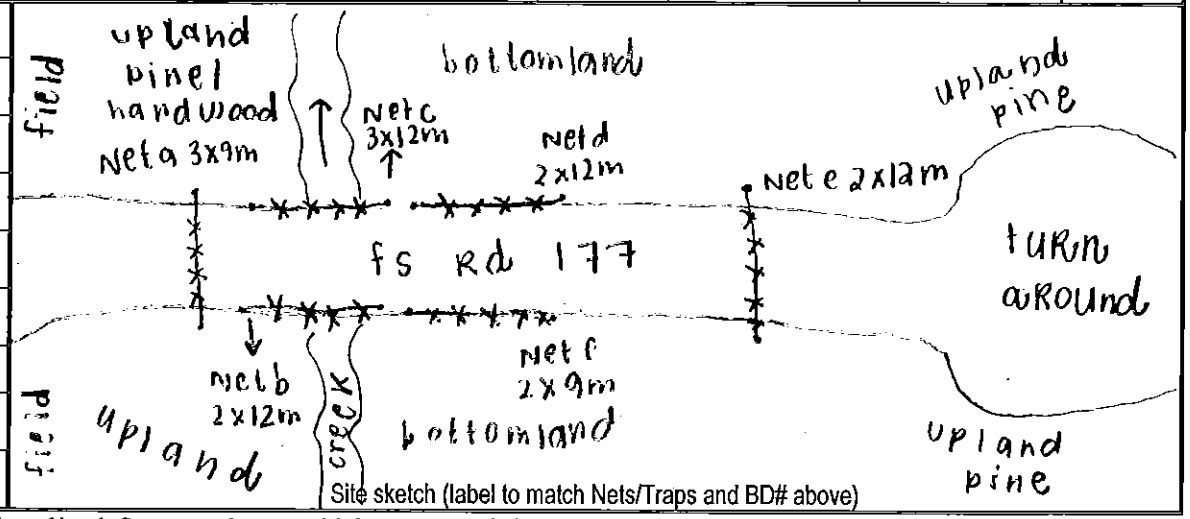
NETS/TRAPS:	A: 1x3Hx9m	B: 1x2Hx12m,	C: 1x3Hx12m	D: 1x2Hx12m	E: 1x2Hx12m	F: 1x2Hx9m
Pool size WxL	Na	stream	stream	Na	Na	Na
Swoop WxL	Na	unlimited	unlimited	Na	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland & bottomland/ managed mature forest / Natural/ clutter medium, loblolly pine, sweet gum, bald cypress, water tupelo, sweet bay magnolia, american holly

community habitat type: coastal plain small stream, swamp black water subtype



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

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

ES data KC 1/31/18 batlong KC 2/1/18 USFWS 3/9/18 KC

Samples 3/6/2018 DP

* closed early due to temperatures below 40°.

Bat Survey Data Form

Project: NCDOT NEB Research Project County: Carteret Site# 2-Carteret Night# 2 Site Name: Swamp Mills Road FS Road 177 Date: 1/24/2018

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

2-Carteret 1/24/2018

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: coastal plain small stream, swamp, blackwater subtype

A 34.76780, -76.97141
B 34.76820, -76.97231
C 34.76825, -76.97231
D 34.76833, -76.97234
E 34.76831, -76.97240
F 34.76838, -76.97248
G 34.76847, -76.97216
H 34.76825, -76.97215

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project: NCDOT Research NLEB Project	County: Carteret	Site#: 3 Carteret	Night#: 1	Site Name: Millis Rd / millis swamp	Date: 2/20/2018
Latitude: 34.76831	Longitude: -76.97234			Datum: NAD 83	Elevation: 20'	ID By: Dottie Brown
Observers: Drew Powell & Julia Haeh				Start Time: 1750	End Time: 2358

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1950	70	0	25%	2050	65	1	75%	2358	65°	0	75%

Moon Effect: 25.3% waxing crescent | Start: — | Stop: —

Land Use: Urban / Agriculture / (Forest 33) / (Water 51) / (Wetland 61) / Barren *(describe)*:

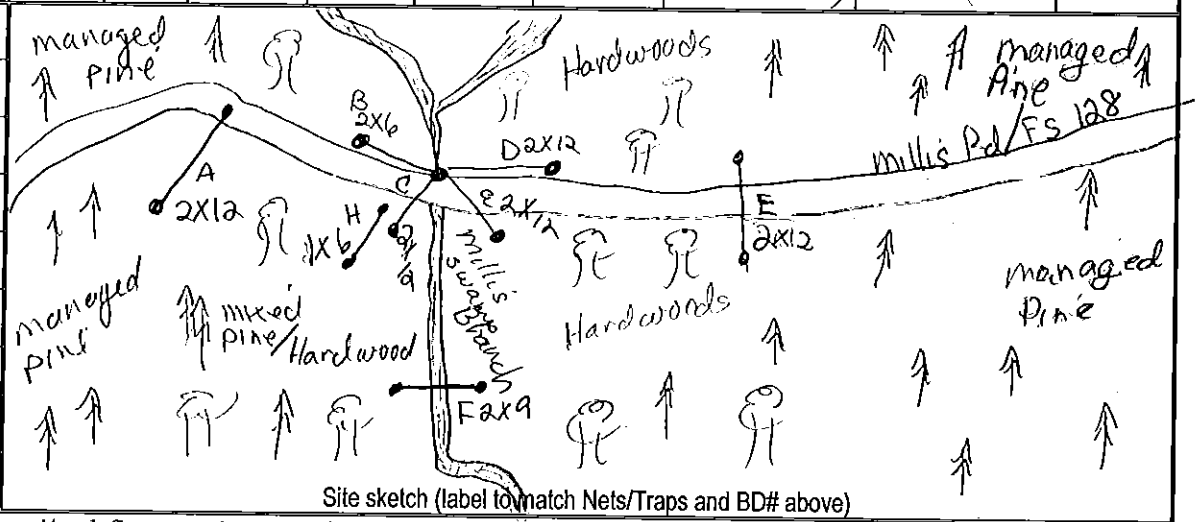
NETS/TRAPS:	A: 1X2H X12m	B: 1X2H X 6m	C: 1X2H X 12 m	D: 1X2H X12m	E: 1X2 H X 12m	F: 1X2 HX12m
Pool size WxL	N/A	N/A	unlimited	unlimited	N/A	N/A
Swoop WxL			unlimited	unlimited		
Photo? or #	yes	yes	yes	yes	yes	yes

G: 1X2H X 6m unlimited
H: 1X2H X 6m N/A

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

Pine/uplands/managed/natural/ Clutter med (3)
mixed/bottomland/managed/ Clutter med (3)
Swamp Red sweet Red loblolly American Black bay, bay, gum, maple, Pine, holly, gum
wax myrtle, long leaf Pine,
giant dog cane, hobblebush,
community = Stream Corridor = Coastal Plain Small Stream Swamp, Black water subtype



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

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

ES data KC 3/6/18 bat long 3/8/18 USFWS KC 3/9/18

Samples 3/6/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Carteret Site# Carteret 3 Night# 1 Site Name: Millis Rd/Millis Swamp Date: 2-20-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1836	NYHU	m	A	T.D	34mm	15 / 7.5	7.5	D	3m	ESGA 330 / 0		66
2	1836	LASC	m	A	NR	39	16 / 8	8	F	3m	no band / OP	ABG	66
3	1950	LABO							F	3m	—	Escaped from net	65
4	2108	LASE	M	A	TD	40	16.5 / 8	8.5	C	3.5m	No Band / 0	ABG 2117	65
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: stream corridor = coastal plain small stream blackwater subtype

A1. 34.77833, -76.96148 FG. 34.77803 - 76.96206 Page 1
B2. 34.77828, -76.96162
C3. 34.77821, -76.96169
D4. 34.77818, -76.96169 } GPS net points
E5. 34.77803, -76.96204

page 1 of 4

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research project	County:	Carteret	Site#:	2 Carteret	Night#:	3	Site Name:	swamp mills rd fs rd 177	Date:	2/20/2018
Latitude:	34.77446	Longitude:	-76.964050					Datum:	Nad83	Elevation:	63ft
ID By:	Kristi Confortin										
Observers:	Meredith Hoggatt & Drew Powell							Start Time:	1740	End Time:	2320

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1740	69.5	0	25	2058	65°	1	75	2242	65°	0	25

Moon Effect: waxing crescent — Start: 1820, Stop: 2200

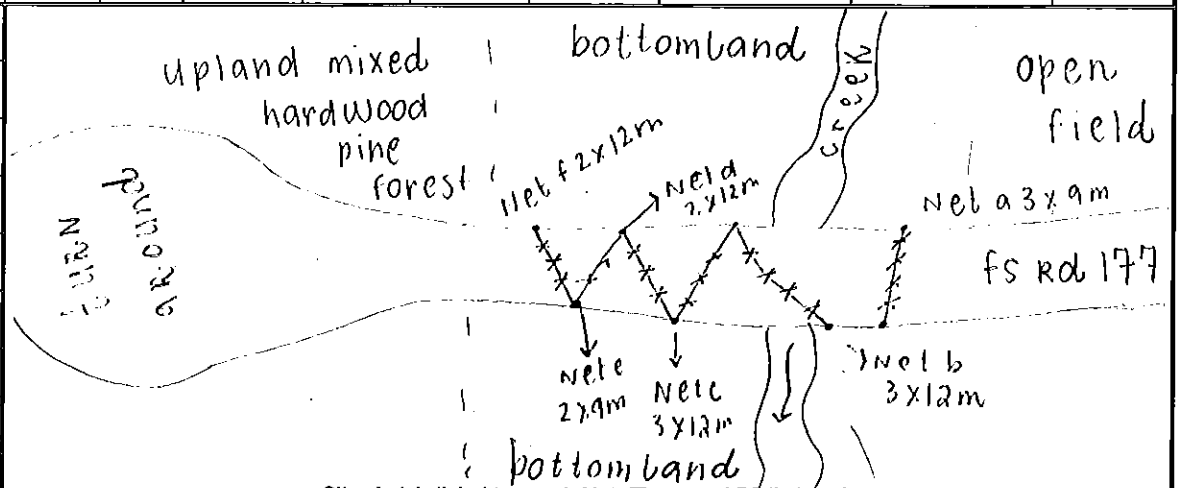
Land Use: Urban / Agriculture / (Forest) Water / (Wetland) / Barren *(describe)*: 4-43 6-61

NETS/TRAPS:	A: 1x3Hx9m	B: 1x3Hx12m	C: 1x3Hx12m	D: 1x2Hx12m	E: 1x2Hx9m	F: 1x2Hx12m
Pool size WxL	Na	Na	Na	Na	Na	Na
Swoop WxL	Na	Na	Na	Na	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland & bottomland/managed
mature/Natural/clutter med (3)
loblolly pine, sweet gum, bald cypress, tupelo, sweet bay magnolia, american holly,
community type: coastal plain small, stream swamp blackwater subtype



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

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

ES data KC 3/6/18 batlong 3/8/2018 USFWS 3/9/18 KC

Samples 3/6/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Carteret Site# 2-Carteret Night# 3 Site Name: Swamp Mills Rd, FS Rd 177 Date: 2/20/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	
1	1755	LASE	m	A	NR	41	16.25-8	8.25	A	3m	NC-WRC A3202 / 0	NIKKI FUR # 106	69.5
2	1820	NYHU	m	A	TD	35	15.75-8	7.75	A	2.5m	no band / 0		65
3	1820	LABO	m	A	TD	39	16 - 8	8	A	2.5m	no band / 0		65
4	1820	LABO	m	A	NR	39	17.5-8	9.5	B	2m	no band / 0		65
5	1820	LABO	M	A	NR	40	19.5-8	11.5	C	2m	no band / 0		64.5
6	1863	MYSE	m	A	TD	34	14-8	6	B	2m	ESGA 0695 / 0	Trig ISO.302 KSH guano # 107 WNS SWAB #36 NIKKI H 109	64.5
7	1853	NYHU	f	A	NR	34	17-8.25	8.75	B	2m	no band / 0		64.5
8	1853	NYHU	M	A	TD	34	15.25-8	7.25	B	2m	no band / 0		64.5
9	1853	NYHO	M	A	TD	35.5	16.75	8.5	B	2m	no band / 0		64.5
10	1853	NYHU	F	A	NR	36	16.5-7.5	9	D	2m	no band / 0		64.5
11	1853	EPFU	M	A	NR	48	22-8.25	13.75	C	2.5m	no band / 0		64.5
12	1853	EPFU	M	A	NR	47	21.75-8	13.75	C	2m	no band / 0		64.5
13	1853	EPFU	M	A	TD	48	21.5-8	13.5	A	2.5m	no band / 0		64.5
14	1853	LABO	M	A	NR	39	18.5-8	10.5	D	2m	no band / 0		64.5
15	1853	EPFU	F	A	NR	47	24-8	16	D	2.5m	no band / 0		64.5
16	1853	EPFU	M	A	NR	45	23-8	15	C	2m	no band / 0		64.5
17	1950	LASE	m	A	NR	40	17.25-8	9.25	f	2m	NC-WRC A3226 / 0	Right wing holes Recapture	65.5
18	2007	EPFU	m	A	TD	44	21-8	13	f	2m	NC-WRC A1808 / 0	WNS SWAB #43 NIKKI FUR H 108	65
19	2023	EPFU	f	A	NR	47	23.5-8	15.5	E	2m	NC-WRC A1809 / 0	WNS SWAB # 46 KSH GUANO H 136	64.5
20	2023	LASE	m	A	NR	39	17-7.5	9.5	f	3m	ESGA 0692 / 0		64.5

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Carteret Site# 2-Carteret Night# 3 Site Name: Swamp Millis Rd FS Road 177 Date: 2/20/18

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	
21	2125	LASE	M	A	NR	40	16.75-8	8.75	C	3m	ESGA 0643 / 0		65.5
22	2125	EPFU	M	A	NR	48	21.5-8	13.5	E	2m	NCWRC A1835 / 0	WNS swab #55	65.5
23	2250	EPFU	F	A	NR	47	25.25-8	17.25	C	2.5m	ESGA 1087 / 0	WNS swab #32	65.5
4													
5													
6													
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16													
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18													
19													
20													

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: Coastal plain small swamp blackwater subtype

Samples 3/6/2018 DP

A1. 34.77833 -16.96148 D. 34.77818 -16.96169 G. 34.77808 -16.96202
B2. 34.77828 -16.96112 E. 34.77803 -16.96164 H. 34.77806 -16.96211
C3. 34.77818 -16.96169 F. 34.77803 -16.96206 I. 34.77801 -16.96239

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research project	County:	Carteret	Site#:	2	Night#:	4	Site Name:	Swamp mitis Rd FS Rd 177	Date:	8/21/2018
Latitude:	34.77446	Longitude:	-76.964050					Datum:	Nad 83	Elevation:	63ft
ID By:	KRish Conforth.										
Observers:	Drew Powell, Meredith Hoggatt, Julia Hoch, Dottie Brown							Start Time:	1750	End Time:	2,315

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1750	93	0	0	2040	62	0	0	1637	5x.x	0	0

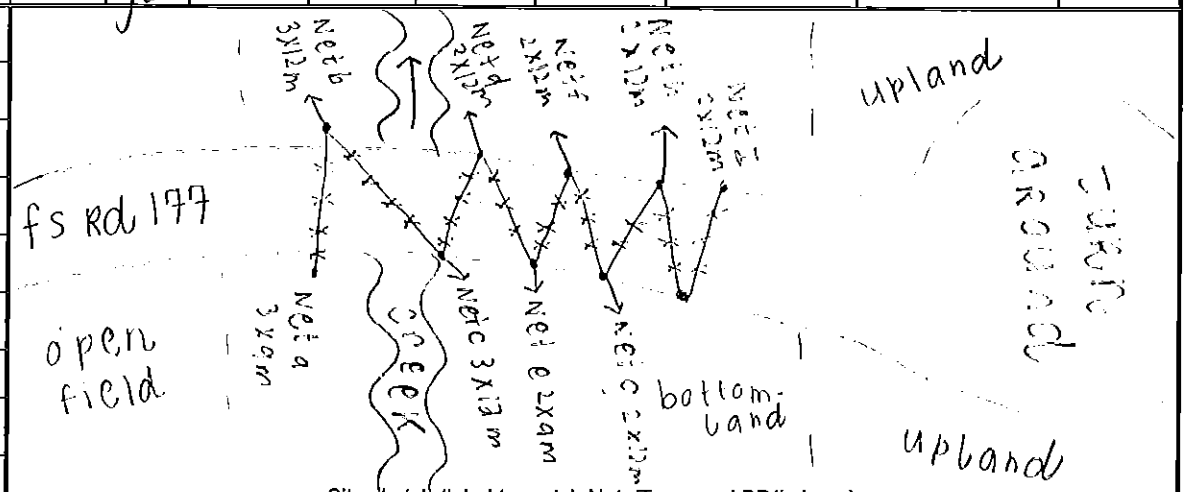
Moon Effect:	Waxing Crescent	Start: 1750 Stop: —	Land Use: Urban / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*: 4-43 6-61

NETS/TRAPS:	A: 1x3Hx9m	B: 1x3Hx12m	C: 1x3Hx12m	D: 1x2Hx12m	E: 1x2Hx9m	F: 1x2Hx12m
Pool size WxL	Na	Na	Na	Na	Na	Na
Swoop WxL	Na	Na	Na	Na	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?
	g. 1x2Hx12m	h. 1x2Hx12m	i	1x2H	x12m.						
	Na	Na		Na							
	Na	Na		Na							
	yes	yes		yes							

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

mixed/upland & bottomland/managed mature/natural/clutter med (3)
loblolly pine, sweet gum, bald cypress, tupelo, sweet bay magnolia, american holly,
community type: coastal plain small stream swamp blackwater
soil type



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

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

ES data KC 3/6/18 batlong 3/8/18 USFWS KC 3/9/2018 Samples 3/6/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research project County: Carteret Site# 2 - Carteret Night# 4 Site Name: Swamp Mills Rd FS Rd 177 Date: 2/21/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	Temp
1	1818	LABO	m	A	NR	37	16.5-8	8.5	f	2.5m	NC-WRC A3228 / 0	Recapture	62
2	1838	LABO	m	A	NR	38	16.5-8	8.5	D	1.5m	NCWRC A32160 / 0		62.5
3	1838	NYHU	m	A	NR	35	15.5-8	7.5	E	2.5m	ESGA 8483 / 0		62.5
4	1838	LASE	M	A	NR	39	17.75-8	9.75	C	3m	ESGA 0692 / 0	recapture Band removed	62.5
5	1835	EPFU	m	A	TD	43	21-8	13	A	2m	NC-WRC A1808 / 0	Recapture KSU guano #114	62.5
6	1853	LASE	m	A	NR	41	17.25-8	9.25	G	2m	Na / 0	Anabat 1908 NWVi 1192 007	62.5
7	1853	LABO	m	A	NR	41	16.5-8	8.5	A	1m	Na / 0		62.5
8	1853	EPFU	m	A	NR	44	21-8	13	C	2.5m	NC-WRC A1844 / 0	KSU guano # 130 WNS SWAB # 48	62.5
9												Nicki #191	
10	1853	EPFU	m	A	TD	47	22.25-8.5	13.75	A	2.5m	NCWRC A1836 / 0	KSU 71 WNS 300	62.5
11	1911	LABO	M	A	NR	42	16.75-7.75	9	I	2m	No Band / 0		62.5
12	2011	EPFU	m	A	TD	45	23-8	15	C	3.5m	NC-WRC A1843 / 0	WNS SWAB # 301 KSU guano # 28	62
13	2150	LABO	M	A	TD	39	17.25-8	9.25	A	2.5m	No Band / 0		59
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: coastal plain small stream swamp, blackwater subtype

A 34.77833, -76.96148
B 31.77828, -76.96162
C 34.77821, -76.96169
D 34.77818, -76.96169
E. 34.77803, -76.96204
F. 34.77803, -76.96206

NCDOT Mist-Netting & Acoustic Survey Data Form

Project: NCDOT NLEB Research Project	County: Carteret	Site#: Carteret 2	Night#: 5	Site Name: Swamp Millis Rd FS Rd 177			Date: 2/27/2018		
Latitude: 34.77446	Longitude: -76.964050			Datum: Nad 83	Elevation: 63ft		ID By: KKristi Confortin		
Observers: Meredith Hoggatt, Julia Hoeh				Start Time: 17:40			End Time: 20:30		
Conditions:	Time 1740	Temp 60	Wind 0	Clouds 0	Time 1940	Temp 39	Wind 1	Clouds 0	Time 1940	Temp 39	Wind 1	Clouds 0
Moon Effect: waxing gibbous	Start: 1740 Stop: —				Land Use: Urban / Agriculture / Forest (43) / Water (51) / Wetland (61) / Barren *(describe)*:							

NETS/TRAPS:	A: 1x3Hx9m	B: 1x3Hx12m	C: 1x3Hx12m	D: 1x2Hx12m	E: 1x2Hx9m	F: 1x2Hx9m
Pool size WxL	Na	Na	Na	Na	Na	Na
Swoop WxL	Na	Na	Na	Na	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

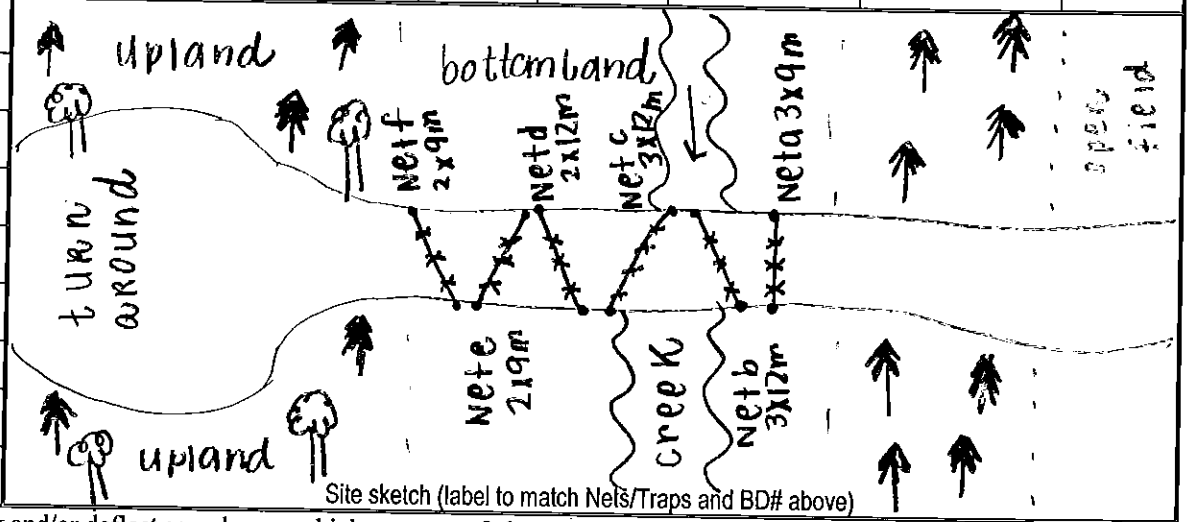
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

Mixed/upland & bottomland / managed mature / natural / clutter med(3)

Loblolly pine, sweet gum, bald cypress, tupelo, sweet bay magnolia, american holly

Community type: coastal plain small, stream swamp blackwater subtype



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

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

ES data KC 3/6/18 bat long 3/8/18 USFWS 3/9/2018

Samples 3/6/2018 DR

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Carteret Site# 2-Carteret Night# 5 Site Name: Swamp Mills Road FS Rd 177 Date: 2/27/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2					No bats							
3												
4												
5												
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19												
20												

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: coastal plain small stream swamp, blackwater subtype

A1. 35.04365 -77.06709
B2. 35.04306 -77.06747
C3. 35.04299 -77.06749
D4. 35.04228 -77.06756
E5. 35.04397 -77.06718
F6. 35.04419 -77.06725
} GPS mist net sites

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	CRAVEN	Site#:	6 CRAVEN	Night#:	1	Site Name:	FS 1214 Chestnut Orchard	Date:	1-10-2018
Latitude:	35.044312	Longitude:	-77.068239					Datum: NAD83	Elevation: 33ft	ID By:	Kristi Conforti
Observers:	DREW POWELL							Start Time:	16:50	End Time:	22:53

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	17:02	62.5	0	100	1943	51	0	25	2150	46	0	0

Moon Effect: waning crescent — Start: — Stop: —

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

NETS/TRAPS:	A: 1x3Hx12m	B: 1x2Hx9m	C: 1x2Hx6m	D: 1x3Hx12m	E: 1x3Hx12m	F: 1x2Hx6m
Pool size WxL	Na	unlimited	Na	unlimited	Na	Na
Swoop WxL	Na	unlimited	Na	unlimited	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

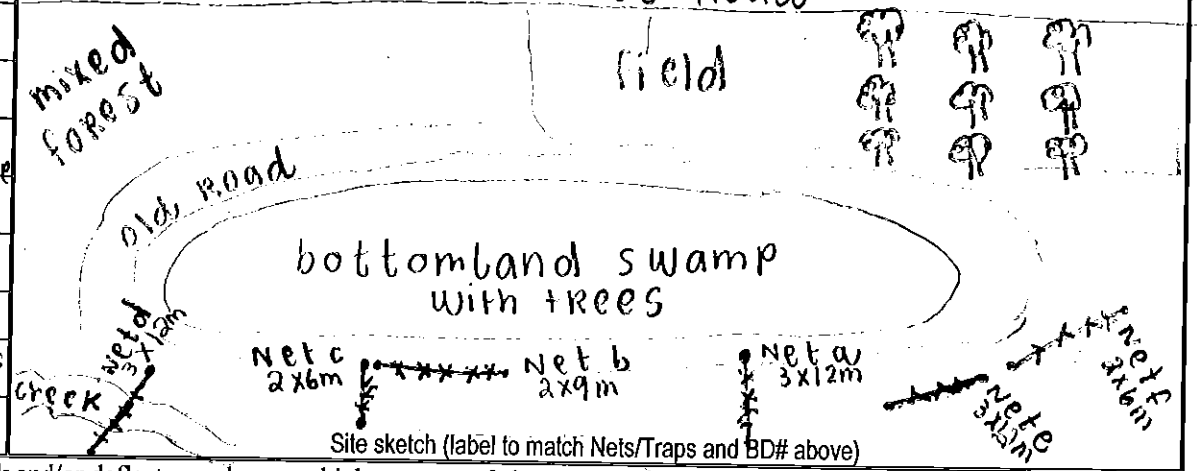
Site Description, other than Habitat Info covered on pg 3:

mixed/upland & bottomland/managed mature forest/medium clutter

Swamp = Bald cypress, tupelo, gum, bush, maple swamp bay; water sweet tetterned

upland = Sweet tobloilly white S. red smilax gum pine, oak, oak, smalii, giant hightush red swamp cane, blueberry, bay, bay,

Community type = Mesic mixed hardwoods and Coastal Plain Subtype: Coastal main small stream swamp black water subtype



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

ES data KC 1/31/2018 batlong KC 2/1/2018 USFWS KC 3/13/18

samples K.C. 1/31/2018

Bat Survey Data Form

Project: NCDOT NVEB Research Project County: Craven Site# 6-Craven Night# 1 Site Name: FS 1214 Chestnut Orchard Date: 1/10/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1752	LABO	m	A	NR	40	16.5-7	9.5	A	2m	NC-WRC A3222 / 0	NIKKI FUR 6-Craven1
2												
3												
4												
5												
6												
7												
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16												
17												
18												
19												
20												

temp 53

6 - Craven 1/10/2018

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

Pine / hardwood / (mixed) / unforested

(Upland) (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype & Coastal Main small stream swamp, blackwater subtype

Bat Survey Data Form

Page _____ of _____

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

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

A 35.04045, -77.06656
B 35.04165, -77.06658
C 35.04181, -77.06675
D 35.04182 -77.06609
E 35.04155, -77.06576
F 35.04142, -77.06544

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NHEB research project	County:	Craven	Site#:	7	Night#:	1	Site Name:	North Little Rd NCWRC WMA	Date:	1-10-2018					
Latitude:	35.040608	Longitude:	-77.066028					Datum:	NAD83	Elevation:	33'	ID By:	Dottie Brown			
Observers:	Julia Hocht Meredith Hannah							Start Time:	17:03			End Time:	21:15			
Conditions:	Time	17:10	Temp	59	Wind	0	Clouds	75	Time	19:47	Temp	51°F	Wind	1	Clouds	25
	Time	20:15	Temp	40°F	Wind	0	Clouds	25								
Moon Effect:	34.5% Waning Crescent	Start:	NA	Stop:	NA	Land Use: Urban / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*: 43 61										

NETS/TRAPS:	A: 1X3H-12m	B: 1X3H-12m	C: 1X3H-12m	D: 1X2H-9m	E: 1X2H-9m	F: 1X2H-12m
Pool size WxL	NA	NA	NA	NA	NA	NA
Swoop WxL						
Photo? or #						

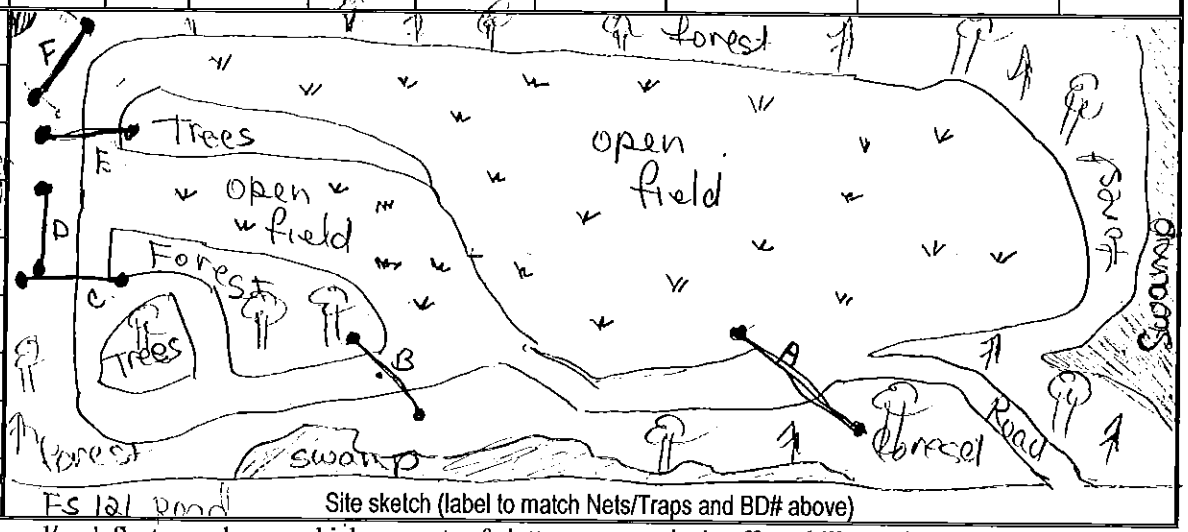
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

hardwood + mixed / upland + bottomland / managed (burned) / mature forest / Natural / (3) Clutter

white sweet loblolly Sapp
Oak hardwood = oak, Gum, Pine, sourwood, oak
red smilax American Rich bush ilex dog hickory
bay, Smilax, holly, blueberry, gallberry, hobble oak
Bald Water Red Swamp Peter wax
wetland - Cypress, tupelo, maple, bay, bush, myrtle

Community = Dry-Mesic Oak-Hickory Forest (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp (Blackwater subtype)



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

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

ES data KC 2/1/2018 LatLong KC 2/2/2018 USFWS KC 3/13/2018 Samples 3/7/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB research project County: Craven Site# 7-Craven Night# 1 Site Name: North Little Road NCWRC WMA Date: 1-10-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	2055	MYAN	M	A	TD	38	1/4	6.5	C	1.5m	NCWRC A3108 / 0	1 Pinhole Left wing WNS swab #7
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

50°F

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

Pine /(hardwood)/(mixed)/ unforested

(Upland)/(bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A1. 35.04365 -77.06709
B2. 35.04306 -77.06747
C3. 35.04299 -77.06749
D4. 35.04228 -77.06756
E5. 35.04397 -77.06718
F6. 35.04419 -77.06725

3 GPS mist net sites

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	6 Craven	Night#:	2	Site Name:	FS 121A Chestnut Orchard	Date:	1-20-18
Latitude:	35.044312	Longitude:	-77.068239					Datum: NAD 83	Elevation: 33'	ID By:	Kristi Confortin
Observers:	Drew Powell							Start Time: 1701		End Time:	2305

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1728	58	0	25	2000	44	0	0	2145	41	0	0

Moon Effect: Waxing Crescent — Start: 1700 — Stop: 2100

Land Use: Urban / Agriculture / (Forest 4-43) / Water / (Wetland 6-61) / Barren *(describe)*:

NETS/TRAPS:	A: 1x3H x12m	B: 1x2H x9m	C: 1x2H x9m	D: 1x2H x6m	E: 1x3H x12m	F: 1x3H x6m
Pool size WxL	Na	Na	Na	unlimited	unlimited	unlimited
Swoop WxL	Na	Na	Na	Unlimited	Unlimited	Unlimited
Photo? or #	yes	yes	yes	yes	yes	yes

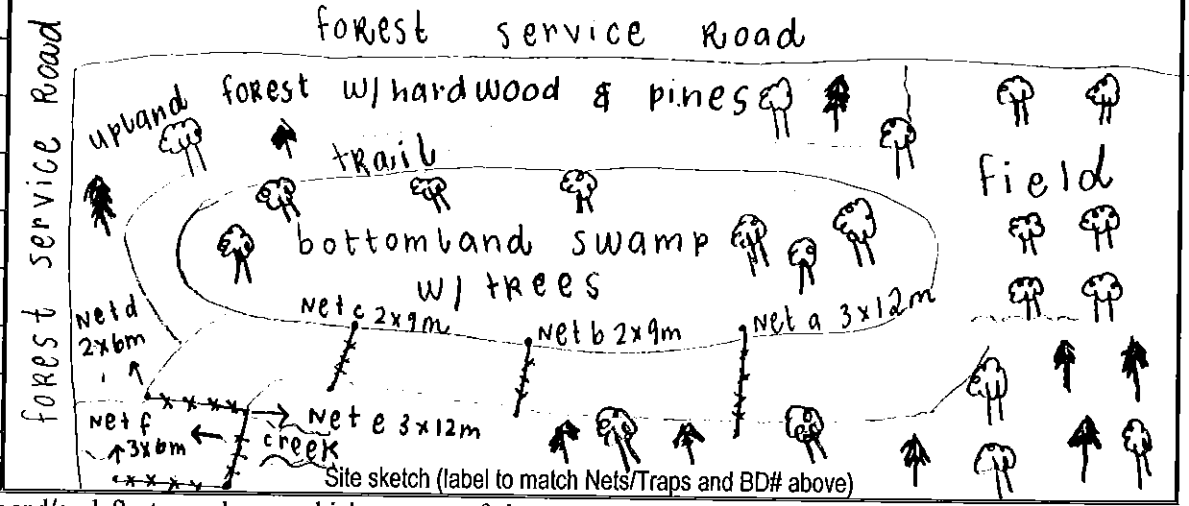
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland & bottomland/managed/mature forest/medium clutter/

Bald water sweet Fetterbush Swamp = cypress, tupelo, gum, Reed Swamp maple, bay sweet tobolly white & red swamp Upland = gum, Ane oak, oak, bay, Smilax grant, high bush red Small, cane, blueberry, bay

Community type: mesic mixed hardwoods coastal plain subtype and coastal main small stream swamp blackwater subtype



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

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

ES data KC 1/31/2018 bat LONG KC 2/1/18 USFWS 3/2/18 KC Samples 3/7/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research project County: Craven Site# 6-Craven Night# 2 Site Name: Fsiaia chestnut orchard Date: 1/20/18

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

6- Craven 1/20/2018

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal main small stream swamp, blackwater subtype

Bat Survey Data Form

Page _____ of _____

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

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

A 35.04045, -77.06656
B 35.04165, -77.06658
C 35.04181, -77.06625
D 35.04182, -77.06609
E 35.04155, -77.06576
F 35.04142, -77.06549

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project: NCDOT NLEB Research Project	County: Craven	Site#: 7 craven	Night#: 2	Site Name: North Little Rd NCWRC WMA			Date: 1-20-2018		
Latitude: 35.040608	Longitude: -77.066028			Datum: NAD 83	Elevation: 33'		ID By: Dottie Brown		
Observers: Julia Hoeh + Meredith Hoggatt				Start Time: 17:20			End Time: 22:00		
Conditions:	Time 1720	Temp 54°	Wind 0	Clouds 0	Time 2030	Temp 43°	Wind 0	Clouds 0	Time 2210	Temp 40	Wind 0	Clouds 0

Moon Effect: waxing crescent — Start: — Stop: —

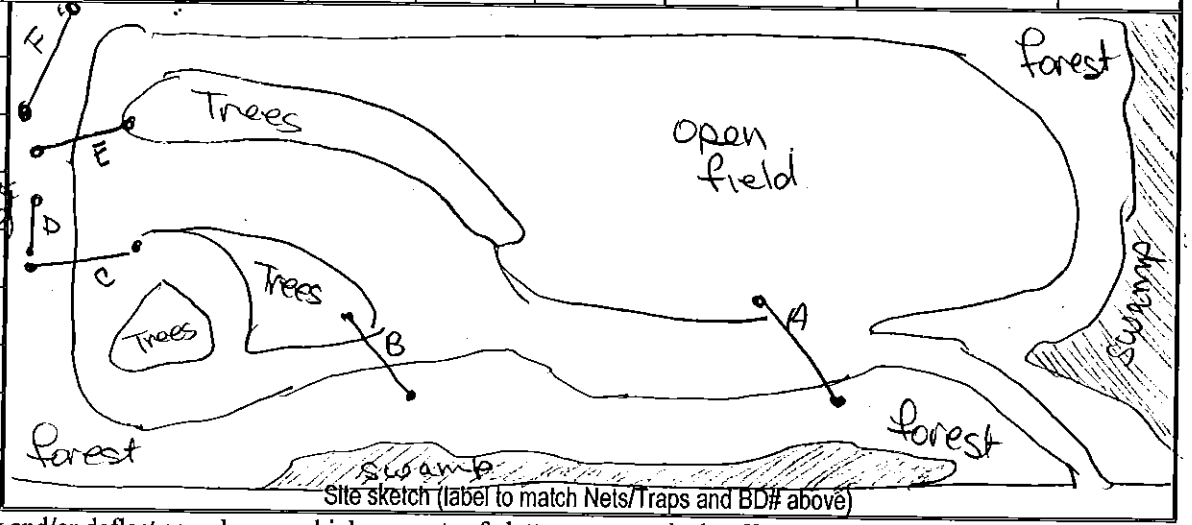
Land Use: Urban / Agriculture / (Forest) 43 / Water / (Wetland) 61 / Barren *(describe)*:

NETS/TRAPS:	A: 1X3H-12m	B: 1X3H-12m	C: 1X3H-12m	D: 1X2H-9m	E: 1X2H-9m	F: 1X2H-12m
Pool size WxL	NA	NA	NA	NA	NA	NA
Swoop WxL						
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

Hardwood / Upland + managed / mature / & mixed / bottomland / (burned) / forest / natural / (3) clutter / Oak hardwood = White Sweet Loblolly Turkey Oak oak, gum, Pine, sour wood, Sized Red Similax American high bush Ilex dog hobble oak, bay, Smalii holly, blueberry, glabra, Bald Water Reed swamp Better wax Wetland = cypress, tupelo, maple, bay, bush, myrtle community type - Dry-Mesic Oak-Hickory Forest (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp Blackwater Subtype



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

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

ES data KC 2/1/2018 batbong KC 2/2/18 USFWS KC 3/13/18

Samples 3/7/2018

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# CRAVEN 17 Night# 2 Site Name: North Little Rd NCWRC WMA Date: 1-20-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1915	NYHU	M	A	NL	35	17 / 7.95	9.25	B	3m	ESGA 451 / O	Bald spot on right dorsal side scar on right ear
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Temp 43°F

other species: Wood thrush, American woodcock

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

Pine /hardwood/mixed/ unforested

Upland/bottomland

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

Mature forest/ <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A 35.04045, -77.06656
B 35.04165, -77.06658
C 35.04181, -77.06625
D 35.04182, -77.06609

E 35.04155, -77.06576
F 35.04142, -77.06549

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	7 Craven	Night#:	3	Site Name:	North Little Rd NCWRC WMA	Date:	1-21-2018
Latitude:	35.040608	Longitude:	-77.066028					Datum:	NAD 83	Elevation:	33'
Observers:	Julia Hoch + Meredith Waggatt									ID By:	Dottie Brown
Conditions:	Time 1720	Temp 58°F	Wind 1	Clouds 0	Time 20:17	Temp 48	Wind 0	Clouds 0	Start Time: 17:20	End Time:	22:25
	Time 22:25	Temp 44 °F	Wind 0	Clouds 0							

Moon Effect: Waxing crescent — Start: 1720 — Stop: —

Land Use: Urban / Agriculture / (Forest) 43 / Water / (Wetland) 6 / Barren *(describe)*:

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

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

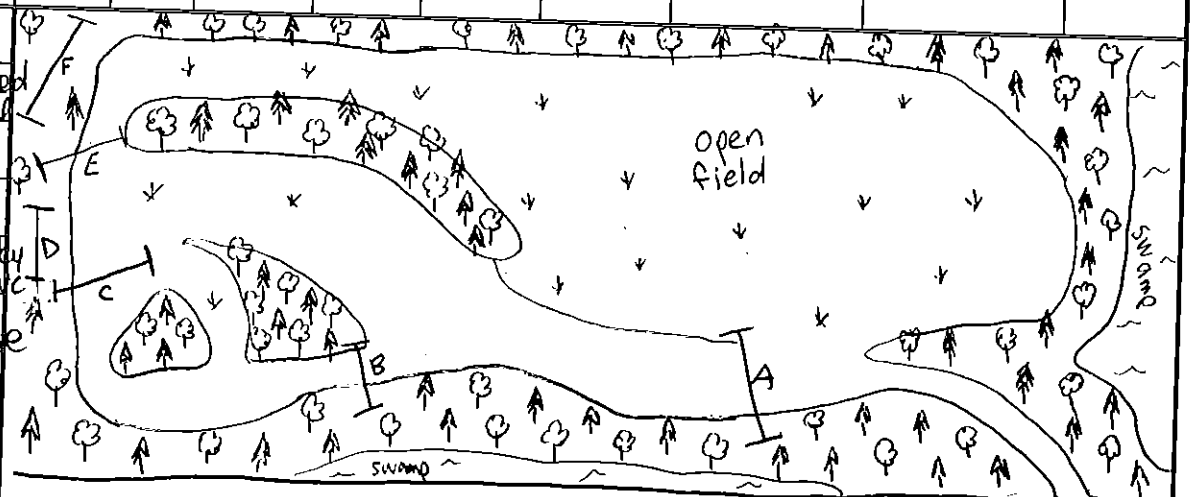
Site Description, other than Habitat Info covered on pg 3:

hardwood + mixed/upland + bottomland/managed burned mature forest/natural/(3) clutter

Oak hardwood = white sweet loblolly oak gum, pine, sourwood, sired red smilax Amendin Highbush Ilex dog turkey oak, bay, Smalii, holly, blueberry, Glabra, Poddola oak

wetland = Bald cypress, tupelo, maple, bay, bush, myrtle water Red sabatp water tupelo

Community = Dry Mesic Oak-Hickory Forest (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp: Black water Subtype



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

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

ES data KC 2/1/2018 bat long KC 2/2/18 USFWS KC 3/13/18

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 7-Craven Night# 3 Site Name: North Little Road / NCWRC WMA Date: 1-21-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1822	MYAU	M	A	TD	38	15 / 8	7	A	3m	NCWRC A3287 / 0	KSU Guano #57
2												pinholes left & right wing
3												WNS Swab #26
4												Fossle Hair #25-NC
5												Tissue A60 NC
6												AB#9 19:03
7												Photo: 120-5523 - 120-5533
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

530

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A1. 35.04365 -77.06709
B2. 35.04306 -77.06747
C3. 35.04299 -77.06749
D4. 35.04228 -77.06756
E5. 35.04397 -77.06718
F6. 35.04419 -77.06725

3 GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NVER Research Project	County:	Craven	Site#:	6 Craven	Night#:	3	Site Name:	FS 121a chestnut orchard	Date:	1-21-2018
Latitude:	35.044312	Longitude:	-77.068239					Datum: NAD 83	Elevation: 33ft	ID By:	Krish Conforlin
Observers:	Drew Powell							Start Time: 17:15		End Time:	2320

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	17:15	63.5	0	0	1948	47	0	0	2213	43	0	0

Moon Effect: waxing Crescent — Start: — Stop: —

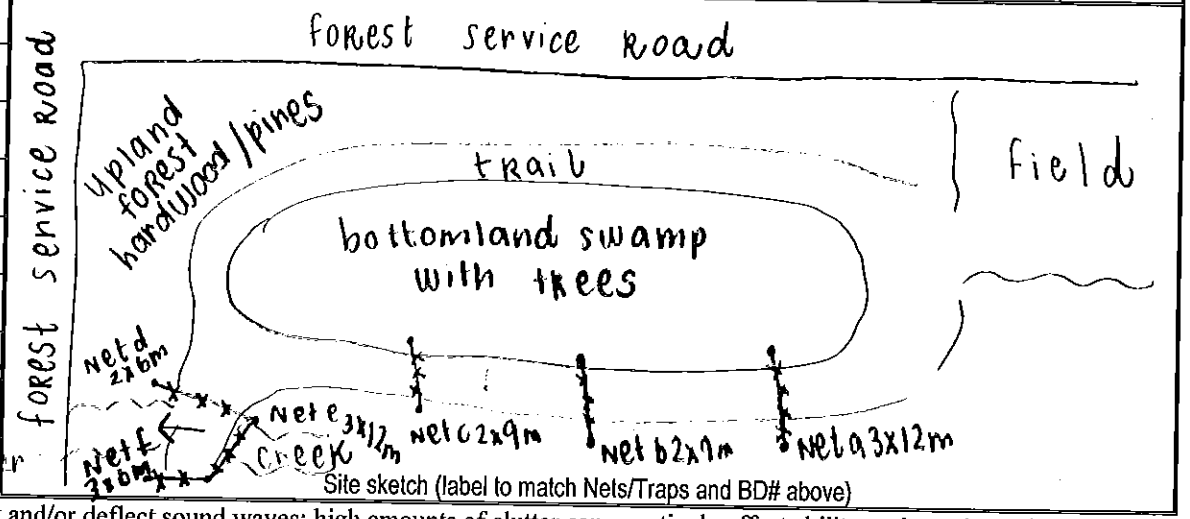
Land Use: Urban / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*: 4-43 6-b1

NETS/TRAPS:	A: 1x3Hx12m	B: 1x2Hx9m	C: 1x2Hx9m	D: 1x2Hx6m	E: 1x3Hx12m	F: 1x3Hx6m
Pool size WxL	NA	NA	NA	Unlimited	unlimited	unlimited
Swoop WxL	NA	NA	NA	Unlimited	Unlimited	Unlimited
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland & bottomland/managed/
mature forest/medium clutter
swamp = bald cypress, water tupelo, sweet gum, fetterbush, red maple,
swamp bay
upland: sweet gum, loblolly pine, white oak, sired oak, swamp bay, smilax, saint john's wort, fetterbush, highbush blueberry, red bay
community type: coastal plain subtype and coastal mainsmall stream swamp, blackwater subtype



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

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

ES data KC 1/31/2018 Lat long KC 2/1/18 USFWS KC 3/12/18

Survey 3/7/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 6-Craven Night# 3 Site Name: fs121a chestnut orchard Date: 1-21-2018

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

6 - Craven 1/21/2018

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype & coastal main small stream swamp, blackwater subtype

Bat Survey Data Form

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

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

A1. 35.04365 -77.06709
B2. 35.04306 -77.06747
C3. 35.04299 -77.06749
D4. 35.04228 -77.06756
E5. 35.04397 -77.06718
F6. 35.04419 -77.06725

3 GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research project	County:	Craven	Site#:	6 Craven	Night#:	4	Site Name:	Fsida chestnut orchard	Date:	1-22-2018
Latitude:	35.044312	Longitude:	-77.068239					Datum: Nad83	Elevation: 33ft	ID By:	KRISH Conforth
Observers:	Drew Powell							Start Time:	1720	End Time:	2305

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1720	65.5	0	75	2000	55.5	0	75	22:11	55.5	0	25

Moon Effect: waxing crescent	Start: 1820 Stop: —	Land Use: Urban / Agriculture / (Forest) 4-43 / Water / (Wetland) 6-61 / Barren *(describe)*:	

NETS/TRAPS:	A: 1x3Hx12m	B: 1x2Hx9m	C: 1x2Hx9m	D: 1x2Hx6m	E: 1x3Hx12m	F: 1x3Hx6m
Pool size WxL	Na	Na	Na	Unlimited	Unlimited	unlimited
Swoop WxL	Na	Na	Na	unlimited	unlimited	Unlimited
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

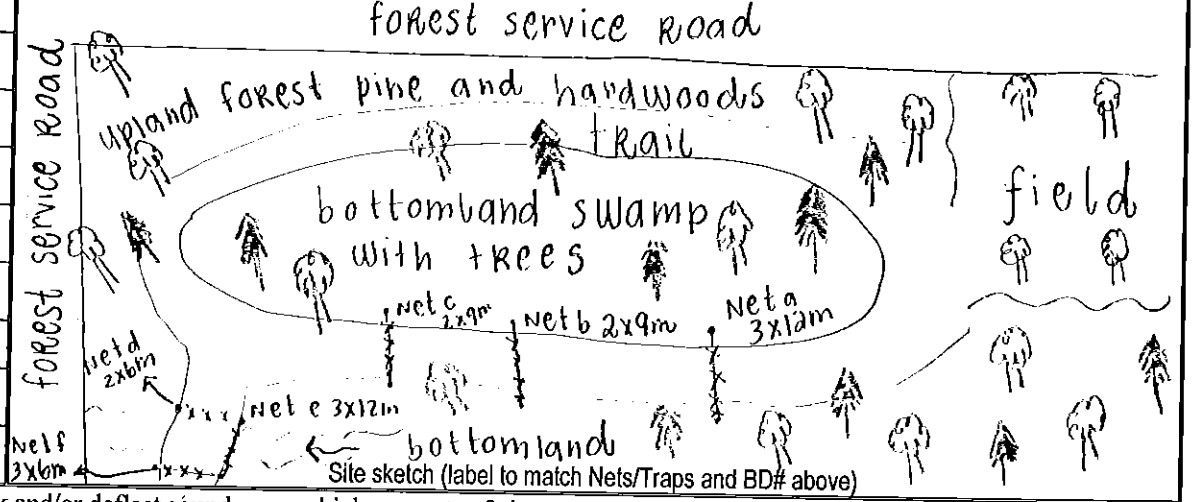
mixed/upland & bottomland / managed / mature forest / medium clutter

swamp: bald cypress / water tupelo / sweet gum / fetterbush / Red maple / swamp bay

upland: sweet gum / loblolly pine / white oak / sired oak / swamp bay

smilax / gall cane / high bush berry / red bay

community type: mesic mixed hardwoods, Coastal plain subtype & Coastal main small stream swamp, blackwater subtype



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

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

ES data KC 1/31/2018 batwing KC 2/1/18 USFWS KC 2/12/18 Samples KC 1/31/2018

Bat Survey Data Form

Project: NC DOT NLEB Research project County: Craven Site# 6-Craven Night# 4 Site Name: Estela Chestnut Orchard Date: 1/22/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	2018	myau	f	A	NR	40	15-7	8	A	2.5m	NO 10	WNS swab 34 did not band injury	55
2	2137	myau	m	A	TD	37	14.5-7.5	7	A	0m	NC-WRC A3221 10	WNS swab 58 WNS gvano 50 Jesse tissue A75-NC	55
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

6- Craven 1/22/2018

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal main small stream swamp, blackwater subtype

Bat Survey Data Form

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

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

A 35.04015, -77.06656
B 35.04165, -77.06658
C 35.04181, -77.06625
D 35.04003, -77.06648
E 35.04155, -77.06576
F 35.04142, -77.06549

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project: NCDOT TIEB Research Project		County: Craven		Site#: 7 Craven		Night#: 4		Site Name: North Little NWRC WMA				Date: 1-22-2018			
Latitude: 35.040608		Longitude: -77.066028						Datum: NAD83		Elevation: 33'		ID By: Dottie Brown			
Observers: Julia Hoeh + Meredith Hogatt								Start Time: 17:20				End Time: 22:31			
Conditions:	Time 1720	Temp 64	Wind 1	Clouds 100%	Time 2030	Temp 57	Wind 1	Clouds 50%	Time 2231	Temp 57.5°	Wind 1	Clouds 100%			
Moon Effect: waxing crescent	Start: — Stop: —				Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43										
NETS/TRAPS:	A: 1×3H×12m		B: 1×3H×12m		C: 1×3H×12m			D: 1×2H×9m		E: 1×2H×9m		F: 1×2H×12m			
Pool size WxL	NA		NA		NA			NA		NA		NA			
Swoop WxL															
Photo? or #															

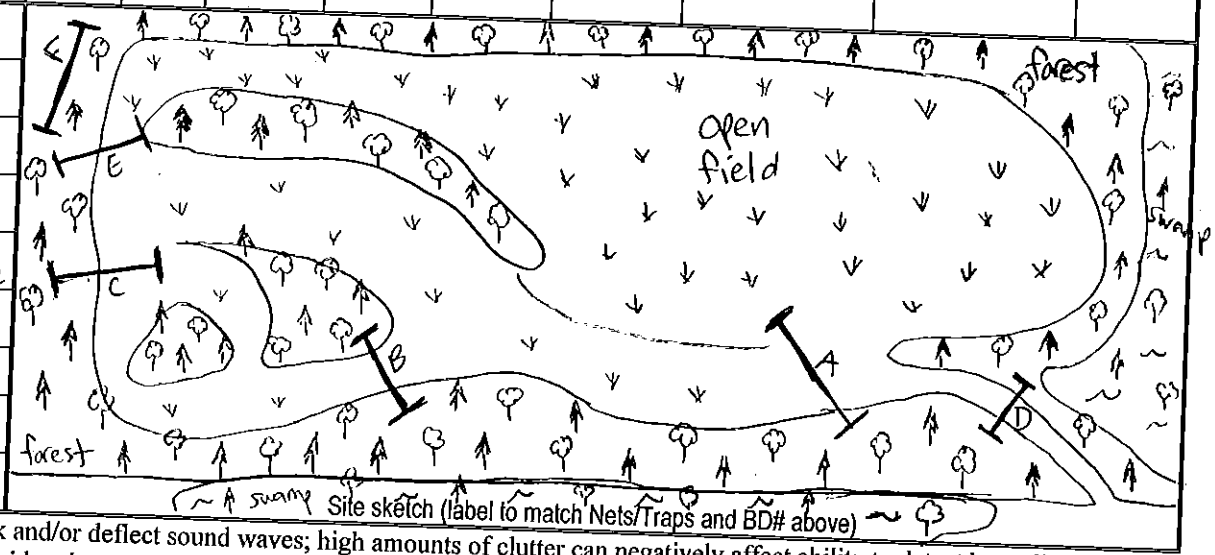
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

hardwood / uplands / managed (thinned) / mature forest / natural / (3) clutter
+mixed / bottomland

oak hardwood - white oak, sweet gum, loblolly pine, turkey oak, sourwood
sired red smilax American holly bush ilex dog hobble
oak, bay, smalii, holly, blueberry, glabra, hobble
wetland - bald cypress, tupelo, maple, bay, water red swamp fetter wax bush, myrtle

Community type - Dry-Mesic Oak-Hickory Forest (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp: Blackwater Subtype



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

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

ES data KC 1/31/2018 bat bond KC 2/2/18 USFWS KC 2/13/18 Net D moved

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 7-Craven Night# 4 Site Name: North Little Road NCWRC WMA Date: 1-22-208

	TIME	SPECIES	Sex	Age	P/L/PL/NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	Temp
1	19:10	NYHU	m	A	NR	35	8/17	9	B	2.5m	recapture / 0	re-capture ESGA 451	57°
2	19:27	NYHU	m	A	NR	35	8/15.5	7.5	B	2m	ESGA 452 / 0	small bruise on right forearm	57°
3	19:53	EPFU	F	A	NR	47	8/23	15	D	1.5m	ESGA 1048 / 0	WNS-swab 11 WNS-guano 25	56°
4	20:30	EPFU	M	A	NR	44	8/22.5	14.5	A	3m	NCWRC A1794 / 0	wns-swab 15 Nikki fur #2 wns-guano 4	57°
5	22:05	LASE	M	A	NR	42	8/17	9	A	4m	NA / NA	large hematoma right ventral forearm	57°
6	22:20	NYHU	F	A	NR	36	8/16.5	8.5	B	4m	ESGA 133 / 0		57°
7	23:10	LABO	M	A	NR	38	7/18	11	D	.5m	No Band / 0	Captured while closing nets	
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A 35.04045, -77.06654
B 35.04165, -77.06658
C 35.04181, -77.06625
D 35.04003, -77.06648
E: 35.04155, -77.06576
F: 35.03964, -77.06581

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project: NCDOT NLEB Research Project	County: Craven	Site#: 7-Craven	Night#: 5	Site Name: North Little NCWRC WMA		Date: 1-23-2018			
Latitude: 35.040608	Longitude: -77.066028			Datum: NAD83	Elevation: 33'	ID By: Dottie Brown			
Observers: Julia Hoeh, Meredith Hoggatt				Start Time: 1725		End Time: 22:25			
Conditions:	Time 1725	Temp 66°F	Wind 1	Clouds 0	Time 2020	Temp 55°F	Wind 2	Clouds 0	Time 22:25	Temp 51.5	Wind 1	Clouds 0
Moon Effect: Waxing Crescent	Start: 1725	Stop: 21:00		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43								

NETS/TRAPS:	A: 1x3Ht x12m	B: 1x3Ht x12m	C: 1x3Ht x12m	D: 1x2Ht x9m	E: 1x2Ht x9m	F: 1x2Ht x12m
Pool size WxL						
Swoop WxL	NA	NA	NA	NA	NA	NA
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

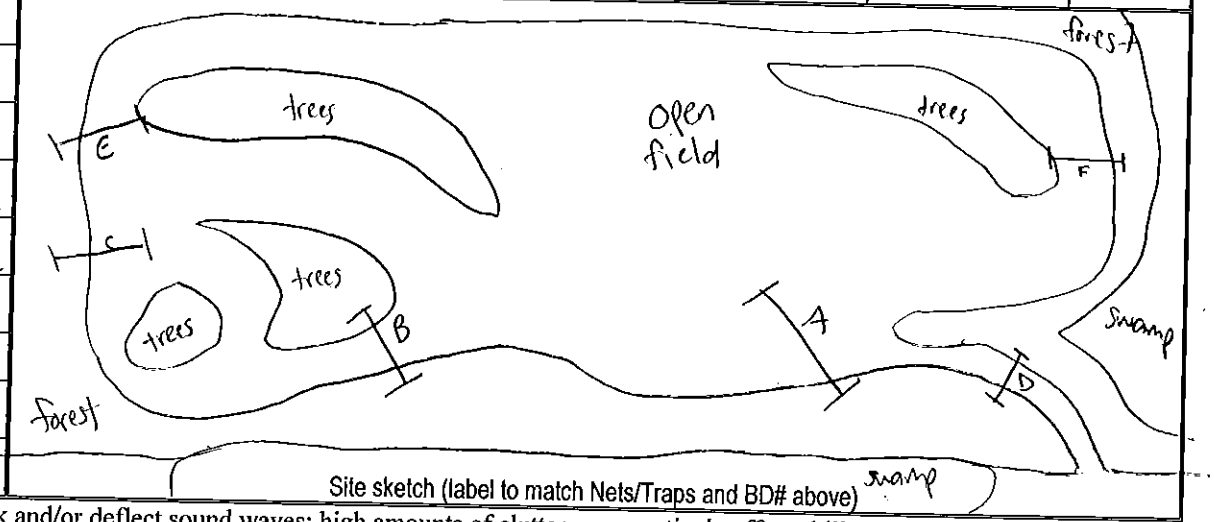
Site Description, other than Habitat Info covered on pg 3:

hardwood / upland & mixed / bottomland / managed (burned) / mature forest / natural (3) clutter

oak hardwood = white oak, sweet gum, loblolly pine, turkey oak, sourwood, sired red oak, smilax, American holly, high bush blueberry, ilex glabra, dog hobble, bay, smalii, bald water red oak, swamp tupelo, wax myrtle

wetland = cypress, dupelo, maple, bay, rush

Community type - Dry-Mesic Oak-Hickory Forest (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp: Blackwater Subtype



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

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

ES data KC 1/31/2018 batlong KC 2/2/2018 Net F moved USFWS KC 3/13/18 samples KC 4.24.2018

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 7-Craven Night# 5 Site Name: North Little NCWRC WMA Date: 1-23-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	
1	1812	MYAU	M	A	TD	37	8/14	6	D	2m	NCWRC A3120 / O	WNS swab #9 Jessi #A54 Nikki fur sample #3	61°
2	1840	LACI	M	A	NR	54	8/30	22	E	1.5m	NCWRC A1793 / O	left elbow hematoma right wing 2 pinholes Nikki fur #4	58°
3	1842	PESU	F	A	NR	34.5	8/13.5	5.5	C	4m	ES GA 332 / O	Pinhole right wing Nikki Br #6 Nikki DNA #6 WNS swab # 10	58°
4	1920	LASE	F	A	NR	41	8/19	11	A	3m	NC-WRC 13109 / O	healing tear left wing + right wing	56.5°
5	1957	MYHU	M	A	NR	35	8/15	7	B	3m	FS GA 1152 / O	Recapture from 1/22/18	55.5°
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine /(hardwood)/(mixed)/ unforested

(Upland)/ (bottomland)

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

(Mature forest)/ <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A 35.02713 -77.04729
B 35.02739 -77.04677
C 35.02748 -77.04650
D 35.02751 -77.04636
E 35.02750 -77.04622
F 35.02747 -77.04617

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project: NCDOT NLEB Research Project	County: Craven	Site#: craven	Night#: 1	Site Name: NCWRC gamebird mushroom Pond			Date: 1-24-2018		
Latitude: 35.027270	Longitude: -77.046536			Datum: NAD83	Elevation: 40'		ID By: Dottie Brown		
Observers: Julia Hoch, Meredith Hoggatt				Start Time: 17:25			End Time: 19:50		
Conditions:	Time 1725	Temp 54°	Wind 0	Clouds 10%	Time 1845	Temp 50°	Wind 0	Clouds 0	Time 19:50 Temp 40°F Wind 0 Clouds 0
Moon Effect: Half Moon	Start: 1725	Stop: —		Land Use: Urban / Agriculture / (Forest) 4-43 / Water / (Wetland) 6-61 / Barren *(describe)*:					

NETS/TRAPS:	A: 1×2ft×4m	B: 1×2ft×6m	C: 1×3ft×9m	D: 1×3ft×12m	E: 1×3ft×12m	F: 1×2ft×9m
Pool size WxL	NA	NA	30×40	30×40	NA	NA
Swoop WxL			unlimited	unlimited		
Photo? or #			yes	yes		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

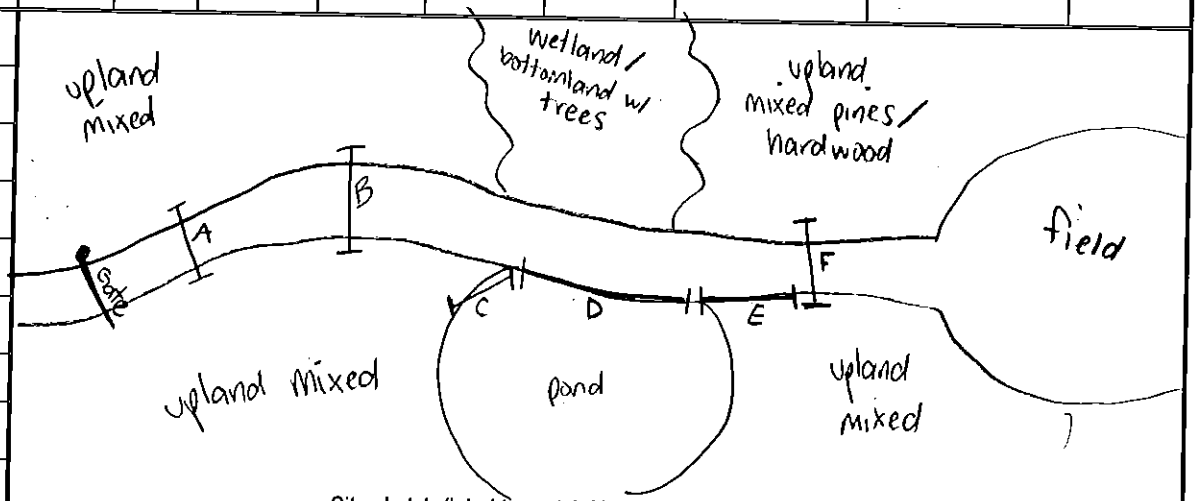
Site Description, other than Habitat Info covered on pg 3:

bottomland/mixed/mature/managed

natural, medium (3) cover

sweetgum, loblolly pine, cypress, maple, oak, bald red white water s. red oak, oak,

habitat communities: mesic mixed hardwoods, coastal plain subtype & coastal plain small stream swamp, blackwater subtype



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

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

ES data KC 1/31/2018 LatLong KC 2/2/2018 USFWS KC 3/13/2018

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 1-Craven Night# 1 Site Name: NCWRC gameland Mushroom Pond Date: 1-24-2018

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

the species is not swamp sparrow

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

Pine / hardwood /(mixed)/ unforested

Upland /(bottomland)

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

(Mature forest)/ <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype.

A 35.02739, -77.041677 E 35.02750, -77.04622
B 35.02750, -77.04637 F 35.02741, -77.04617
C 35.02748, -77.04650
D 35.02751, -77.04677

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	1-Craven	Night#:	2h	Site Name:	NCWRC Gameland Mushroom Pond	Date:	1-26-2018				
Latitude:	35.027270	Longitude:	-77.046536					Datum:	NAD83	Elevation:	40'	ID By:	Dottie Brown		
Observers:	Julia Hoeh, Meredith Hoggatt							Start Time:	1725			End Time:	19:47		
Conditions:	Time	1725	Temp	50	Wind	0	Clouds	0	Time	19:23	Temp	40°	Wind	0	Clouds	0	Time	19:47	Temp	37°	Wind	0	Clouds	0
Moon Effect: waxing gibbous	Start:	1725	Stop:	1947	Land Use: Urban / Agriculture / Forest 4-43 / Water / Wetland 6-6 / Barren *(describe)*:																			

NETS/TRAPS:	A: 1x2h1x9m	B: 1x2h1x6	C: 1x3h1x9m	D: 1x3h1x12m	E: 1x3h1x12m	F: 1x2h1x9m
Pool size WxL	NA	30x40	30x40	30x40	30x40	N.A
Swoop WxL		unlimited	unlimited	unlimited	unlimited	
Photo? or #		yes	yes	yes		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

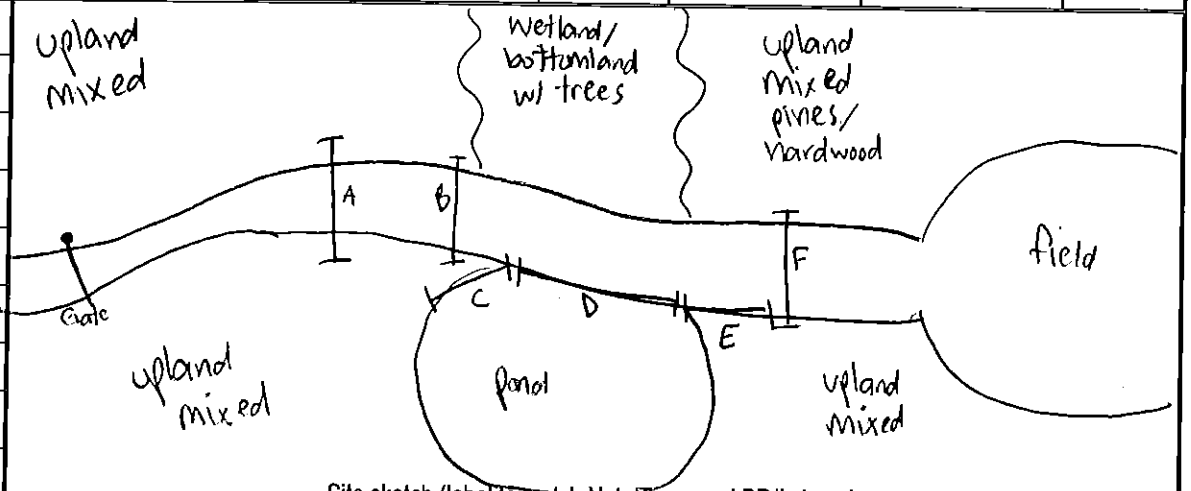
Site Description, other than Habitat Info covered on pg 3:

bottomland/mixed/mature/managed

natural, medium (3) cover

sweetgum, loblolly, pine, bald cypress, red maple, white oak, water oak, s. red oak

habitat community type: mesic mixed hardwoods, coastal plain subtype = coastal plain small stream swamp, black water subtype



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

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

ES data KC 1/31/2018 USFWSKC moved net A, made net B 9m double bat long KJC 2/21/18 Samples 3/6/2018 DB

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 1-Craven Night# 2 Site Name: NCWFC Gameland Mushroom Pond Date: 1-26-2018

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

other species in net: Wood thrush, swamp sparrow

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, black water swamp.

A 35.02739 -77.04677 E 35.02750 -77.04622
B 35.02750 -77.04637 F 35.02747 -77.04617
C 35.02748 -77.04650
D 35.02751 -77.04677

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	1-Craven	Night#:	3	Site Name:	NCWFC Gameland Mushroom Pond			Date:	1-27-2018		
Latitude:	35.027270	Longitude:	-77.046536					Datum:	NAD83	Elevation:	40'	ID By:	Dottie Brown		
Observers:	Julia Hoeh, Meredith Hoggatt							Start Time:	1720			End Time:	23:30		
Conditions:	Time 1720	Temp 59.5	Wind 0	Clouds 100%	Time 2000	Temp 52°F	Wind 1	Clouds 0	Time 23:00	Temp 53°F	Wind 0	Clouds 100%			
Moon Effect: waxing gibbous	Start: 1752	Stop: 2000			Land Use: Urban / Agriculture / (Forest 4-43) / Water / (Wetland 6-61) / Barren *(describe)*:										

NETS/TRAPS:	A: 1x2ht x9m	B: 1x2ht x6 m	C: 1x3ht x9m	D: 1x3ht x12m	E: 1x3ht x12m	F: 1x2ht x9m
Pool size WxL	NA	30x40	30x40	30x40	30x40	NA
Swoop WxL		unlimited	unlimited	unlimited	unlimited	
Photo? or #		yes	yes	yes	yes	

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

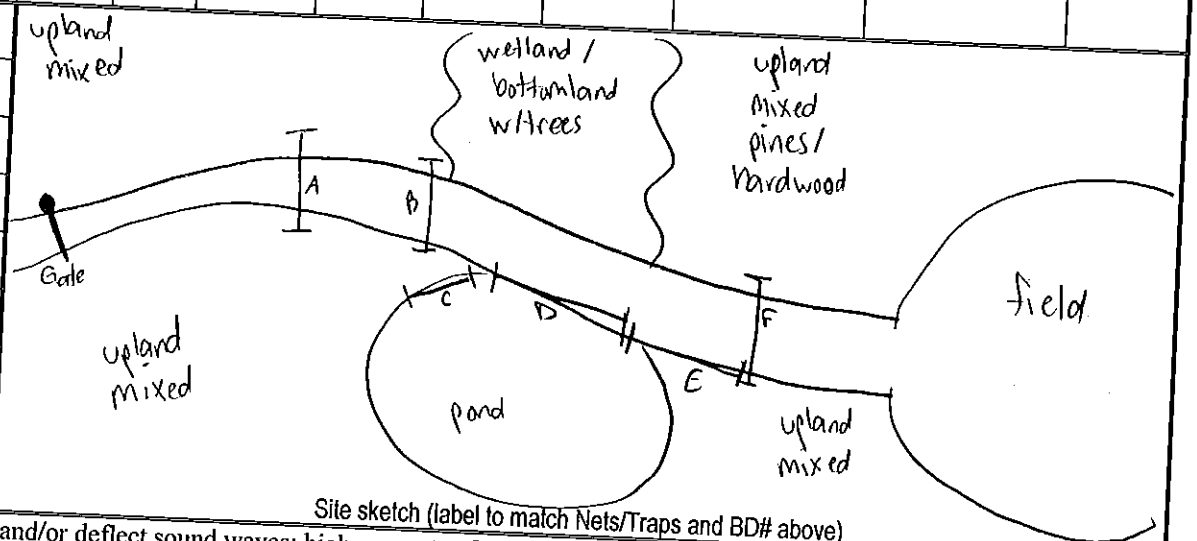
Site Description, other than Habitat Info covered on pg 3:

bottomland / mixed / mature / managed

natural, medium (3) cover

sweetgum, loblolly, pine, bald cypress, red maple, white oak, water oak, s. red oak, oak

habitat - community type: mesic mixed hardwoods, coastal plain subtype or coastal plain small stream swamp, black water subtype



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

*Clutter: Physical/structural components of the environment that block and/or deflect sound waves; high amounts of clutter can negatively affect ability to detect bat calls. Consider all vegetative strata together when estimating cover (shrub, mid and canopy). For **acoustics**, record clutter class estimates in a zone of 20 × 50 m in the direction that the microphone is pointed. For **mist net sites**, record clutter as an average number representing the surrounding forest where all nets were set.

S data KC 3/6/18 bat UONG 3/8/18 KL LASTINS KC 2/12/19

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 1-Craven Night# 3 Site Name: NCWRC Gamelland Mushroom Pond Date: 1-27-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	Temp
1	2012	MYAU	m	A	TD	42	7.75 / 14	6.25	F	1.5m	NCWRC A3110 / 0	small hole right wing WNS swab #18 Nikki Tissue #99 Nikki Hair #100	53°
2													
3	2310.0	MYAU	m	A	TD	40	8 / 14.5	6.50	A	1 m	NCWRC A3102 / 0	wng swab 4 AB9 21:14 KSU guano #80	53°
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, black water swamp type.

A: 35.02734, -77.04677 E: 35.02750, -77.04622
B: 35.02750, -77.04637 F: 35.02747, -77.04617
C: 35.02748, -77.04656 G: 35.02770, -77.04507
D: 35.02751, -77.04677

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	1-Craven	Night#:	4	Site Name:	NCWFC Gameland Mushroom Pond	Date:	2-1-2018				
Latitude:	35.027270	Longitude:	-77.046536					Datum:	NAD 83	Elevation:	40'	ID By:	Dottie Brown		
Observers:	Julia Hoeh, Meredith Huggart							Start Time:	1730			End Time:	22:30		
Conditions:	Time 1730	Temp 60.5°	Wind 2	Clouds 0	Time 2030	Temp 52.5	Wind 2	Clouds 0	Time 22	Temp 53°	Wind 2	Clouds 25%			
Moon Effect:	waning gibbous	Start: 1957	Stop: —	Land Use: Urban / Agriculture / Forest 4-43 / Water / Wetland 6-61 / Barren *(describe)*:											

NETS/TRAPS:	A: 1x2ft x12m	B: 1x2ft x6m	C: 1x3ft x 9m	D: 1x3ft x 12m	E: 1x3ft x12m	F: 1x2ft 9m	G: 1x2ft x9m
Pool size WxL	NA	30x40	30x40	30x40	30x40	NA	NA
Swoop WxL		unlimited	unlimited	unlimited	unlimited		
Photo? or #							

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

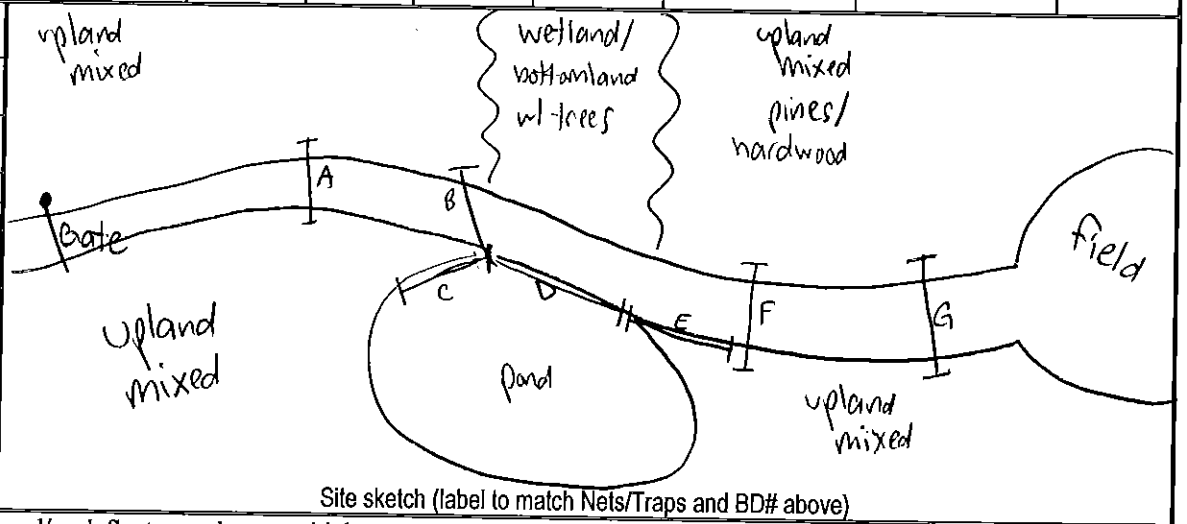
Bottomland / mixed / mature / managed

natural, medium (3) cover

sweetgum, loblolly pine, bald cypress, red maple, white oak water oak, S. red oak

habitat - community type: mesic mixed hardwoods, coastal plain

subtype = coastal plain small stream swamp, black water subtype



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

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

ES data KC 3/6/18 added net G bat bong KC 3/8/18 USFWS KC 3/13/18 Samples 3/6/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 1-Craven Night# 4 Site Name: NCWRC Gameland Mushroom Pond Date: 2-1-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1825	MYAU	F	A	NR	41	8 / 15.25	7.25	G	1.5m	NC WRC A3119 / 0	small spot healing left wing WNS swab #19 Guano #20 Anabat 1842 #9 54.5
2												Nikki fur #10
3												
4												
5	1											
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, black water subtype

A. 35.04045, -77.06656
B. 35.04165, -77.06658
C. 35.04181, -77.06625
D. 35.04003, -77.06648
E. 35.04155, -77.06576
F. 35.03964, -77.06581
} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NUEB Research Project	County:	Craven	Site#:	Craven 7	Night#:	6	Site Name:	North little Road NCWRC WMA	Date:	2-6-2018
Latitude:	35.040608	Longitude:	-77.066028					Datum: NAD83	Elevation: 33'	ID By:	Dottie Brown
Observers:	Drew Powell, Meredith Hoggatt							Start Time: 1721		End Time:	2245

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1721	61	0	25	2028	49	0	0	2245	45	0	0

Moon Effect:	Start:	Land Use: Urban / Agriculture / (Forest) / Water / (Wetland) / Barren *(describe)*:
N/A	N/A	4-43 6-61

NETS/TRAPS:	A:	B:	C:	D:	E:	F:
	1x3Hx12m	1x3Hx12m	1x3Hx12m	1x3Hx9m	1x3Hx9m	1x3Hx12m
Pool size WxL						
Swoop WxL	NA	NA	NA	NA	NA	NA
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

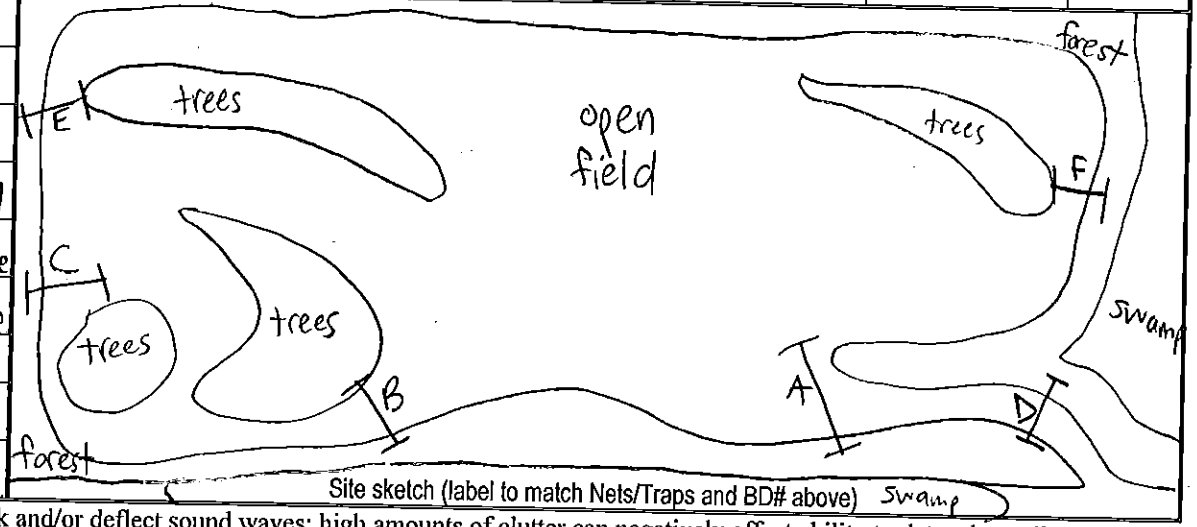
hardwood & mixed / upland & bottomland / managed burned / mature forest / Natural / (3) clutter

oak hardwood = white oak, loblolly pine, sour sweetgum, turkey oak, wood

S. Red Red smilax american highbush ilex dog oak, bay, smilax, holly blueberry, gallberry, huckleberry

Wetland: bald cypress, tupelo, maple, bay, water red swamp fetter wax bush, myrtle

community type: Dry-Mesic Oak-Hickory Forest (Coastal Plain Subtype) and Coastal Plain Small Stream Swamp: Blackwater Subtype



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

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

ES data KC 3/7/18 LatLong 3/8/18 KC USFWS 3/13/18 KC

Bat Survey Data Form

Project: NCDOT NUEB Research Project County: Craven Site# 7 Craven Night# 6 Site Name: North little Road NCWRC WMA Date: 2-6-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	
1	1823	LABO	m	A	NR	40	7.75 / 16.0	8.25	B	0.5m	No Band / O	pinhole left wing/dia Nitki hair #96	53.5°
2	1957	NYHU	F	A	NR	35	7.75 / 15.5	7.75	B	2m	ESGA133 / O	Nitki hair #95	49°
3													
4													
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20													

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

Pine / (hardwood) / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A 35.04045, -77.06656
B 35.04165, -77.06658
C 35.04181, -77.06625
D 35.04003, -77.06648
E 35.04155, -77.06576
F 35.03964 -77.06581

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	7-Craven	Night#:	7	Site Name:	North Little Road NCWRC WMA
Date:	2-9-2018								
Latitude:	35.041608	Longitude:	-77.066028	Datum:	NAD83	Elevation:	33'	ID By:	Dottie Brown
Observers:	Drew Powell, Meredith Hoggard							Start Time:	1740
End Time:	2247								

Conditions:	Time	Temp	Wind	Clouds
	1740	51	1	0
	20:23	45°	0	0
	22:47	44	0	0

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

Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4.43 6.61

NETS/TRAPS:	A: 1x3Ht x12m	B: 1x3Ht x12m	C: 1x3Ht x12m	D: 1x2Ht x9m	E: 1x2Ht x9m	F: 1x2Ht x12m
Pool size WxL	N/A	NA	NA	NA	NA	NA
Swoop WxL						
Photo? or #						

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

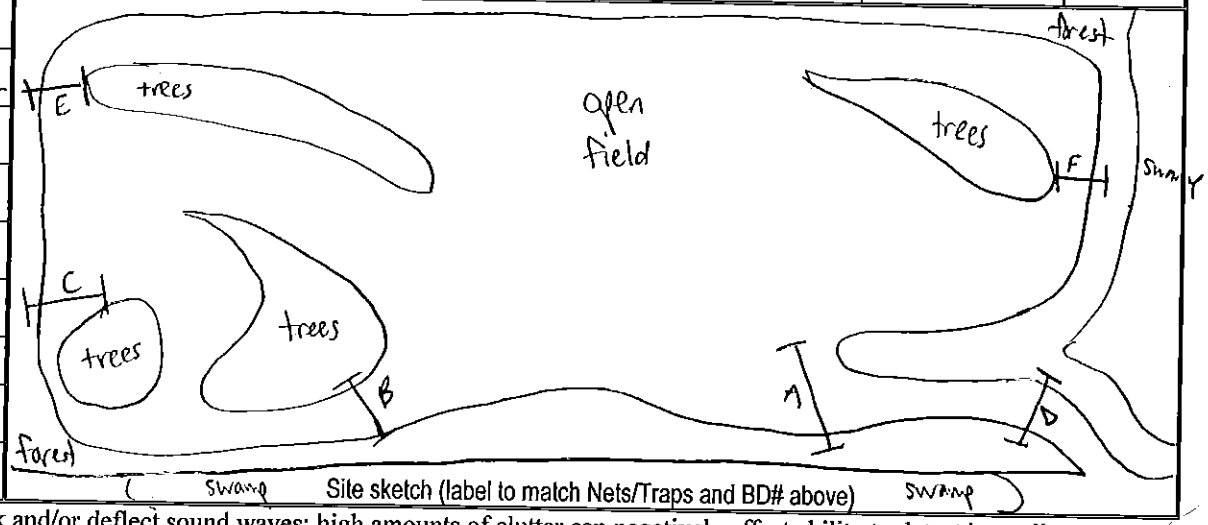
Site Description, other than Habitat Info covered on pg 3:

hardwood / upland & bottomland / managed / burned / mature forest / natural / (3) clutter

oak hardwood = white oak, loblolly pine, sour, s. red, red, sweetgum, turkey oak, wood, oak, bay, smilax, american holly, highbush blueberry, ilex glabra, dog hobble, bald, water, red, swamp, fetter bush, wax myrtle

wetland = cypress, tupelo, maple, bay, bush, myrtle

community type: Dry-Mesic Oak-Hickory Forest (Coastal Plain Subtype) and Coastal plain small stream, swamp; blackwater subtype



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

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

ES data KC 3/7/18 LatLong KC 3/8/18 USFWS 3/18/2018 KC

Samples 3/7/2018

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# Craven 7 Night# 7 Site Name: North Little Road NCWRC WMA Date: 2-9-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1												
2		No Bats										
3												
4												
5												
6												
7												
8												
9												
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20												

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

Pine / (hardwood) / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A 35.04749 -77.05096 E 35.04533 -77.04998
B 35.04659 -77.05086 F 35.04509 -77.04961
C 35.04591 -77.05050
D 35.04536 -77.05018

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	3 Craven	Night#:	1	Site Name:	Brice Creek Boat Ramp		Date:	2-10-2018			
Latitude:	35.04836	Longitude:	-77.05100					Datum:	WAD83	Elevation:	32 ft	ID By:	Dottie Brown		
Observers:	Drew Powell, Meredith Hoggatt							Start Time:	1740			End Time:	2215		
Conditions:	Time 1740	Temp 68.5	Wind 1	Clouds 85	Time 2036	Temp 63	Wind 1	Clouds 75	Time 2245	Temp 64	Wind 1	Clouds 100%			
Moon Effect:	waxing gibbous	Start: —	Stop: —	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): 4-43 5-52 6-61											

NETS/TRAPS:	A: 1X2X9	B: 1X2X9	C: 1x3ft x12m	D: 1x3ft x12m	E: 1x3ft x12m	F: 1x2ft x12m
Pool size WxL	NA	NA	NA	NA	NA	unlim
Swoop WxL						unlim
Photo? or #						yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

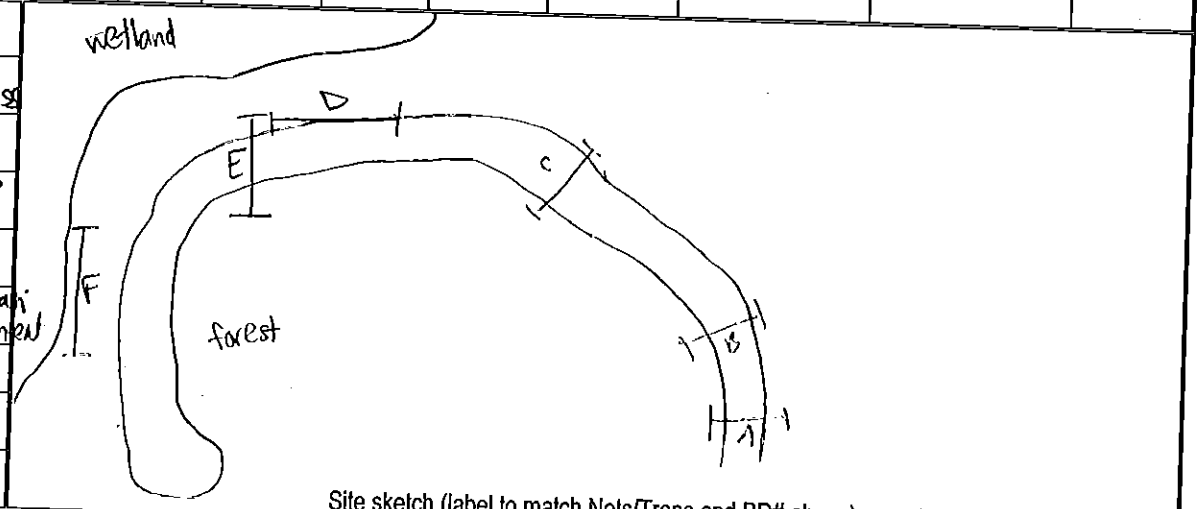
Site Description, other than Habitat Info covered on pg 3:

loblolly pine, flowering dogwood, turkey Bald oak, cypress sweetgum, water oak

mix/upland + bottomland / managed / mature forest / natural

medium 40-70% cover clutter

Habitat community type: mesic mixed hardwoods, coastal plain subtype, coastal plain semipermanent impoundment + coastal plain small stream swamp, blackwater subtype



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

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

ES data KC 3/7/18 LatLong KC 3/8/18 USFWS KC 3/13/18

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 3-Craven Night# 1 Site Name: Brice Creek Boat Ramp Date: 2-10-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	
1	1820	MYAU	M	A	TD	37	8 / 14.5	6.5	C	2m	NCWRC A3285 / 0	WNS swab #22	63.5°
2	1820	MYAU	M	A	TD	39	8.25 / 14.5	6.25	C	3m	NCWRC A3286 / 0	WNS swab #12	63.5°
3	1822	EPFU	M	A	TD	47	8 / 23	15	A	1.5m	NCWRC A1769 / 0	WNS Swab #21	65°
4	1826	EPFU	M	A	TD	46	7.75 / 20.5	12.75	C	1m	NCWRC A1768 / 0	WNS Swab #5	65°
5	1900	EPFU	M	A	NR	45	7.75 / 19	11.25	E	4.5m	No Band / 0	No Band due to wing injury the bat ~~himself~~	65°
6												No Swabbing due to injury on forearm/wing	
7	1919	EPFU	F	A	NR	47	7.75 / 23.5	15.75	C	2m	NCWRC A1792 / 0	small pinhole right wing Swab #18	64.5°
8													
9													
10													
11													
12													
13													
14													
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16													
17													
18													
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20													

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, Coastal plain subtype, Coastal plain semi perminant impoundment + Coastal plain small stream swamp, black water subtype

A 35.04659 -77.05086
B 35.04591 -77.05050
C 35.04536 -77.05018
D 35.04533 -77.04998
E 35.04514 -77.05053
F 35.04518 -77.05070

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project: NCDOT NLEB Research Project		County: Craven		Site#: 3 Craven		Night#: 2		Site Name: Brice Creek Boat Ramp			Date: 2-14-2018				
Latitude: 35.04836		Longitude: -77.05100						Datum: NAD83		Elevation: 32'	ID By: Dottie Brown				
Observers: Drew Powell + Julia Hoeh											Start Time: 1740				End Time: 2250
Conditions:	Time 1740	Temp 55°F	Wind 0	Clouds 25%	Time 20	Temp 52.5°F	Wind 1	Clouds 23%	Time 2250	Temp 51°C	Wind 0	Clouds 100%			
Moon Effect: Waning Crescent	Start: —	Stop: —			Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43 5-52 6-61										
NETS/TRAPS:	A: 1x 2x9		B: 1x3 H x12m		C: 1x 3H x12m		D: 1x3H x12m		E: 1x2Hx12m		F: 1x2#x9m				
Pool size WxL	NA		NA		NA		NA		UNLIM		UNLIM				
Swoop WxL	NA		NA		NA		NA		UNLIM		UNLIM				
Photo? or #	yes		yes		yes		yes		yes		yes				

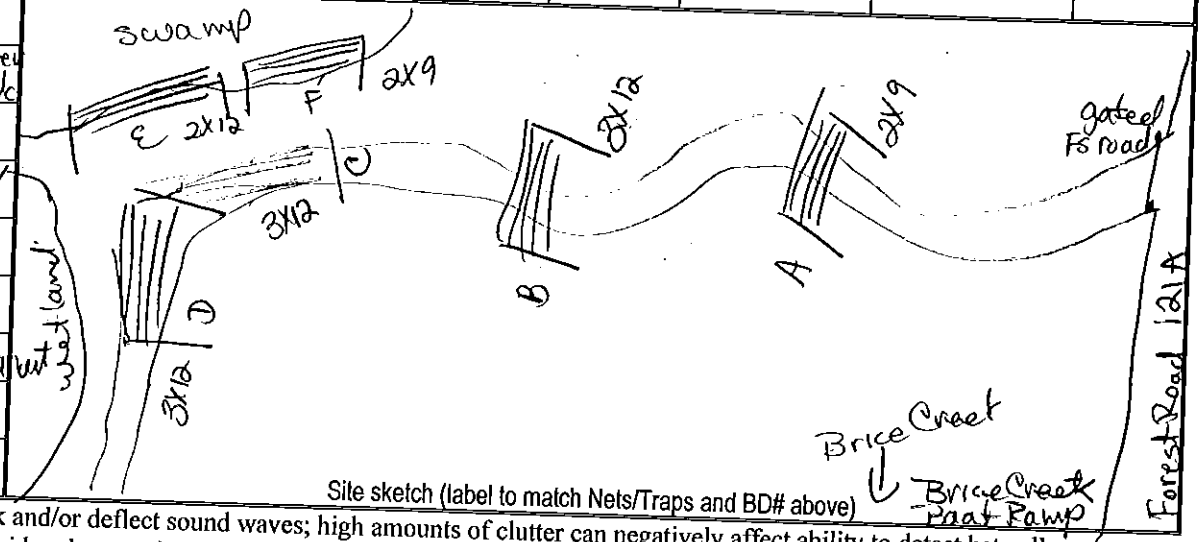
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

lobololly Flowering Turkey Bald Water Pine, dogwood, oak, cypress, sweetgum, oak

mix/upland/bottomland/managed/ mature forest/ medium 40-70% natural Cover clutter

Habitat community type: mesic mixed hardwoods, coastal plain subtype, coastal plain semi permanent impoundment, coastal plain small stream swamp, black water subtype



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

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

ES data KC 3/16/18 vation 3/18/18 KC USFWS KC 3/13/2018

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# Craven 3 Night# 2 Site Name: Brice Creek Boat Ramp Date: 2-14-18

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	21 15	MYAU	F	A	NR	38	14.5 / 8	6.5	E	3m	NCWRC A3284 / 0	WNS Swab #220 Guano #62 Ectoparasite #10
2												
3												
4												
5												
6												
7												
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9												
10												
11												
12												
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20												

51°F

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype, coastal plain semi permanent impoundment + coastal plain small stream swamp, black water subtype.

A1. 34.91149, -76.81924 D4. 34.91131, -76.81898
B2. 34.91147, -76.81921
C3. 34.91144, -76.81909 E5. 34.91139, -76.81895

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB research project	County:	Craven	Site#:	9 Craven	Night#:	1	Site Name:	FS 3046 still gut creek	Date:	2/15/2018						
Latitude:	34.91064	Longitude:	-76.81831					Datum:	Nad 83	Elevation:	79ft	ID By:	KRish Confortin				
Observers:	meredith Hoggatt							Start Time:	1741			End Time:	2250				
Conditions:	Time 1718	Temp 76°	Wind 1	Clouds 25	Time 2035	Temp 58	Wind 1	Clouds 100	Time 2220	Temp 59	Wind 2	Clouds 100					
Moon Effect: waning crescent	Start: —	Stop: —	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43 5-51														

NETS/TRAPS:	A: 1x2Hx6m	B: 1x3Hx9m	C: 1x3Hx12m	D: 1x2Hx6m	E: 1x3Hx12m	F:
Pool size WxL	Na	Na	stream	Na	stream	
Swoop WxL	Na	Na	unlimited	Na	unlimited	
Photo? or #	yes	yes	yes	yes	yes	

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

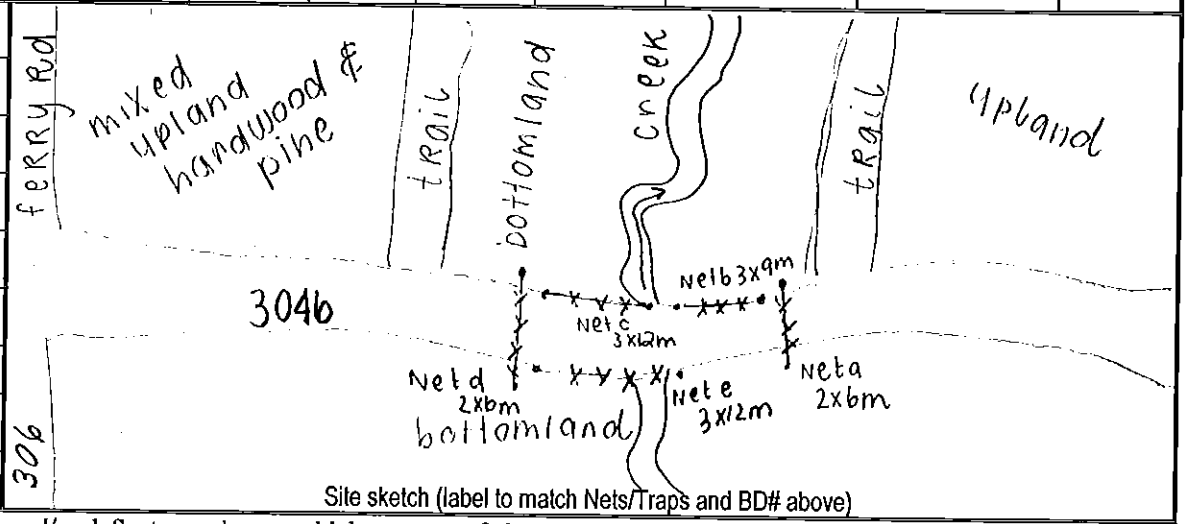
Site Description, other than Habitat Info covered on pg 3:

loblolly pine, sweet bay magnolia, sweetgum, s. red oak, gaint cane, s. red cedar

managed/natural/medium clutter)

upland & bottomland

habitat community: coastal plain small stream swamp blackwater subtype and mesic mixed hardwoods, coastal plain subtype



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

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

ES data KC 3/7/18 batlong KC 3/8/18 USFWS 3/12/18

Samples 3/7/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research project County: Craven Site# 9-Craven Night# 1 Site Name: FS 3086 Gas Still Gut Creek Date: 2/15/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	
1	1837	EPFU	m	A	NR	40	8/17	9	A	1.5m	NC-WRC A3210 / 0	VSU Guano # 146	59.5
2	1838	LABO	m	A	NR	38.5	8/16	8	B	2.5m	NC-WRC A3208 / 0		59.5
3	1838	EPFU	M	A	NR	45	8/21.5	13.5	D	2m	NC-WRC A1846 / 0	WNS Swab # 39	59.5
4	1845	NYHU	m	A	NR	35	8/16	8	C	2.5m	Na / 0	holes both wings	59.5
5	1900	LABO	m	A	NR	41	8/18	10	C	2.5m	NC-WRC A3207 / 0		60
6													
7													
8													
9													
10													
11													
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20													

9- Craven 2/15/2018

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype

A 34.80806, -77.07832
B 34.80804, -77.07869
C 34.80808, -77.07887
D 34.80814, -77.07919

E 34.80814, -77.07935
F 34.80822, -77.07937

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

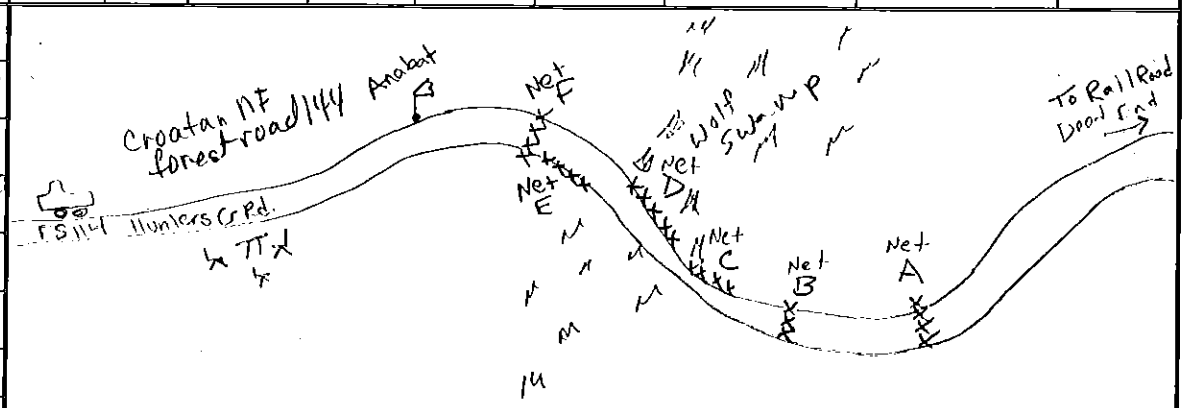
Project:	NCDOT WLEB Research Project	County:	Craven	Site#:	10 Craven	Night#:	1	Site Name:	Wolf Swamp	Date:	2-15-18
Latitude:	34.80819	Longitude:	-77.07988					Datum:	NAD83	Elevation:	40'
Observers:	Drew Powell & Julia Hoeh							Start Time:	17:50	End Time:	22:55
Conditions:	Time 1750	Temp 60	Wind 1	Clouds 25	Time 2110	Temp 60.5°	Wind 1	Clouds 50	Time 2250	Temp 60.5°	Wind 1	Clouds 50
Moon Effect:	0.00% New Moon	Start: —	Stop: —		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: Croatan NF NC							

NETS/TRAPS:	A: 1X3HX12m	B: 1X3HX9m	C: 1X2HX12m	D: 1X2HX12m	E: 1X2HX12m	F: 1X2HX12m
Pool size WxL	NA	NA	15X10	15'X10'	NA	NA
Swoop WxL			unlim	unlim		
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

Mixed Pine / Upland + Bottomland / managed & unmanaged
Mature forest / Natural / Clutter medium /
water Sweet Bald laurel Nyssa american holly
oak, gum, cypress, oak, agutica, holly, pine
Red Giant potbon saw
bay, cane, ivy, doghobble, greenbrier, fetterbush
carolina Pondred swamp, wax
jasmine, greebrier, bay, Inkberry, myrtle,
Habitat Community = coastal plain
small stream swamp blackwater
Subtype



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

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

ES data KC 3/7/18 batlong KC 3/8/18 USFWS KC 3/13/18

Samples 3/7/2018 D.P

Bat Survey Data Form

Project: NCDOT Research NLEB Project County: Craven Site# Craven 10 Night# 1 Site Name: Wolf Swamp Date: 2-15-2018

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

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

(Pine) / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A1. 34.91149, -76.81924
B2. 34.91147, -76.81921
C3. 34.91144, -76.81909
D4. 34.91131, -76.81898
E5. 34.91139, -76.81895

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project: NCDOT NLEB research project	County: Craven	Site#: 9 craven	Night#: 2	Site Name: FS3046 still gut creek			Date: 2/16/2018				
Latitude: 34.91064	Longitude: -76.81831			Datum: Nad 83	Elevation:		ID By: KRISTI Confortin				
Observers: meredith Hoggatt				Start Time: 1730			End Time: 2340				
Conditions:	Time 1740	Temp 65°	Wind 1	Clouds 50	Time 2040	Temp 62.5	Wind 0	Clouds 75	Time 2234	Temp 62	Wind 0	Clouds 50
Moon Effect: waxing crescent	Start: Na	Stop: Na			Land Use: Urban / Agriculture / (Forest 4-43) / (Water 5-51) / (Wetland) / Barren *(describe)*:							

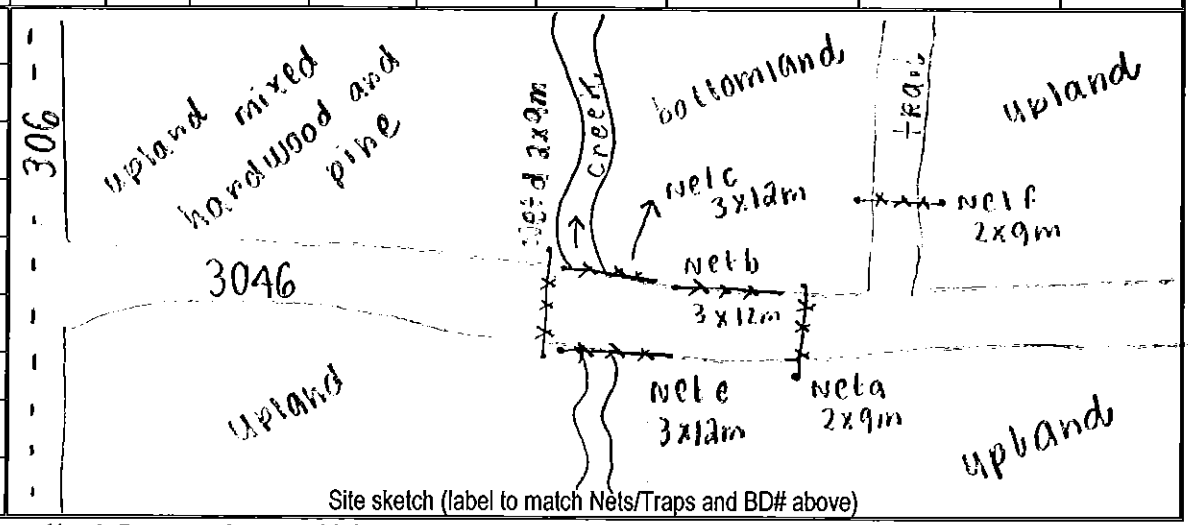
NETS/TRAPS:	A: 1X2HX9m	B: 1X3HX12m	C: 1X3HX12m	D: 1X2HX9m	E: 1X3HX12m	F: 1X2HX9m
Pool size WxL	Na	Na	stream	Na	stream	Na
Swoop WxL	Na	Na	unlimited	Na	unlimited	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

loblolly pine, sweet bay magnolia, sweetgum, S. Red oak, gaint cane

managed/Natural/medium clutter/ upland & bottomland habitat community: Coastal plain small stream swamp blackwater subtype and mesic mixed hardwoods, coastal plain subtype



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

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

data KC 3/7/18 batlong KC 3/8/18 USFWS 3/12/18 KC

Samples 3/7/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research project County: Craven Site# 9-Craven Night# 2 Site Name: FS 3046 Still Gut Creek Date: 2/16/18

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1818	LABO	m	A	NR	40	16-8	8	A	2m	NC-WRC A3206 / 0	Right wing pin hole NiKKi FUR #100	63.5
2	1836	LASE	m	A	NR	39	17.25-8	9.75	E	2m	NC-WRC A3210 / 0	Recapture 2/15/18 NiKKi FUR #101	63.5
3	1852	LABO	m	A	NR	39.5	16-8	8	f	2m	NC-WRC A3205 / 0	hematoma both wings NiKKi FUR #102	62
4	1905	EPFU	m	A	NR	45	21.5-8	13.5	D	2m	NC-WRC A1846 / 0	Recapture 2/15/18 KSU QUANO #80 NIKKI FUR #103	62
5	2312	LABO	m	A	NR	39	17-8	9	D	2m	NC-WRC A3204 / 0	hole left wing caught while taking down	62
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

9- Craven 2/16/2018

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype & coastal plain small stream swamp, blackwater subtype

A 34.80806, -77.07832
B 34.80804, -77.07869
C 34.80808, -77.07887
D 34.80814, -77.07919
E 34.80882, -77.07937
F 34.80816, -77.07979

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	10 Craven	Night#:	2	Site Name:	Wolf swamp	Date:	2-16-18
Latitude:	34.80819	Longitude:	-77.07938					Datum:	NAD83	Elevation:	40'
Observers:	Drew Powell, + Julia Hoch							Start Time:	1750	End Time:	2255
Conditions:	Time 1750	Temp 74F	Wind 0	Clouds 0%	Time 2100	Temp 64	Wind 0	Clouds 0	Time 2250	Temp 64	Wind 0	Clouds 0
Moon Effect:	Waxing Crescent	Start: —	Stop: —		Land Use: Urban / Agriculture / Forest (N-43) / Water / Wetland (6-61) / Barren *(describe)*:							

NETS/TRAPS:	A: 1x3H x12m	B: 1x3H x9m	C: 1x2H x12m	D: 1x2H x12m	E: 1x2H x12m	F: 1x3H x9m
Pool size WxL	NA	NA	unlim	unlim	NA	NA
Swoop WxL			unlim	unlim		
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed pine/hardwood upland + bottomland / managed + unmanaged

mature forest / natural / Clutter medium

waterswed bald laurel mysq american lobolly oak, gum, cypress, oak, aquatica, holly, pine

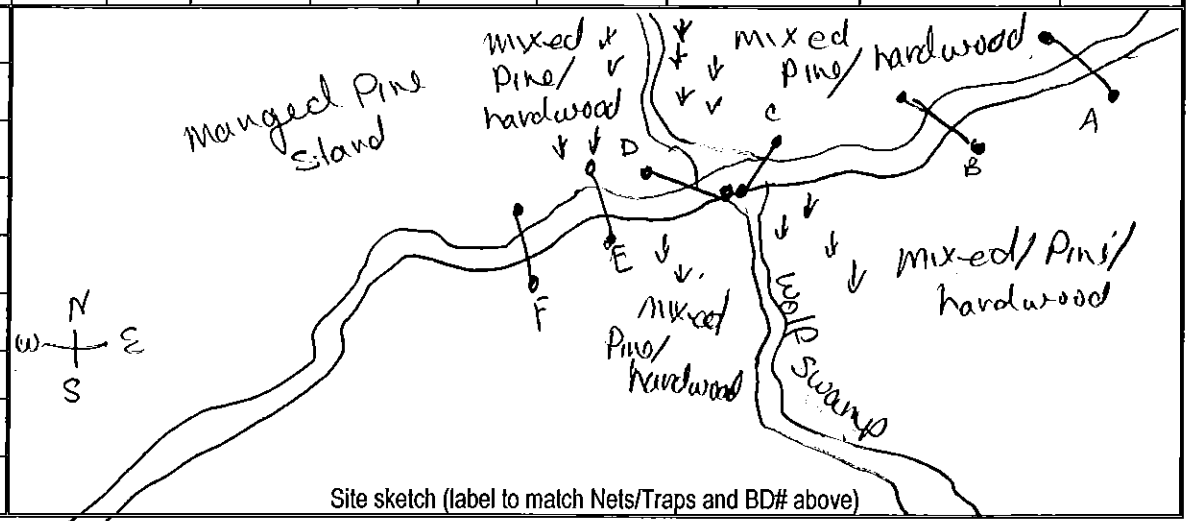
Red giant dog saw Possom bay, cane, hobble, greebner, ivy, fetterbush

carolina Roundleaf swamp way Jasmine, greebrier, bay, inkberr, myrtle

Habitat Community = coastal plain

Small stream swamp blackwater

subtype



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

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

ES data KC 3/7/18 Gallong KC 3/8/18 USFWS KC 3/13/18 Samples 3/7/2018 DP

Bat Survey Data Form

Croatan NF, NC

Project: NCDOT Research WLEB Project County: Craven Site# 20-Craven Night# 2 Site Name: Wolf Swamp Date: 2/16/18

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	Temp
1	1854	LABO	M	A	NR	41	16.5 / 7.5	9	B	2.5m	NCWRC A3283 / 0		59.5
2	1934	MYSE	M	A	NR	34	14 / 7.5	6.5	D	2m	NCWRC A3112 / 0	WNS206 For #22 Thomas 109	63.5
3												USFS DNA - A 150.100 Transmitter	
4	2100	EPFU	M	A	NR	45	20.5 / 7.5	13	F	2.5m	NCWRC A1791 / 0	WNS 226	64
5	2135	EPFU	F	A	NR	45	24 / 7	17	A	4.5m	NCWRC A1790 / 0	WNS 219	64
6													
7													
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12													
13													
14													
15													
16													
17													
18													
19													
20													

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

(Pine) / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A1) 34.91159, -16.81960 A4) 34.91122, -76.81962

B2) 34.91145 -76.82003

C3) 34.91191 -76.81963 E5) 34.91113, -76.81969

Croatan NF, NC

NCDOT Mist-Netting & Acoustic Survey Data Form

Project:	NCDOT NUEB Research project	County:	Craven	Site#:	9 Craven	Night#:	3	Site Name:	fs 3046 Still Gut creek	Date:	2/17/2018
Latitude:	34.91064	Longitude:	-76.81831					Datum:	Nad 83	Elevation:	66ft
ID By:	Kristi Confortin										
Observers:	Meredith Hoggatt							Start Time:	1720	End Time:	2335

Conditions:	Time	Temp	Wind	Clouds
	1741	51	0	100
	2030	50.5	0	100
	2217	51	0	100

Moon Effect: waxing crescent

Start: NA

Stop: NA

Land Use: Urban / Agriculture / (Forest) (Water) (Wetland) Barren *(describe)*: Forest 4-43, Wetland 6-61

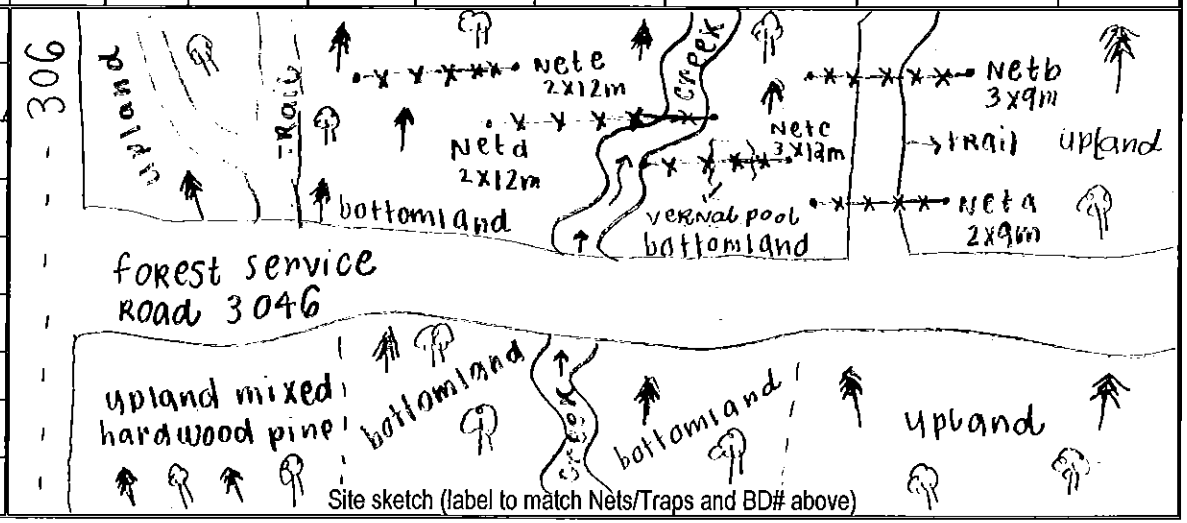
NETS/TRAPS:	A: 1x2Hx9m	B: 1x3Hx9m	C: 1x3Hx12m	D: 1x2Hx12m	E: 1x2Hx12m	F:
Pool size WxL	NA	NA	2x2m	stream	NA	
Swoop WxL	NA	NA	unlimited	unlimited	NA	
Photo? or #	yes	yes	yes	yes	yes	

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

Loblolly Pine, Sweet bay magnolia, sweetgum, S. Red oak, giant cane

managed / natural / medium clutter / upland & bottomland habitat community: coastal plain small stream, swamp black water subtype and mesic mixed hardwoods, coastal plain subtype



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

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

ES data KC 3/7/18 Vationg KC 3/8/18 USFWS 3/8/12 KC

Samples 3/7/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 9 - Craven Night# 3 Site Name: FS 3046 Still Gut Creek Date: 2/17/2018

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

9 - Craven 2/17/2018

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

Pine / hardwood / (mixed) / unforested

(Upland) / bottomland

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype + coastal plain small stream swamp, blackwater subtype

A1. 34.91159 -76.81960
B2. 34.91145 -76.82003
C3. 34.91141 -76.81963
D1. 34.91122 -76.81962
E5. 34.9113 -76.81969

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	9-Craven	Night#:	4	Site Name:	FS3046 Still Cut Creek	Date:	2-19-2018				
Latitude:	34.91064	Longitude:	-76.81831					Datum:	NAD83	Elevation:	66'	ID By:	Kristi Canfortin		
Observers:	Meredith Hoggatt							Start Time:	1749			End Time:	2250		
Conditions:	Time 1749	Temp 68.5°	Wind 0	Clouds 100	Time 2045	Temp 63.5	Wind 0	Clouds 75	Time 2210	Temp 61	Wind 0	Clouds 0			
Moon Effect:	waxing crescent	Start:	NA		Land Use: Urban / Agriculture / Forest (Water) / Wetland / Barren *(describe)*: 9-43 6-61										
		Stop:	NA												

NETS/TRAPS:	A: 1x21l x9m	B: 1x3H x9m	C: 1x3tl x12m	D: 1x21l x12m	E: 1x21l x12m	F: 1x3tl x12m
Pool size WxL	NA	NA	2x2m	stream	NA	NA
Swoop WxL	NA	NA	unlimited	unlimited	NA	NA
Photo? or #	yes	yes	yes	yes	yes	yes

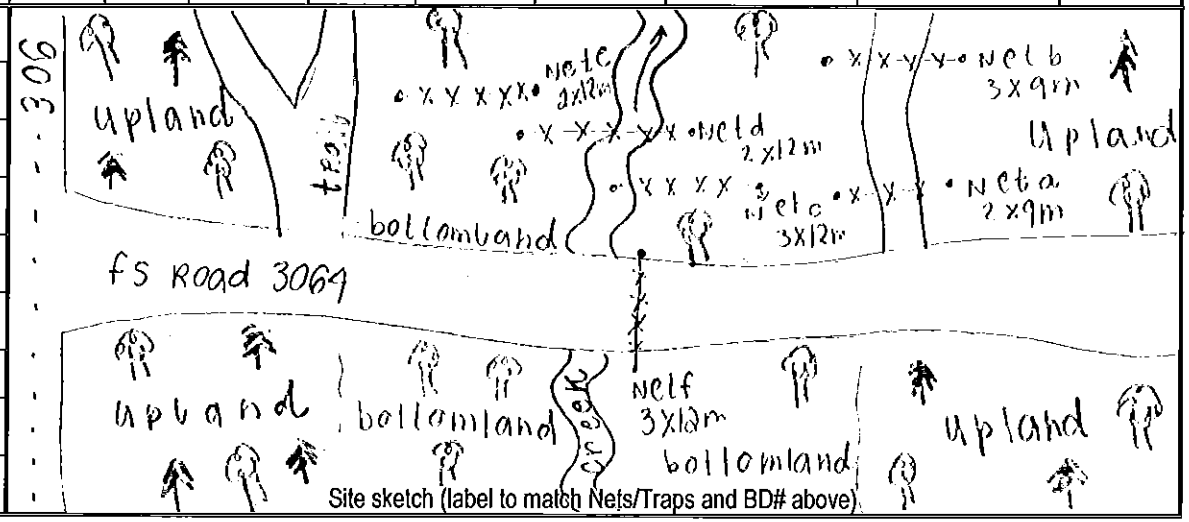
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

Loblolly pine, sweet bay magnolia, sweet gum, s. Red oak, giant cane, s. red cedar

managed / natural / medium clutter / upland : bottomland

Habitat Community: coastal plain small stream, swamp blackwater subtype / mesic mixed hardwoods, coastal plain subtype



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

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

ES data KC 3/1/18 batlong KC 3/8/18 USFWS 3/12/18 KC

Samples 3/7/2018 PP

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 9-Craven Night# 4 Site Name: FS 3046 | Still Gut creek Date: 2/19/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1830	LABO	m	A	NR	40	16.25-8	8.25	A	2m	NC-WRC A3203 / 0	Nikki fur #104	66.5
2	1853	EPFU	f	A	NR	49	24.5-8	16.5	A	2.5m	NC-WRC A1845 / 0	WNS swab #56 Nikki fur #105	66
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

9 - Craven 2/19/2018

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: Mesic mixed hardwoods, coastal plain subtype + Coastal plain small stream swamp, blackwater subtype

A 34.92130, -76.83879
B 34.92132, -76.83905
C 34.92128, -76.83913
D 34.92134, -76.83938
E 34.92126, -76.83985
F 34.92144, -76.83989

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	8 Craven	Night#:	1	Site Name:	Side road off Hope Road	Date:	2-19-18
Latitude:	34.92144	Longitude:	-76.83989					Datum:	NAD 83	Elevation:	24'
Observers:	Drew Powell & Julia Hoeh							Start Time:	1750	End Time:	22:55

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1750	68°F	0	100%	2104	62°F	0	25%	2243	60°	0	0

Moon Effect: waxing crescent	Start: —	Land Use: Urban / Agriculture / (Forest) / (Water) / (Wetland) / Barren *(describe)*:	4-43 5-52 6-61
	Stop: —		

NETS/TRAPS:	A: 1X3H X 12m	B: 1X3H X 9m	C: 1X3H X 12m	D: 1X2H X 12m	E: 1X2H X 6m	F: 1X2H X 9m
Pool size WxL			unLimited	unLimited		unlimited
Swoop WxL			unlimited	unlimited		unLimited
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

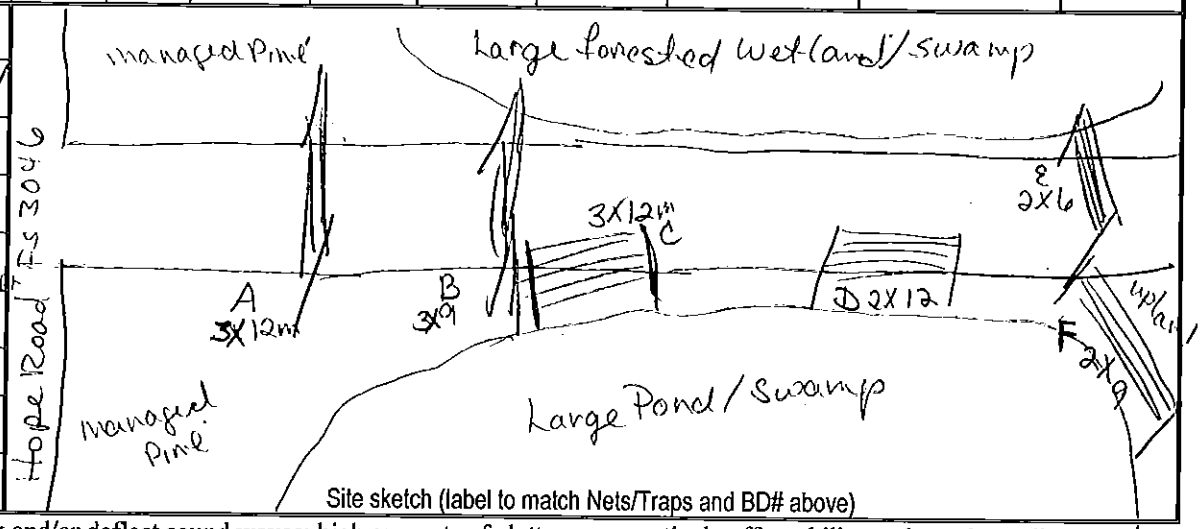
Site Description, other than Habitat Info covered on pg 3:

Pine & mixed / upland & bottomland / managed / mature forest / natural / Clutter medium

loblolly sweet American white wetland Red water Pine, gum, holly, pine bald cypress, maple, tupelo

wild Round leaf Laurel leaf saw grape vine, dog hobble, green brier, greenbrier, oak, white S. red water live sweet bay oak, oak, sourwood, oak, oak, magnolia,

community, mesic mixed hardwoods, coastal plain subtype & coastal plain small stream swamp, blackwater subtype.



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

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

ES data KC 3/7/18 LatLong KC 3/8/18 USFWS KC 3/13/18

Samples 3/7/2018 DR

Bat Survey Data Form

Project: NCDOT Research WLEB Project County: Craven Site# 8 Craven Night# | Site Name: Side Road off Hope Road Date: 2-19-18

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	Temp
1	1815	LABO	M	A	NR	38	16 / 8	8	B	3m	No band / 0	KSU 85	67°F
2	1825	LASE	M	A	TD	41	19 / 8	11	A	3m	No band / 0	ABQ-	67°F
3	1825	LASE	NA	NA	NA	NA	NA / NA	NA	A	1.5m	NA / NA	escape from Net To	67°F
4	1825	EPFU	M	A	TD	46	21.5 / 8	13.5	A	4.5m	NCWRC A1767 / 0	WNS 227 KSU 102	67°F
5	1922	LASE	M	A	TD	41	16.5 / 7.5	9	B	1m	No Band / 0	ABQ-R:29	65°F
6	2002	LASE	M	A	NR	40	17 / 8	9	E	3m	No Band / OP	ABQ-	64°F
7	2008	EPFU	M	A	TD	45	21.75 / 8	13.75	B	4m	NCWRC A1789 / 0	WNS 222	64°F
8	2218	EPFU	F	A	NR	47	24 / 7.5	16.5	A	4m	NCWRC A1788 / 0	WNS 211 KSU 76	60°F
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

(Pine) / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A. 35.02713 -77.04729
B. 35.02739 -77.04677
C. 35.02748 -77.04650
D. 35.02751 -77.04636
E. 35.02750 -77.04622
F. 35.02747 -77.04617

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NUEB Research project	County:	Craven	Site#:	craven	Night#:	5	Site Name:	NCWRC gameland mushroom pond	Date:	2/22/2018
Latitude:	35.027290	Longitude:	-77.046536					Datum:	Nad 83	Elevation:	45ft
Observers:	Drew Powell, Molly Gooden							Start Time:	1757	End Time:	2320

Conditions:	Time	Temp	Wind	Clouds
	1757	73	0	0
	2039	60°	0	0
	2320	60°	0	0

Moon Effect: waxing crescent — Start: 1800 — Stop: ----

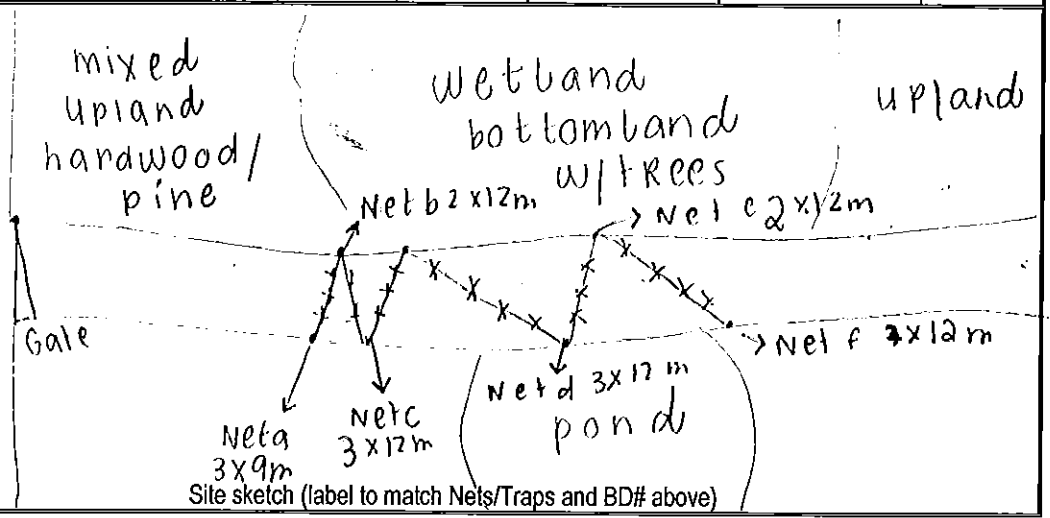
Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43, 5-52, 6-61

NETS/TRAPS:	A: 1x3Hx9m	B: 1x2Hx12m	C: 1x3Hx12m	D: 1x3Hx12m	E: 1x2Hx12m	F: 1x2Hx12m
Pool size WxL	Na	Na	Na	pond	Na	Na
Swoop WxL	Na	Na	Na	unlimited	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed forest/managed/mature forest
natural/medium clutter/upland bottomland
bald cypress, turkey oak, red maple, water tupelo
sweetgum, white oak, loblolly pine
habitat community: mesic mixed
hardwood, coastal plain subtype &
coastal plain small, stream swamp,
black water subtype



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

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

ES data KC 3/6/18 Datalong KC 3/8/18 USFWS 3/12/18

Samples 3/6/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 1- Craven Night# 5 Site Name: NCWRC gameland mushroom pond Date: 2/22/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	
1	1810	LABO	m	A	NR	38	17-8	9	B	2m	NC-WRC A9143 / 0	Recapture	67.5
2	1835	LABO	m	A	NR	38	16.5-8	8.5	f	2m	Na / 0	Right wing holes	64
3	1835	EPFU	m	A	NR	46	23-8	15	f	2.5m	NC-WRC A1842 / 0	Right wing hole WNS SWAB #303	64
4	1845	LABO	m	A	NR	37	16.5-8	8.5	A	2.5m	Na / 0	Left wing hole	64
5	1845	LABO	m	A	NR	38	17-8	9	A	2.5m	NCWRC A9143 / 0	Recapture	64
6	1900	EPFU	m	A	NR	44	20-8	12	B	2m	NCWRC A1841 / 0	WNS SWAB #304	64.5
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / (mixed) / unforested

(Upland) / bottomland

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwood coastal plain subtype + coastal plain small stream swamp, blackwater subtype

A 35.02713 -77.04729
B 35.02739 -77.04677
C 35.02748 -77.04650
D 35.02761 -77.04622
E 35.02747 -77.04617

F 35.02747 -77.04617

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NUEB research project	County:	Craven	Site#:	craven	Night#:	6	Site Name:	NCWRC gameland mushroom pond	Date:	2/23/2018
Latitude:	35.027270	Longitude:	-77.046536					Datum:	Nad 83	Elevation:	45ft
										ID By:	KRISTI CONFORTIN
Observers:	Drew Powell, Molly Gooden							Start Time:	1735	End Time:	2,315

Conditions:	Time	Temp	Wind	Clouds
	1730	72.5	0	25
	2,100	61°	0	100
	2230	59	0	0

Moon Effect: waxing crescent — Start: Na — Stop: Na

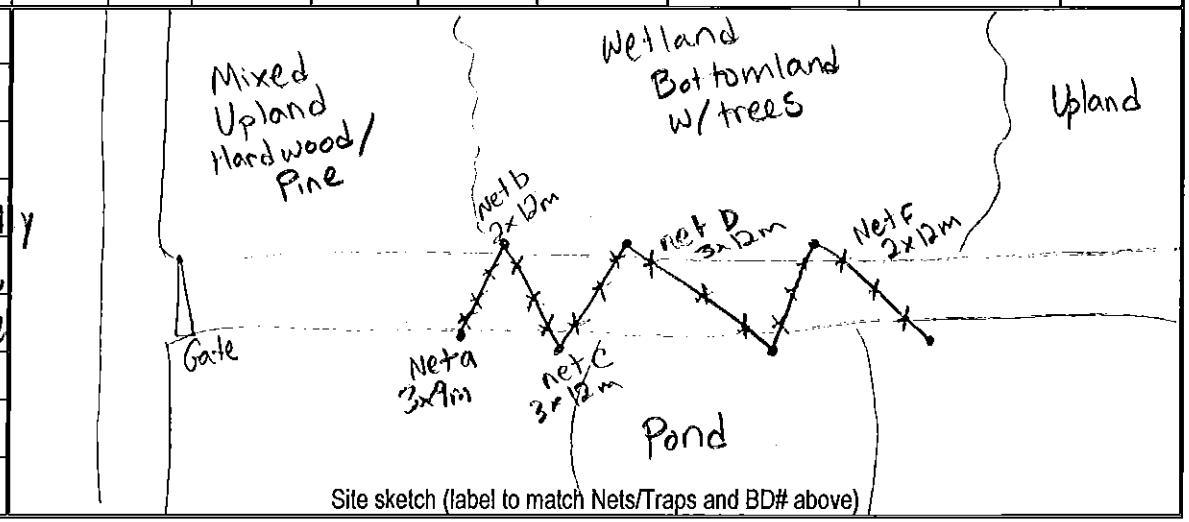
Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43, 5-52, 6-61

NETS/TRAPS:	A: 1x3Hx9m	B: 1x2Hx12m	C: 1x3Hx12m	D: 1x3Hx12m	E: 1x2Hx12m	F: 1x2Hx12m
Pool size WxL	Na	Na	Na	pond	Na	Na
Swoop WxL	Na	Na	Na	Unlimited	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed forest/managed/mature forest
Natural/medium clutter | upland bottomland
bald cypress, turkey oak, red maple, bobolly
water tupelo, sweet gum, white oak, pine
habitat community: mesic mixed hardwood
coastal plain subtype & coastal plain
small stream swamp, black water.
subtype



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

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

ES data KC 3/6/2018 Latlong 3/8/18 KC USFWS 3/12/18 Samples 3/6/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research Project County Craven Site# 1-Craven Night# 6 Site Name: NCWRC gameland mushroom pond Date: 2/23/2018

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

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwood, coastal plain subtype + coastal plain small stream swamp, blackwater subtype.

A. 35.00680, -77.07679
B. 35.00686, -77.07665
C. 35.00695, -77.07550
D. 35.00725, -77.07363
E. 35.00721, -77.07349
F. 35.00731, -77.07329
} GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Coatan NF, NC

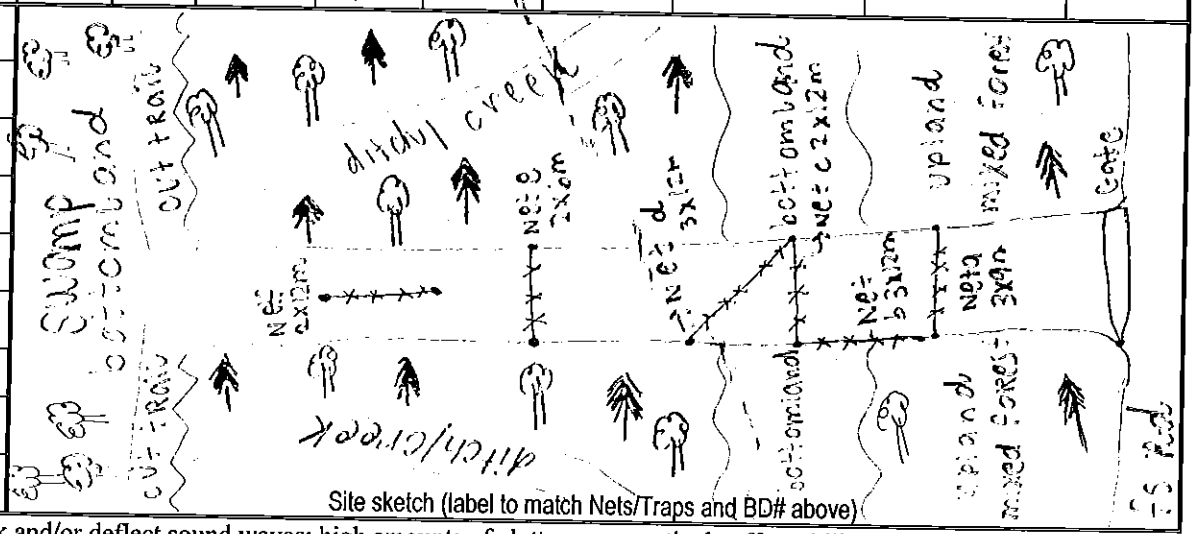
Project: NCDOT NLEB Research project	County: Craven	Site#: A Craven	Night#: 1	Site Name: Forest Service Rd 178 Wetland			Date: 2-24-2018		
Latitude: 35.00707	Longitude: -77.07463			Datum: Nad 83	Elevation: 136'		ID By: Kristi Combrink		
Observers: Julia Hoeh, Molly Gooden, Sean Casler				Start Time: 1740			End Time: 2320		
Conditions:	Time 1740	Temp 71.5	Wind 0	Clouds 25	Time 2110	Temp 61.5	Wind 0	Clouds 0	Time 2220	Temp 61.5	Wind 0	Clouds 50
Moon Effect: Waxing crescent	Start: 1740	Stop: ——		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43 6-61								

NETS/TRAPS:	A: 1x3H x9m	B: 1x3H x12m	C: 1x2H x12m	D: 1x3H x12m	E: 1x2H x6m	F: 1x2H x12m
Pool size WxL	Na	Na	Na	Na	Na	Na
Swoop WxL	Na	Na	Na	Na	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed bottomland/ unmanaged/ mature
Natural/ medium canopy (3)
longleaf, loblolly pine, red maple,
swamp chestnut oak, sweetgum
habitat community type: coastal plain
small stream Swamp, blackwater
subtype



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

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

ES data KC 3/6/18 Data Ent KC 3/8/18 USFWS KC 3/12/18

Samples 3/6/2018 DR

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 4-Craven Night# 1 Site Name: Forest Service Rd 178 wetland Date: 2/24/18

	TIME	SPECIES	Sex	Age	P/L/PL/NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	
1	1825	EPFU	F	A	NR	47	22.25 / 7.75	14.5	A	3m	NCWRC A1840 / 0	WNS Swab #310	66.5
2	1842	LABO	M	A	NR	37	16.25 / 8	8.25	E	1.5m	NA / 0	Right wing holes	65.5
3	1843	LABO	M	A	TD	40	16.5 / 8	8.5	E	2m	NA / 0		65.5
4	1900	LABO	F	A	NR	39	17 / 8	9	B	3m	NA / 0		65
5	1900	EPFU	M	A	NR	45	21 / 8	13	D	2.5m	NCWRC A1837 / 0	WNS swab # 311	65
6	1955	LABO	M	A	TD	38	16 / 7.75	8.25	E	2m	NA / 0	1 hole left and 1 hole right wing	62.5
7	1955	LABO	M	A	NR	37	16.25 / 8	8.25	E	3m	NA / 0	Right wing holes possible recapture of 2	62.5
8	2040	LABO	M	A	NR	38	16.5 / 7.75	8.75	C	2m	NA / 0	Right wing hole	62
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: Coastal plain small stream swamp, blackwater subtype

A 34.96886 -77.04780
B 34.96903 -77.04794
C 34.96915 -77.04797
D 34.96923 -77.04813
E 34.96931 -77.04816
F 34.96931 -77.04811
G 34.96967, -77.04845

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan nf, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	11 Craven	Night#:	1	Site Name:	West Prong Brice Creek middle Little Road	Date:	2-24-18				
Latitude:	34.97012	Longitude:	-77.04887					Datum:	NAD83	Elevation:	120'	ID By:	Dottie Brown		
Observers:	Drew Powell + Meredith Haggatt							Start Time:	1720			End Time:	2300		
Conditions:	Time 1720	Temp 70	Wind 1	Clouds 25	Time 2100	Temp 60.5	Wind 0	Clouds 25%	Time 2300	Temp 60	Wind 1	Clouds 50%			
Moon Effect:	waxing gibbous	Start: 1750	Stop: NA		Land Use: Urban / Agriculture / Forest 43 / Water / Wetland 61 / Barren *(describe)*:										

NETS/TRAPS:	A: 1X2H X 6m	B: 1X3H X 12m	C: 1X2H X 12m	D: 1X2H X 12m	E: 1X2H X 6m	F: 1X2H X 12m
Pool size WxL	Unlimited	unlim	unlim	N/A	12m X 20m	6m X 10m
Swoop WxL	Unlimited	Unlim	Unlim		Unlim	Unlim
Photo? or #	yes	yes	yes	yes	yes	yes

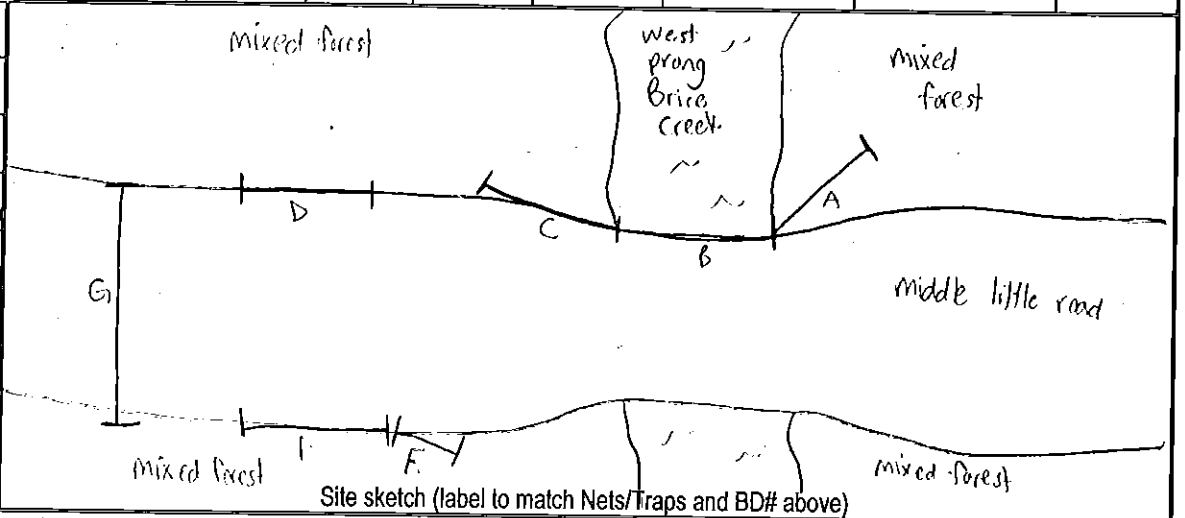
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/bottomland/unmanaged/mature forest/natural clutter medium (3)/

Red Bald Cypress, pine, dogwood Holly, sweetgum swamp, red maple, swamp bay, sweetbay, myrtle, chestnut, bay, myrtle, Small, glabra

community type: Coastal plain small stream swamp blackwater Subtype



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

G 1X3H X 12m, 1X2H X 6m

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

ES data KC 3/7/18 batvong KC 3/8/18 USFWS KC 3/13/18

Samples 3/7/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 11-Craven Night# 1 Site Name: West Prong Brice Creek middle Little Road Date: 2-24-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	
1	1826	EPFU	M	A	NR	48	19.5-7.5	12	G	2.5	NCWRC A1773 / 0	WNS Swab #229	65.5
2	1826	EPFU	M	A	TD	46	19.25-8	11.25	C	3	NCWRC A1774 / 0	WNS Swab #82	65.5
3	1826	LABO	M	A	NR	39	17.25 7.75	9.5	G	2.5	No Band / 0		65.5
4	1838	LABO	M	A	NR	40	19.25 / 7.75	11.5	G	3	no Band / 0		64
5	1838	EPFU	M	A	TD	48	19.25 / 7.75	11.5	G	3	NCWRC A1775 / 0	WNS 202	64
6	1838	EPFU	F	A	NR	49	21 / 8	13	G	2.5	NCWRC A1776 / 0	WNS 215	64
7	1839	EPFU	F	A	NR	47	21 / 8	13	G	3.5	NCWRC A1777 / 0	WNS 223	62
8	1839	LANO	F	A	NR	41	17.75 / 7.75	10	G	3	NO Band / 0	KSU 138	62
9	1840	EPFU	F	A	NR	43	20.5 / 7.75	12.75	G	2.5	NCWRC A1778 / 0	KSU 54	62
10	1942	COFA	M	A	TD	46	17.25 / 8	9.25	F	2.5	no band / 0	KSU 79 AB009 1954	63
11	1942	LABO	M	A	NR	42	17.25 / 7.75	9.5	G	3	no band / 0		63
12	1826	LABO	NA	NA	NA	NA	NA	NA	G	NA	NA	escape from G	
13	1959	LABO	NA	NA	NA	NA	NA	NA	G	NA	NA	escape from G	1.1
14	2125	PESU	M	A	NR	34	14.25 / 8	6.25	G	5	ESGA 302 / 0	WNS Swab #218	60
15	2219	MYAU	M	A	NR	37	15 / 7.5	7.5	E	1.5	NCWRC A3113 / 0	WNS Swab #230 KSU #86 AB009 2231	60
16													
17													
18													
19													
20													

No one is in net: Northern Cardinal

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

Pine / hardwood /(mixed)/ unforested

Upland /(bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A 34.96886 -77.04780
B 34.96903 -77.04794
C 34.96915 -77.04797
D 34.96923 -77.04813
E 34.96923 -77.04816
F 34.96931 -77.04811
G 34.96967 -77.04845

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT, NEEB Research Project	County:	Craven	Site#:	Craven	Night#:	2	Site Name:	West Prong Brice Creek middle Little Road	Date:	2-27-18
Latitude:	34.97012	Longitude:	-77.04887					Datum: NAD 83	Elevation: 120'	ID By:	Dottie Brown
Observers:	Drew Powell + Molly Gooden							Start Time:	17.50	End Time:	21,16

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1750	55°F	0	0	2016	42°F	0	0	21.16	38°F	0	0

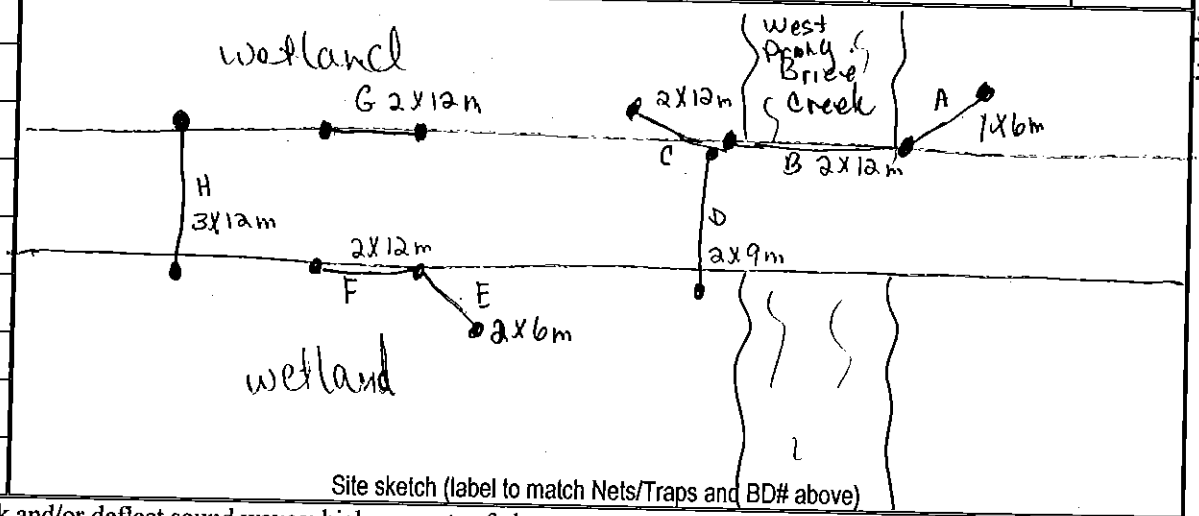
Moon Effect: waxing gibbous	Start: 1750 Stop:	Land Use: Urban / Agriculture / (Forest) 43 / Water / (Wetland) 61 / Barren *(describe)*:	

NETS/TRAPS:	A: 1X11X6m	B: 1X3HX12m	C: 1X2HX9m	D: 1X3HX9m	E: 1X2HX12m	F: 1X2HX6m
Pool size WxL	unlimited	unlimited	unlimited	unLimited	6m X 10m	NA
Swoop WxL	unlimited	unLimited	unlimited	unLimited	unlimited	yes
Photo? or #	yes	yes	yes	yes	yes	

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/bottomland/unmanaged/mature forest
natural/Clutter medium(3)/
Red Bald tobloliu flowering American sweetgum maple, cypress, pine, dogwood, Holly, swamp red swamp bay smilaxx Smilax chestnut, bay, bay, myrtle, Shali, gbbra
Community type: coastal plain small stream swamp blackwater subtype



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

C 1X2HX12m 12m x 2m width / H 1X3HX12m N/A

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

ES data KC 3/7/18 Gatlong KC 3/8/18 USFWS KC 3/13/18

Bat Survey Data Form

Project: NCDOT NEEB Research Project County: Craven Site# 11 Craven Night# 2 Site Name: West Prong Brice Creek Middle Little Road Date: 2-27-18

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

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

Pine / hardwood /(mixed)/ unforested

Upland /(bottomland)

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

(Mature forest)/ <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A. 34.96886 -77.04180 D. 34.96923 -77.04813
B. 34.96903 -77.04794 E. 34.96931 -77.04816
C. 34.96915 -77.04797 F. 34.96931 -77.04811

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project: NCDOTNLEB Research Project		County: Craven		Site#: 112 Craven		Night#: 3	Site Name: West Prong Brice Creek Middle		Date: 2-28-18		
Latitude: 34.97012		Longitude: -77.04887					Datum: NAD83	Elevation: 120'	ID By: Kristi Contartin		
Observers: Meredith Hoggatt, Julia Hoeh, Sean Cassler							Start Time: 1740		End Time: 21:30		
Conditions:	Time 1800	Temp 60	Wind 0	Clouds 100	Time 2045	Temp 57.5	Wind 0	Clouds 100	Time 2045	Temp 57.5	Wind 0	Clouds 100
Moon Effect: waxing gibbous	Start: 18:30	Stop: —			Land Use: Urban / Agriculture / Forest 43 / Water / Wetland 61 / Barren *(describe)*:							

NETS/TRAPS:	A: 1X2H x9m	B: 1X3H x12m	C: 1X2H x9m	D: 1X3H x12m	E: 1X3H x12m	F: 1X2H x9m
Pool size WxL	Na	Na	Na	Creek	creek	Na
Swoop WxL	Na	Na	NA	unlimited	unlimited	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

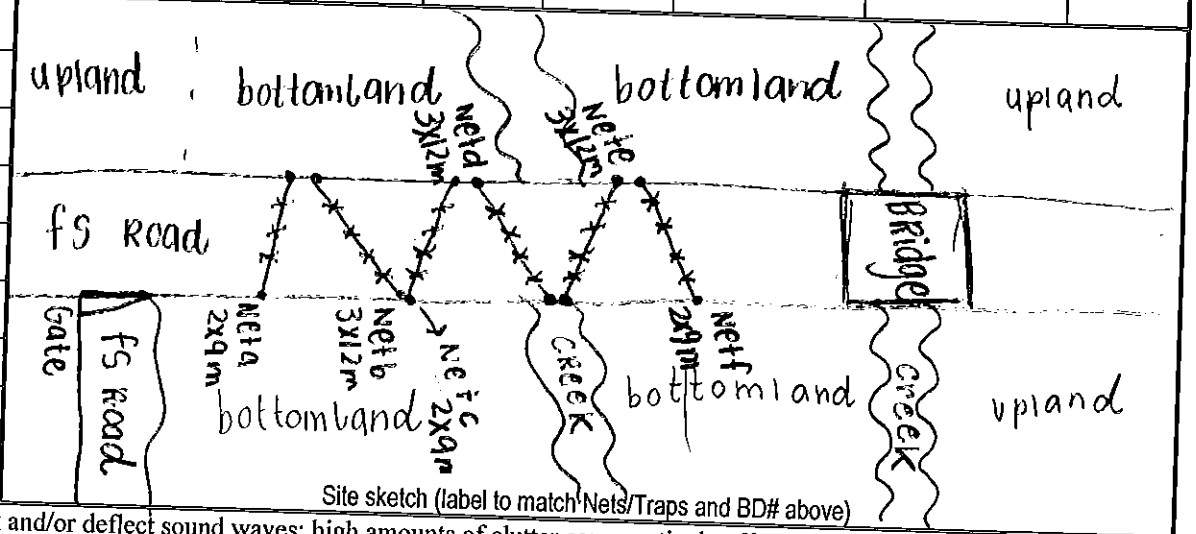
mixed/bottomland/unmanaged/mature forest

natural / clutter medium (3)

red bald loblolly flowering American sweetgum maple, cypress, pine, dogwood, holly, swamp, red wax smilax smilax chestnut, vay, myrtle, smilii, glabra

community habitat type: coastal plain small stream, swamp blackwater

subtype



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

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

ES data KC 3/7/18 bat long KC 3/8/18 USFWS 3/13/18 KC

* Closed early due to rain.

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 11-Craven Night# 3 Site Name: West Prong Brice Creek middle Date: 2/28/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1836	LABO	M	A	NR	38	16.75 -7.5	9.25	B	3m	Na / 0	Right wing pin hole	58
2	1902	LABO	M	A	NR	39	16-8	8	B	2.5m	Na / 0		58
3	1920	LABO	M	A	NR	37	16.25 -7.5	8.75	A	2m	Na / 0		59.5
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

11 - Craven 2/28/2018

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

Pine / hardwood (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: Coastal plain small stream swamp, blackwater subtype

A 34.80806, -77.07832
B 34.80804, -77.07869
C 34.80808, -77.07887
D 34.80814, -77.07919

E 34.80814, -77.07935
F 34.80822, -77.07937
G 34.80827, -77.07812
H 34.80832, -77.07807

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Craven	Site#:	10 Craven	Night#:	3	Site Name:	wolf swamp	Date:	2-28-18
Latitude:	34.80819	Longitude:	-77.07938					Datum: NAD 83	Elevation: 40'	ID By:	Dottie Brown
Observers:	Drew Powell, Molly Gordon & Hugo Combos							Start Time:	1800	End Time:	2202

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1800	63F°	0	25%	1118	58°F	0	100%	2202	57°F	0	100%

Moon Effect: waxing gibbous — Start: 1120 — Stop: —

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

NETS/TRAPS:	A: 1X3HX12m	B: 1X2HX9m	C: 1X2HX12m	D: 1X2HX12m	E: 1X2HX12m	F: 1X2HX12m
Pool size WxL	NA	NA	NA	NA	15'X10'	15'X10'
Swoop WxL	NA	NA	NA	NA	unlimited	unlimited
Photo? or #	yes	yes	yes	yes	yes	yes

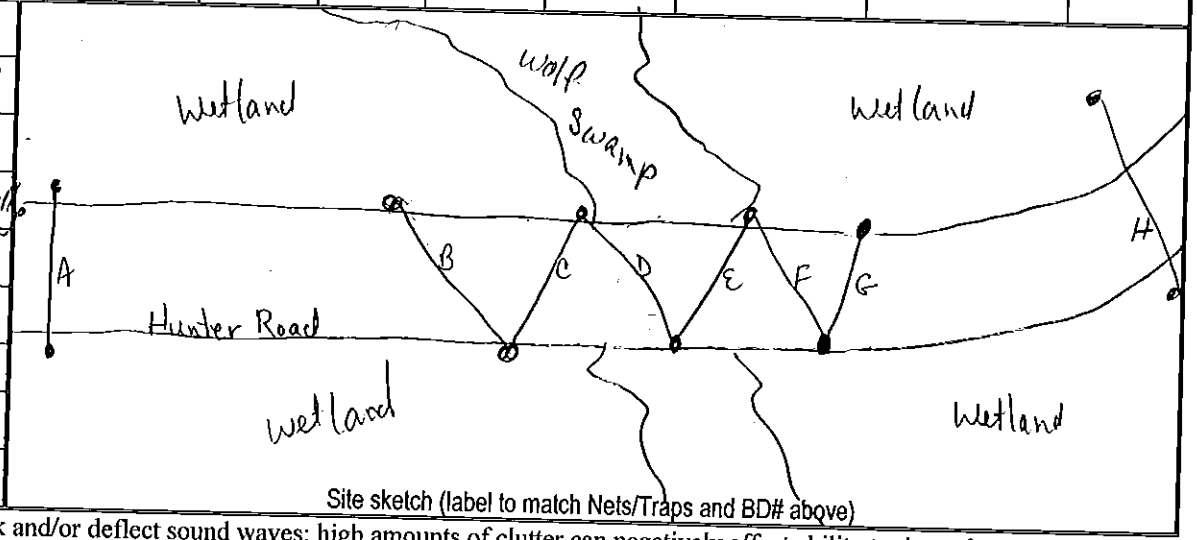
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

G 1X2HX12 NA

H 1X3HX9m NA

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

and / Upland & / managed / mature
mixed Pine / bottomland / & unmanaged / forest
Natural / Clutter / medium /
water sweet bald cypress gum laurel Nysa american/oblq oak, cypress, oak, aquita, holly, pine, Red giant poision ivy bay, cane, ivy, hobblebush greenbrier, fetterbush carolina Roundleaf sundew swamp inkberry, wax Jasmine, greenbrier, bay, myrtle
Community type: coastal plain small stream swamp blackwater subtype



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

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

ES data KC 3/7/18 batlong KC 3/8/2018 USFWS KC 3/13/18

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Craven Site# 10 Craven Night# 3 Site Name: Wolf Swamp Date: 2-28-18

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	2140	MYSE	M	A	NR	37	7.75/14	6.25	E	2.5 m	USGS A3114 / D	Transmitter 150.180 USFS DWA Nikki Purr 406 WNS 207
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

forearm 57

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

(Pine) / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes:

A1. 34.87236 -77.20074
B2. 34.87233 -77.20073
C3. 34.87293 -77.20100
D4. 34.87327 -77.20122

3 GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Jones	Site#:	2 Jones	Night#:	1	Site Name:	Black Swamp Creek	Date:	1/27/2018
Latitude:	34.87309	Longitude:	-77.20116					Datum:	Nad83	Elevation:	5ft
ID By:	Kristi Conforti										
Observers:	Drew Powell							Start Time:	17:14	End Time:	22:34

Conditions:	Time	Temp	Wind	Clouds
	1730	63.5	0	50
	2000	54	0	100
	2200	54	1	100

Moon Effect: waxing crescent

Start: 1729

Stop: 2000

Land Use: Urban / (Agriculture) / (Forest) / Water / Wetland / Barren *(describe)*: 2-21 4-43

NETS/TRAPS:	A:	B:	C:	D:	E:	F:
Pool size WxL	1x3Hx12m	1x2Hx9m	1x3Hx9m	1x3Hx12m		
Swoop WxL	Na	Na	Na	Na		
Photo? or #	Na	Na	Na	Na		
	yes	yes	yes	yes		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

sweetgum, Red maple, bobbobby pine

habitat community type: mesic mixed hardwood

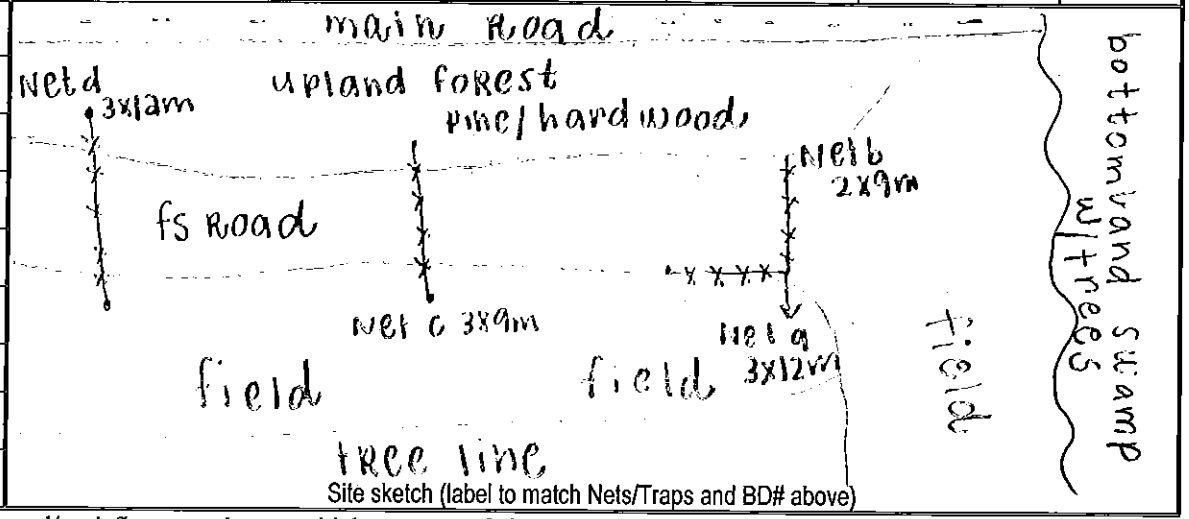
coastal plain subtype & managed

herbaceous (Not a natural community)

mixed forest / managed / mature forest

Natural / medium clutter 40-75%

upland forest



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

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

ES data KC 2/1/18 batbong KC 2/1/18 USFWS KC 3/13/18

Samples 3/5/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research project County: Jones Site# 2-Jones Night# 1 Site Name: Black Swamp Creek Date: 1/27/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1835	LABO	M	A	NR	40	16.5-1.5	9	B	2.5m	NC-WRC A3219 / O	Right wing pin hole NIKKI FUR #70
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

temp
55

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwood, coastal plain subtype & managed herbaceous (not a natural community)

1. 34.87236 -77.20074
2. 34.87233 -77.20073
3. 34.87293 -77.20100
4. 34.87327 -77.20122

3 GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NUEB Research project	County:	Jones	Site#:	2 Jones	Night#:	2	Site Name:	black swamp creek	Date:	2/1/2018
Latitude: 34.87309		Longitude: -77.2016						Datum: Nad 83	Elevation: 5 ft	ID By:	Kristi Confortin
Observers: Drew Powell								Start Time: 17:25		End Time:	2000

Conditions:	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds	Time	Temp	Wind	Clouds
	1730	60	2	50	2000	35	2	0	2000	35	2	0

Moon Effect: full moon

Start: 1933
Stop: —

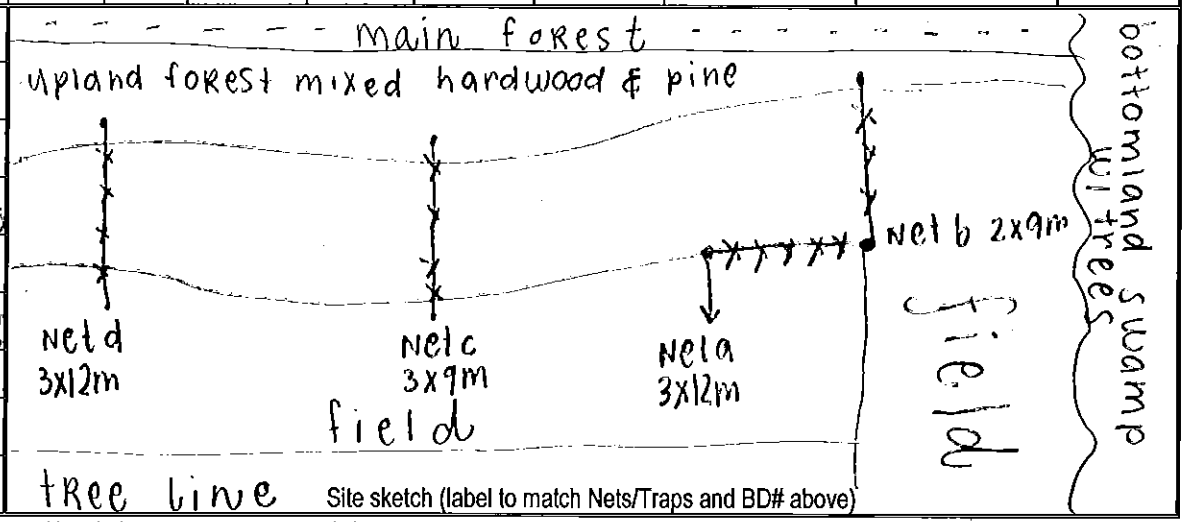
Land Use: Urban / (Agriculture) / (Forest) / Water / Wetland / Barren *(describe)*:
2-21 4-43

NETS/TRAPS:	A: 1x3Hx12m	B: 1x2Hx9m	C: 1x3Hx9m	D: 1x3Hx12m	E:	F:
Pool size WxL	Na	Na	Na	Na		
Swoop WxL	Na	Na	Na	Na		
Photo? or #	yes	yes	yes	yes		

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

Sweetgum, Red maple, loblolly pine
habitat community type: mesic mixed hardwood
Coastal plain subtype & managed herbaceous
(Not a natural community)
mixed forest / managed / mature forest
natural / medium clutter 10-75%
upland forest



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

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

ES data KC 2/2/18 bat long KC 2/2/18 USFWS KC 3/13/18 Samples 3/5/2018 DP

*closed early due to cold temps

Bat Survey Data Form

Project: NCDOT NUED Research Project County: Jones Site# 2 - Jones Night# 2 Site Name: Black swamp creek Date: 2/1/2018

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

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods + coastal plain subtype, managed herbaceous

A: 34.94934, -77.22063
B: 34.94920, -77.22035
C: 34.94918, -77.22015
D: 34.94921, -77.21992
E: 34.94912, -77.22005
F: 34.94910, -77.22012

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Jones	Site#:	8 JONES	Night#:	1	Site Name:	Crooked Run Weyerhaeuser Gate	Date:	6 Feb 2018
Latitude:	34.94943	Longitude:	-77.21955					Datum: Nad 83	Elevation: 47ft	ID By:	Kristi Confortin
Observers:	Julia Hoch							Start Time:	1740	End Time:	2142

Conditions:	Time	Temp	Wind	Clouds
	1750	57°F	0	25
	2050	40°F	0	0
	2142	39°	0	0

Moon Effect: waning crescent — Start: Na — Stop: Na

Land Use: Urban / (Agriculture 21) / Forest (43) / (Water 51) / Wetland / Barren *(describe)*:

NETS/TRAPS:	A: 1X3HX9m	B: 1x3Hx9m	C: 1x2H x12m	D: 1x3H x 9m	E: 1x2Hx12m	F: 1x2Hx12m
Pool size WxL	Na	Na	stream	Na	stream	Na
Swoop WxL	Na	Na	unlimited	Na	unlimited	Na
Photo? or #	yes	yes	yes	yes	yes	yes

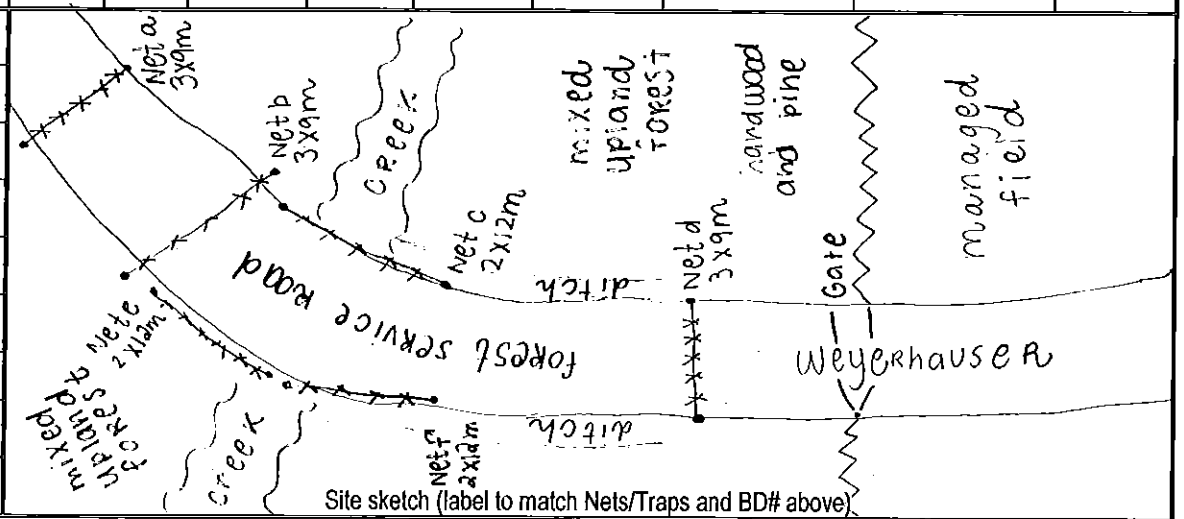
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland & bottomland/managed/natural

mature/medium clutter (3)

Community type - nonriverine wet hardwood forest + mesic mixed hardwoods, Coastal Plain Subtype



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

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

ES data KC 3/6/2018 batlong KC 3/8/18 USFWS KC 3/13/18

Samples 3/5/2018 DP

Bat Survey Data Form

*closed early due to cold temps

Project: NCDOT NLEB Research County: Jones Site# 8 - JONES Night# 1 Site Name: Crooked Road / Weyerhaeuser Gate Date: 6 Feb 2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1800	LABO	M	A	NR	36	8 / 15.5	7.5	4	5m	NEWRC A3218 / 0	RWing Pinhole
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

57°

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine wet hardwood forest & mesic mixed hardwoods, coastal plain subtype

A. 34.94934, -77.22063
B. 34.94920, -77.22035
C. 34.94918, -77.22015
D. 34.94921, -77.21992
E. 34.94912, -77.22005
F. 34.94910, -77.22012

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research project	County:	Jones	Site#:	8 Jones	Night#:	2	Site Name:	crooked Run Weyerhaeuser Gate	Date:	2/9/18
Latitude:	34.94943	Longitude:	-77.21955					Datum: Nad 83	Elevation: 47ft	ID By:	Kristi Conforkin
Observers:	Julia Hoeh							Start Time:	17:30	End Time:	2134
Conditions:	Time 1730	Temp 51.5	Wind 1	Clouds 25	Time 2038	Temp 40	Wind 0	Clouds 0	Time 2134	Temp 39	Wind 0	Clouds 0
Moon Effect:	waning Crescent	Start:	Na	Stop:	Na						
Land Use:	Urban / Agriculture (21) / Forest (43) / Water (51) / Wetland / Barren *(describe)*:										

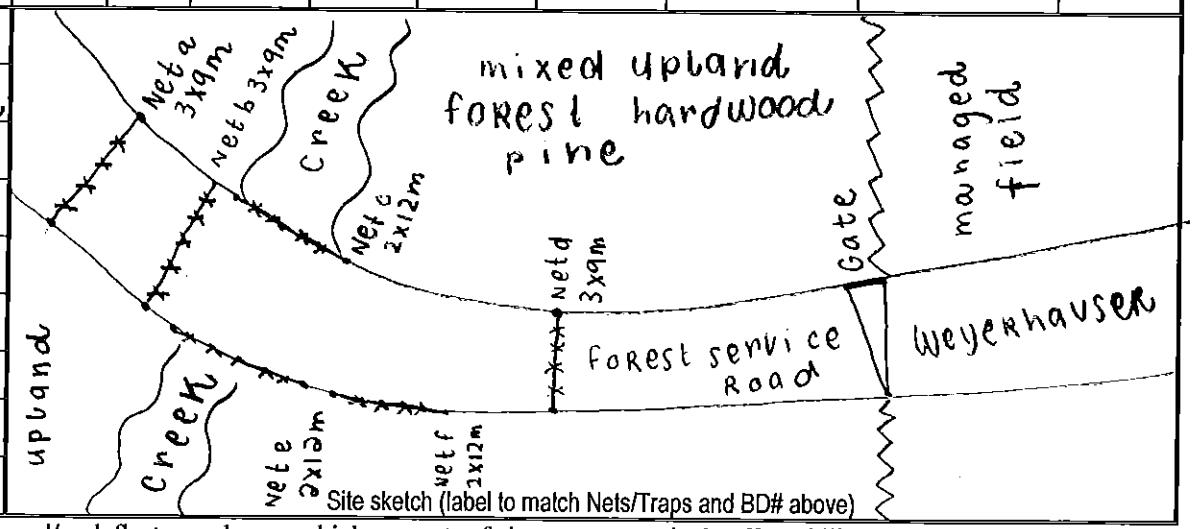
NETS/TRAPS:	A: 1x3Hx9m	B: 1x3Hx9m	C: 1x2Hx12m	D: 1x3Hx9m	E: 1x2Hx12m	F: 1x2Hx12m
Pool size WxL	Na	Na	stream	Na	stream	Na
Swoop WxL	Na	Na	unlimited	Na	unlimited	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland & bottomland/managed
Natural/mature/medium clutter (3)

Community type: nonriverine wet hardwood forest/ Mesic mixed hardwoods, Coastal Plain subtype



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

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

ES data KC 3/6/2018 Vationg KC 3/8/18 USFWS KC 3/13/18

Samples 3/5/2018 DP

Bat Survey Data Form

Project: NCDOT NUEB Research Project County: JONES Site# 8 - JONES Night# 2 Site Name: Crooked Run Weyerhaeuser Gate Date: 2/9/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #
1	1841	LABO	M	A	NR	39	16-8	8	B	3m	NC-WRC 43217 / O	
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

temp 44°

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

Pine / hardwood / (mixed) / unforested

(Upland) / bottomland

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine wet hardwood forest, mesic mixed hardwoods, coastal plains subtype

A1. 34.94646 -77.23388
B2. 34.94597 -77.23419
C3. 34.94543 -77.23386
D4. 34.94598 -77.23393
E5. 34.94598 -77.23393
F6. 34.94590 -77.23384

3 GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research project	County:	Jones	Site#:	4 Jones	Night#:	1	Site Name:	Crooked Run Road	Date:	2/10/18
Latitude:	34.946018	Longitude:	-77.233817					Datum: Nad 83	Elevation: 70ft	ID By:	Kristi Confortin
Observers:	Julia Hoeh							Start Time: 17:30		End Time:	2320

Conditions:	Time	Temp	Wind	Clouds
	1730	66°	0	50
	2000	61.5°	0	100
	2320	65.5	0	100

Moon Effect: waning crescent — Start: Na — Stop: Na

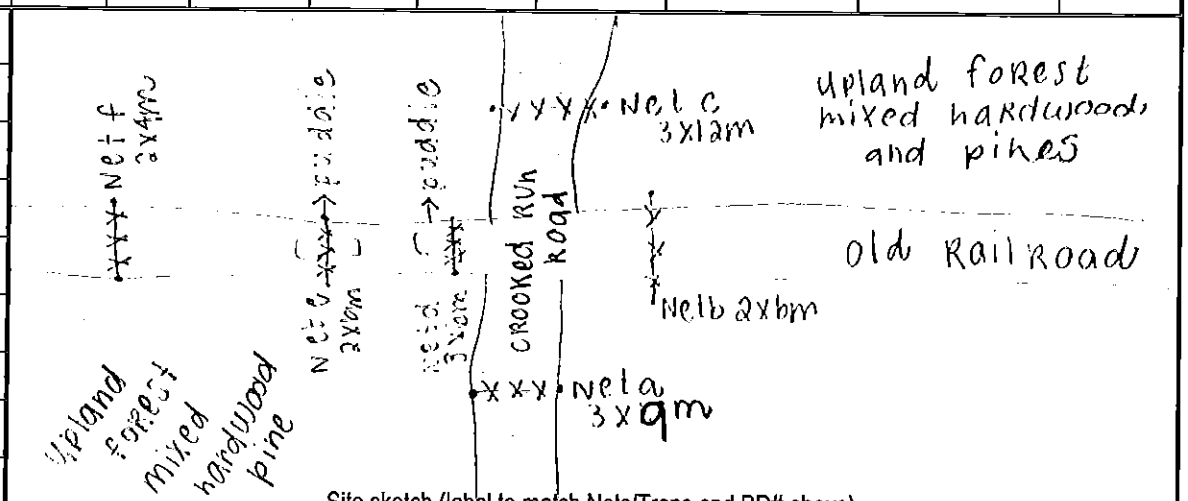
Land Use: Urban / Agriculture / (Forest) / Water / Wetland / Barren *(describe)*: 4-43

NETS/TRAPS:	A: 1x3Hx9m	B: 1x2Hx6m	C: 1x3Hx12m	D: 1x3Hx6m	E: 1x2Hx6m	F: 1x2Hx4m
Pool size WxL	Na	Na	Na	2x2m	2x3m	Na
Swoop WxL	Na	Na	Na	Unlimited	Unlimited	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

sweetgum, loblolly pine, red maple
mixed / upland / managed / mature /
natural / medium clutter
habitat community: nonriverine
west hardwood
forest



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

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

ES data KC 3/6/2018 Lathong KC 3/8/18 USFWS KC 3/8/18

Samples 3/5/2018 DP

Bat Survey Data Form

Project: NCDOT NLEB Research project County: JONES Site# 4-JONES Night# 1 Site Name: Crooked Run Road Date: 2/10/18

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1956	NYHU	M	A	TD	36	16.5 - 8	8.5	4	3 m	W/S: O E5GA498		61.5
2	1956	LABO	M	A	NR	38	18.5 - 8	10.5	5	1m	NC-WRC A3211 O		61.5
3	2230	LABO	M	A	NR	38	17.5 - 8	9.5	1	3 m	NC WRC A3216 O		63.5
4													
5													
6													
7													
8													
9													
10													
11													
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20													

4-Jones 2/10/2018

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: nonriverine west hardwood forest

A1. 34.85617, -77.20858 A4. 34.85600, -77.21019
B2. 34.85616, -77.20912 E5. 34.85647, -77.20982
C3. 34.85607, -77.20982 F6. 34.85670, -77.20977

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

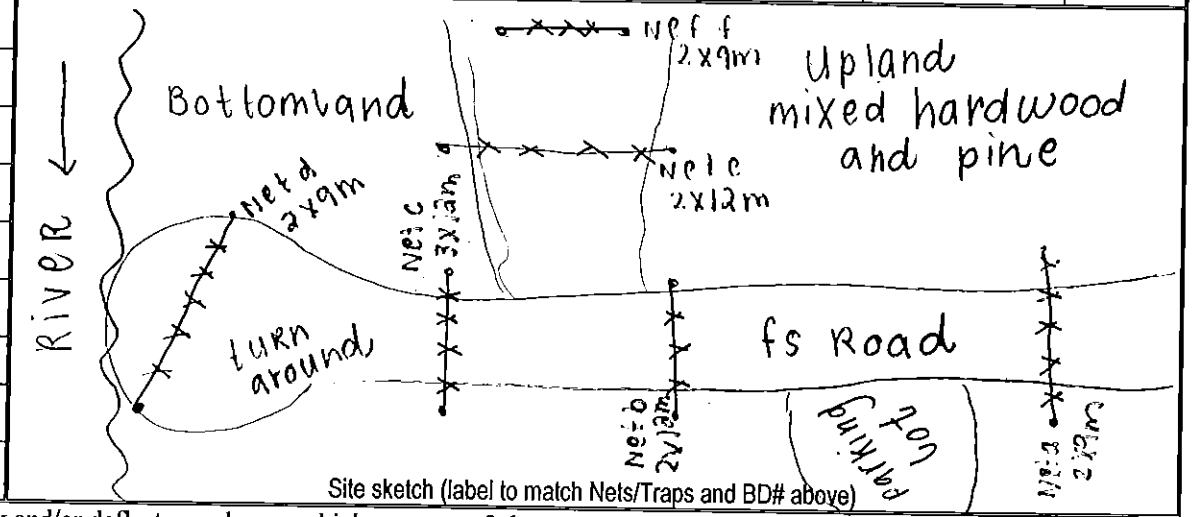
Project:	NCDOT NLEB research project	County:	Jones	Site#:	Jones 1	Night#:	1	Site Name:	Dixon field Boat Ramp	Date:	2/14/2018		
Latitude:	34.85598	Longitude:	-77.21021					Datum:	Nad 83	Elevation:	30ft	ID By:	Kristi Corfortin
Observers:	meredith Hoggatt							Start Time:	1727			End Time:	22:58
Conditions:	Time 1727	Temp 62	Wind 0	Clouds 25	Time 2037	Temp 51°	Wind 0	Clouds 100	Time 2235	Temp 49	Wind 0	Clouds 75	
Moon Effect:	waning crescent	Start:	Na	Stop:	Na	Land Use: Urban / Agriculture / (Forest) / (Water) / Wetland / Barren *(describe)*: 4-43 5-56							

NETS/TRAPS:	A: 1X3Hx9m	B: 1x2Hx12m	C: 1X3Hx12m	D: 1x2Hx9m	E: 1x2Hx12m	F: 1X2Hx9m
Pool size WxL	Na	Na	Na	Na	Na	Na
Swoop WxL	Na	Na	Na	Na	Na	Na
Photo? or #	yes	yes	yes	yes	yes	yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

bald cypress, sweet gum, water oak, Red maple, loblolly pine, chestnut oak, a. holly, sourwood mixed forest/ managed/mature forest/ Natural / medium clutter 40-75% upland & bottomland habitat community: mesic mixed hardwood coastal plain subtype lowland = coastal plain bottomland hardwood black water subtype



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

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

ES data KC 3/6/18 batlong KC 3/8/18 USFWS KC 3/13/18

Bat Survey Data Form

Project: NCDOT NLEB research project County: JONES Site# 1-JONES Night# 1 Site Name: Dixon field Boat Ramp Date: 2/14/2018

	TIME	SPECIES	Sex	Age	P/L/PL/NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	
1	1816	LABO	m	A	NR	39	7.5 / 18.5	10	A	2m	NC-WRC A3215 / 0	both wings large holes	53°
2	1928	myAU	m	A	TD	37.5	16.25 / 8	8.25	f	2m	NC-WRC A3214 / 0	WNS SWAB #49 KSU guano #27	52°
3	2137	myAU	f	A	NR	40	15.25 / 8	7.25	D	2m	NC-WRC A3213 / 0	WNS swab #52 KSU guano #73	49°
4	2137	myAU	m	A	TD	38	15.75 / 8	7.75	D	2m	NC-WRC A3212 / 0	WNS SWAB #45	49°
5													
6													
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20													

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwood coastal plain subtype lowland, coastal plain bottomland hardwood, blackwater subtype

A. 34.81920, -77.18202
B. 34.81925, -77.18340
C. 34.81910, -77.18337
D. 34.81948, -77.18418
E. 34.81826, -77.18423
F. 34.81955, -77.18418

3 GPS net points

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Jones	Site#:	3 Jones	Night#:	1	Site Name:	Haywood Landing
Date:	2-22-2018								
Latitude:	34.81921	Longitude:	-77.18228	Datum:	NAD 83	Elevation:	45ft	ID By:	Dottie Brown
Observers:	Julia Hoen, Meredith Hoggatt							Start Time:	1750
End Time:	22:30								

Conditions:	Time	Temp	Wind	Clouds
	1750	69.5	1	0
	2105	59.5	1	0
	2212	56	0	0

Moon Effect: waxing crescent — Start: 1750 — Stop: —

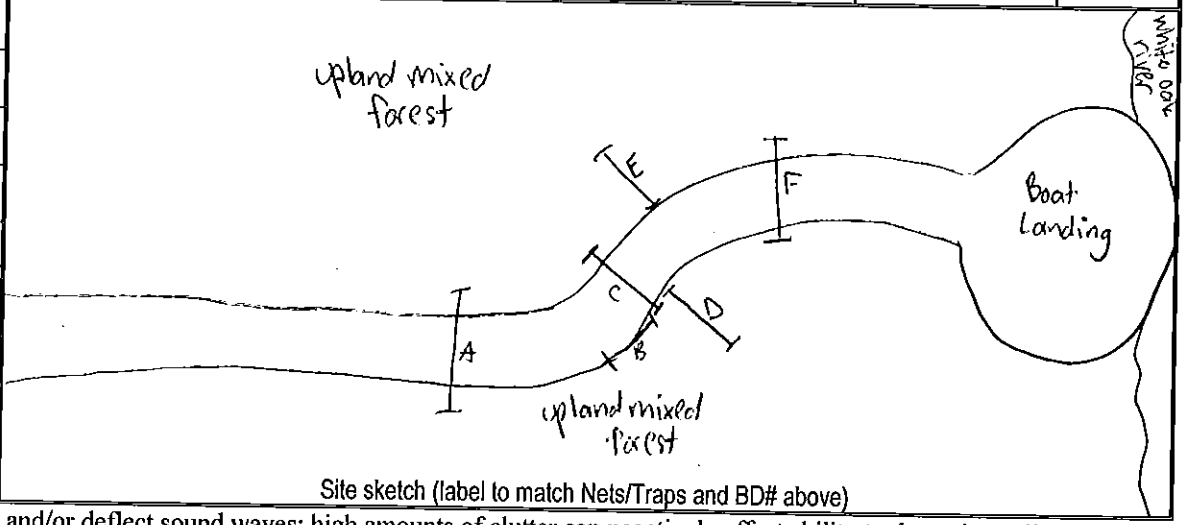
Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 4-43 5-51 6-61

NETS/TRAPS:	A: 1×3ft×12m	B: 1×2ft×9m	C: 1×3ft×12m	D: 1×2ft×9m	E: 1×2ft×9m	F: 1×3ft×12m
Pool size WxL	NA	NA	NA	NA	NA	NA
Swoop WxL	NA	NA	NA	NA	NA	NA
Photo? or #	NA	NA	NA	NA	NA	NA

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/upland & bottomland/ managed / mature/ Natural/ medium 3 clutter
S. red oak, loblolly pine, beech, water oak, white oak, pignut hickory, poplar, sweet gum
habitat community: mesic mixed hardwood coastal, plain subtype and tidal cypress-gum swamp



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

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

ES data KC 3/6/2018 batlong KC 318118 USFWS 3/16/18 KC

Bat Survey Data Form

Project: NCDOT NLEB Research project County: JONES Site# 3-JONES Night# 1 Site Name: Haywood Landing Date: 2-22-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	Temp
1	1832	LABO	M	A	NR	41	7.75 / 17	9.25	C	2.5	NA / 0		64
2	1833	EPFU	M	A	NR	46	8 / 23	15	F	3	NCWRC A1787 / 0	WNS 228	64
3	1855	MYHU	M	A	TD	33	8 / 15	7	C	3.5	ESGA 348 / 0		65
4	1855	LASE	M	A	NR	40.5	7.5 / 18.5	11	C	3	NA / 0	Large hole left wing	65
5	1856	LABO	M	A	NR	40	8 / 18	10	A	2.5	NA / 0		65
6	2015	EPFU	M	A	NR	47	8 / 22	14	A	4	NC-WRC A1786 / 0	Guano KSU / WNS 231 #83	61
7													
8													
9													
10													
11													
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19													
20													

3-Jones 2/22/2018

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

Pine / hardwood / (mixed) / unforested

(Upland) / (bottomland)

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

(Mature forest) / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwoods, coastal plain subtype, tidal cypress-gum swamp

A 34.84663, -77.13237 D 34.84671, -77.13167
B 34.84670, -77.13203 E 34.84670, -77.13156
C 34.84669, -77.13185 F 34.84679, -77.13148
G 34.84687, -77.13126

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Jones	Site#:	Jones 9	Night#:	1	Site Name:	Holston Hunter Road	Date:	2/23/18
Latitude:	34.84672	Longitude:	-77.131167					Datum:	NAD 83	Elevation:	23'
Observers:	Julia Hoeh + Meredith Doggett							Start Time:	17:40	End Time:	22:59
Conditions:	Time 1740	Temp 72.5	Wind 0	Clouds 0	Time 2048	Temp 62.5	Wind 0	Clouds 75	Time 2259	Temp 59	Wind 0	Clouds 0
Moon Effect:	Waxing crescent	Start: —	Stop: —	Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren *(describe)*: 43 51 61							

NETS/TRAPS:	A: 1X3HX12m	B: 1X3HX12m	C: 1X2HX9m	D: 1X2HX9m	E: 1X2HX12m	F: 1X2HX9m
Pool size WxL						
Swoop WxL	NA	NA	NA	NA	unlimited unlimited	NA
Photo? or #	yes	yes	yes	yes	yes	yes

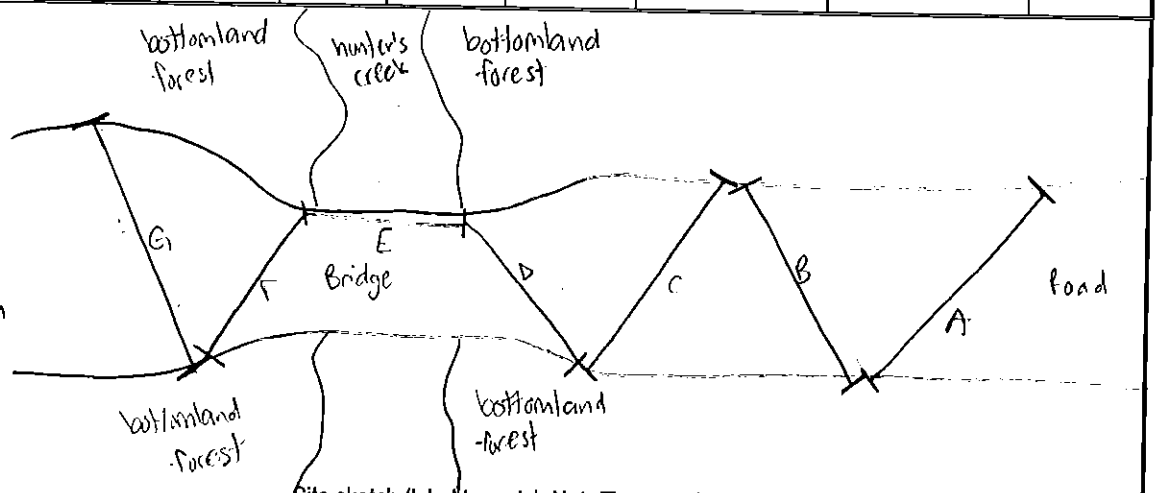
BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed/bottoland/managed/mature forest/natural/clutter large medium/wetland small stream Hunter Creek

Red Red sweet bald loblolly whitecedar myrtle bay gum cypress pine oak oak giant wax swamp American tulip cane, myrtle bay, holly, Dogwood, Poplar grapes honey pathwild dog, crape Hornbeam vine suckle, holdde, myrtle, ink lanceleaf roundleaf saw berry, greenbrier, greenbrier, greenbrier

Community = Stream Corridor = Coastal Plain Small Stream Swamp, Blackwater Subtype



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

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

ES data KC 3/6/18 Latlong 3/8/18 USFWS KC 3/12/18

G NETS 1X12m

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Jones Site# 9-Jones Night# 1 Site Name: Holston Hunter Road Date: 2-23-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1831	NYHU	M	A	NR	37	16.5 / 8	8.5	F	2 m	ES GA138 / 0	KSU#27	61F
2	1905	LASE	m	A	TD	39	16.25 / 8	8.25	G	4m	no band / 0	AB#9,1912	60.5F
3	1934	PESU	F	A	NR	36	13.75 / 8	5.75	F	4m	ES GA 131 / 0	WNS swab #203	62.5F
4	2145	EPFU	M	A	TD	111	24 ~~17.75~~	16.25	F	5m	NCWRC A1172 / 0	WNS swab #216 KSU #53	59.5
5													
6													
7													
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20													

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: stream corridor, coastal plain small stream, blackwater subtype

A 34.84663, -77.13237
B 34.84670, -77.13203
C 34.846669, -77.13185
D 34.84671, -77.13167
E 34.84670, -77.13156
F 34.84694, -77.13148
G 34.84687, -77.13126

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT-NLEB Research Project	County:	Jones	Site#:	9 Jones	Night#:	2	Site Name:	Holston Hunter Road
Date:	2-25-2018								
Latitude:	34.84672	Longitude:	-77.13167	Datum:	NAD83	Elevation:	23'	ID By:	Dottie Brown
Observers:	Julia Hoeh, Meredith Hoggatt							Start Time:	1900
End Time:	2306								

Conditions:	Time	Temp	Wind	Clouds
	1800	78	1	75
	2045	62.5	1	100
	2241	59.5	0	100

Moon Effect: waxing gibbous — Start: 1800 — Stop: —

Land Use: Urban / Agriculture / (Forest 43) / (Water 51) / (Wetland 61) / Barren *(describe)*: Hunter Creek

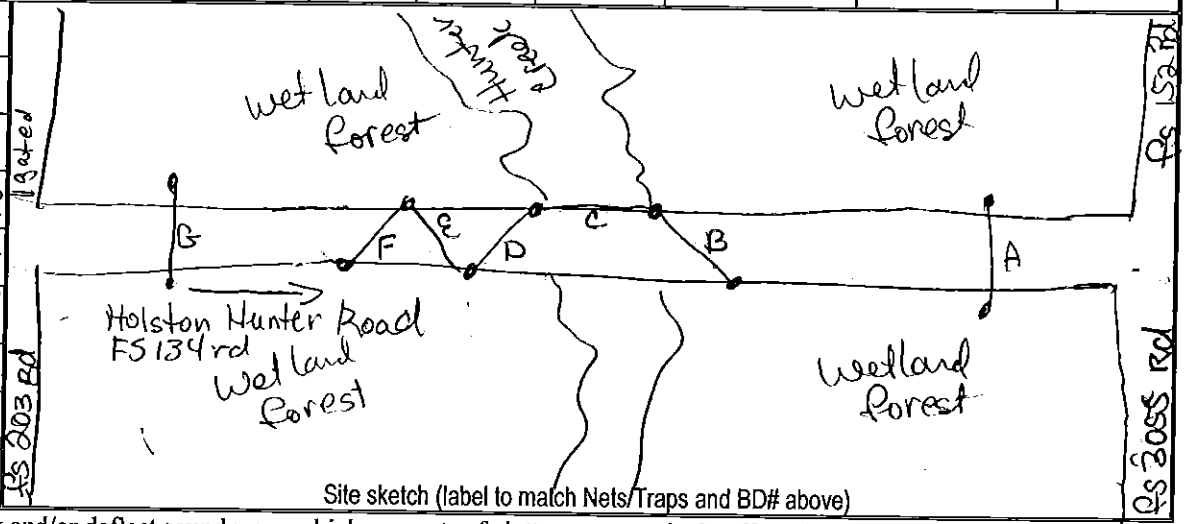
NETS/TRAPS:	A: 1x2Hx9m	B: 1x2Hx12m	C: 1x2Hx12m	D: 1x2Hx9m	E: 1x3Hx12m	F: 1x2Hx12m
Pool size WxL	NA	NA	unlimited	NA	N/A	NA
Swoop WxL			unlimited			
Photo? or #	Yes	Yes	Yes	Yes	Yes	Yes

G 1x3Hx9m

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

mixed / bottomland / managed / mature forest / natural
clutter / large + small Hunter
medium / wetland + stream Creek
red / Red / sweet bald / loblolly / whitewater tulip
maple / bay / gum, cypress, pine, oak, oak, poplar
wax, giant swamp, American, hornbeam
myrtle, cane, bay, holly, dogwood,
grape, honey, palmetto, dog, grape, blueberry
vine, suckle, palmetto, hobble, myrtle,
lancleaf, roundleaf, saw
greenbrier, greenbrier, greenbrier
Community = Stream Corridor - Coastal Plain Small
Stream Swamp, Blackwater subtype



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

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

ES data KC 3/6/18 batlong KC 3/8/18 USFWS KC 3/12/18

Samples 3/5/2018 DB

Bat Survey Data Form

Project: NCDOT NLEB Research Project County: Jones Site# 9-Jones Night# 2 Site Name: Holston Hunter Rd Date: 2-25-2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	Temp
1	1850	NYHU	F	A	NR	37	8.25 / 17	8.75	C	2m	ESGA 145 / 0		66°F
2	1940	EPFU	M	A	NR	47	7.75 / 22.75	15	A	2.5m	NCWRC A1779 / 0	WNS swab # 209	64°F
3	1952	EPFU	M	A	TD	47	7.75 / 20.75	13	D	3m	NCWRC A1785 / 0	WNS 221	63°F
4	1953	LABO	M	A	TD	39	7.25 / 18.00	10.25	G	3m	no band / 0		63.°F
5	2015	LANO	F	A	NR	42	7.75 / 18.25	10.5	G	4.5m	no band / 0		62.5
6	2040	LABO	M	A	NR	40	8 / 16	8	G	2m	no band / 0		62.5
7	2157	LABO	M	A	TD	39	7.5 / 15.5	8	A	2.5m	no band / 0		60.5
8	2255	EPFU	M	A	NR	44.5	7.25 / 23	15.25	G	2.5m	NCWRC A1780 / 0	WNS 213	60.5
9													
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20													

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

Pine / hardwood / (mixed) / unforested

Upland / (bottomland)

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

(Mature forest) <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: Stream corridor = Coastal plain small stream blackwater subtype

1. 34.85617 -77.20858
2. 34.85616, -77.20912
3. 34.85607, -7720
4. 34.85600, -77.21011
5. 34.85647, -77.20912
6. 34.85670, -77.20977

NCDOT Mist-Netting & Acoustic Survey Data Form

Croatan NF, NC

Project:	NCDOT NLEB Research Project	County:	Jones	Site#:	Jones	Night#:	2	Site Name:	Dixon field Boat Ramp			Date:	2/25/2018		
Latitude:	34.85598	Longitude:	-77.21021					Datum:	Nad83	Elevation:	30ft	ID By:	Krish Confortin		
Observers:	Drew Powell, Molly Gooden							Start Time:	1740			End Time:	2322		
Conditions:	Time 1750	Temp 73.5	Wind 0	Clouds 100	Time 2100	Temp 62.5	Wind 0	Clouds 75	Time 2219	Temp 59.5	Wind 0	Clouds 75			
Moon Effect:	Waxing Crescent	Start:	1809	Stop:	—	Land Use:	Urban / Agriculture / (Forest) / (Water) / Wetland / Barren *(describe)*: 4-43 5-51								

NETS/TRAPS:	A: 1x3Hx12m	B: 1x3Hx12m	C: 1x2Hx9m	D: 1x2Hx9m	E: 1x2Hx9m	F: 1x3Hx12m
Pool size WxL	Na	Na	Na	Na	Na	Na
Swoop WxL	Na	Na	Na	Na	Na	Na
Photo? or #	Yes	Yes	Yes	yes	Yes	Yes

BD#	Latitude	Longitude	Mic	Ht	Acoustic Clutter*	gain	trigger	interval	Start time	Stop Time	Photo?

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

bald cypress, sweet gum, water oak, red maple, loblolly pine, chestnut oak, american holly, sourwood

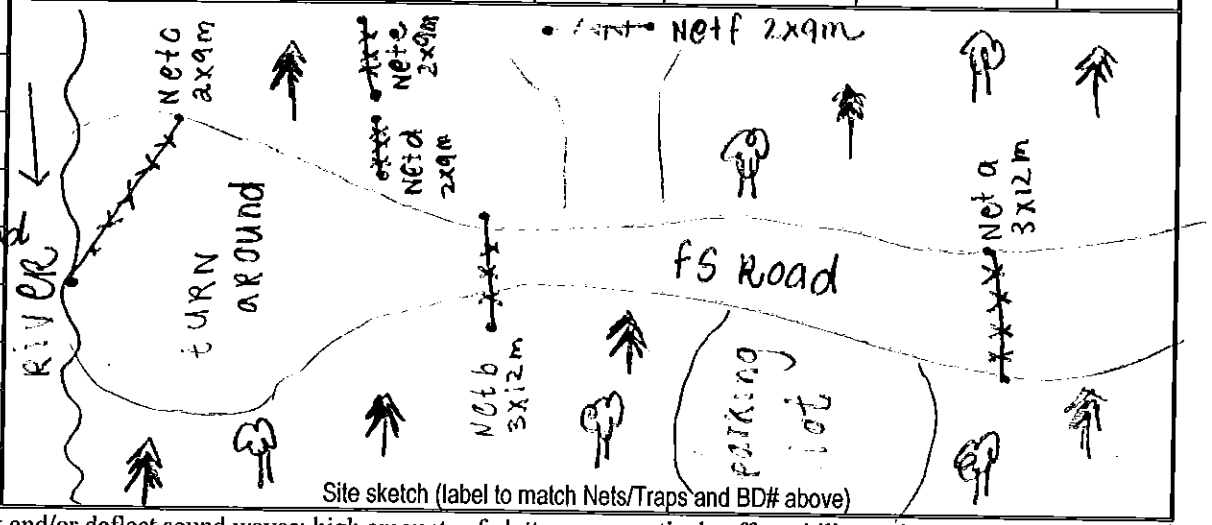
mixed forest / managed / mature / bottomland upland

Natural / medium clutter 40-75%

habitat community: mesic mixed hardwood

coastal plain subtype lowland

coastal plain bottomland hardwood black water sub type



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

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

ES data KC 3/6/2018 bat long 3/18/18 KC USFWS KC 3/13/18

Samples 3/5/2018 DR

Bat Survey Data Form

Project: NCDOT NLEB research project County: JONES Site# 1 - JONES Night# 2 Site Name: pixon field Boat Ramp Date: 2/25/2018

	TIME	SPECIES	Sex	Age	P / L / PL / NR	FA	Bag WT	WT	Net #	Height	Band / WS	Comment / Photo #	temp
1	1836	LABO	m	A	NR	37	16.75 - 7.5	9.25	A	1.5m	Na / 0	recapture	68
2	1850	LABO	m	A	NR	37	18.25 - 7.75	10.5	A	1.5m	Na / 0		66.5
3													
4													
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20													

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

Pine / hardwood / mixed / unforested

Upland / bottomland

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

Mature forest / <20 years old forest or cutover

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

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

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

Any Other Habitat Notes: mesic mixed hardwood - coastal plain subtype lowland coastal plain bottomland hardwood, blackwater subtype

Appendix G
NLEB Tracking, Roost, and Emergence Data Sheets

Bat Species/Sex MYSE / male Frequency 150.430

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Kristi Comfortin + Dottie Brown Date: 12/4/2017

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 35.00138 LONG -77.08180 9' accuracy

Property Owner U.S. Forest Service Croatan NF Phone# 252-638-5628

State NC County Craven Project Name # NCDOT NLEB research project

Roost # 430 A Croatan National Forest

Roost Tree Data

Species: Pond Pine (Pinus serotina) Live X Snag __ Other __

(If other, explain) _____

DBH (in or cm) 11.5" (29.21cm) Total Height (ft or m) 78' (23.7744m)

Height of roost area (if known) NA Dist. from capture site .60 miles

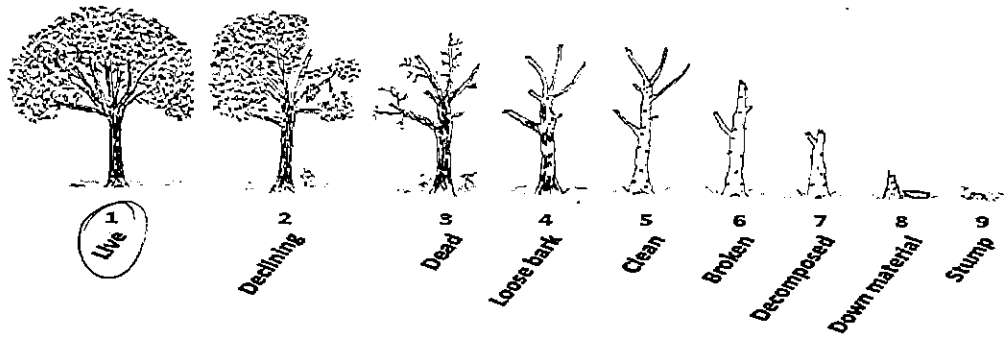
Roost position aspect (deg) 180° South

Exfoliating bark on bole (%) NA Describe: sloughing __ platy __ tight ✓

Cavities present? Yes if so, describe: broken limbs + large growth

Roost tree or snag canopy position: Dominant X Co-Dominant __ Suppressed __

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



No. of days at roost (dates) 12/4, 12/5, 12/6, 12/7, 12/8 2017

Observations DP+MH / DP+MH / DP+JH / DP+KC+JH /

Ecological Solutions

12-14-2017

MH USFWS#4_New_Dottie_Brown_4th Projects

Surrounding Habitat Condition

Canopy closure at roost (%) 65%

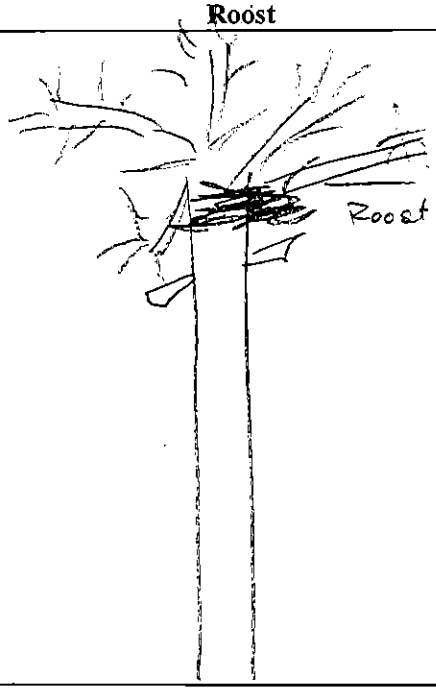
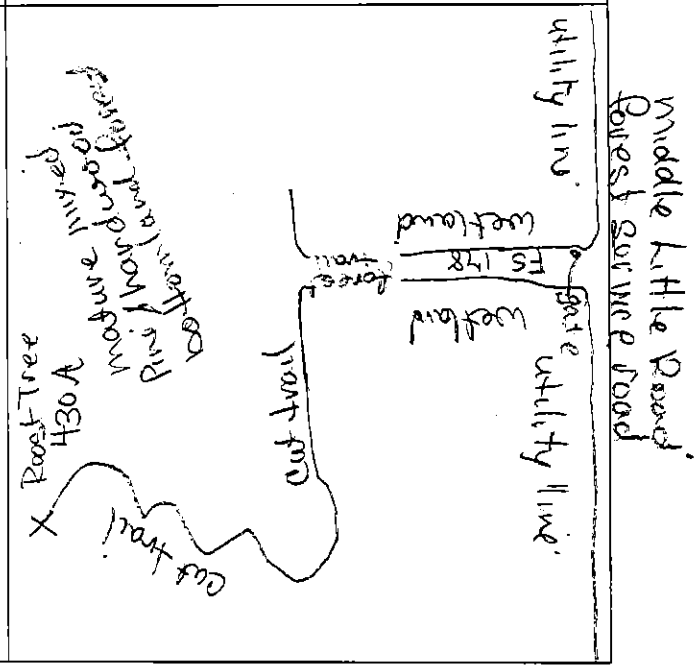
Approximate woodlot size (ac or ha) 13,687 acres **Distance to non-forest (ft or m)** .83 miles

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Wilderness area with mixed pine / hardwood bottomland forest. Community = Pond Pine Woodland (and CT Typic Subtype)
Tree species = Pond Pine, loblolly bay 85% cover

Community type = Bay Forest

Additional Comments
Sub-canopy = high bush blueberry, inkberry, fetterbush, swamp bay, Smilax spp's, Smilax smithii

Diagram

Roost	Location
	

Ecological Solutions

Bat Species/Sex MYSE / Male Frequency 150.430

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Kristi Corbin, Drew Pavel, Julia Hoch Date: 12/9/17

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 35.00798 LONG -77.07735 ELEV 27ft 9' accuracy

Property Owner Croatan NF US Forest Service Phone# 252-638-5628

State NC County Craven Project Name # NCDOT NLEB Research Project

Roost # 430B Croatan National Forest

Roost Tree Data

Species: Red Maple (Acer rubrum) Live X Snag __ Other __

(If other, explain) _____

DBH (in or cm) 1.7 in (4.318) Total Height (ft or m) 47 ft (14.325 m)

Height of roost area (if known) NA Dist. from capture site .24 miles

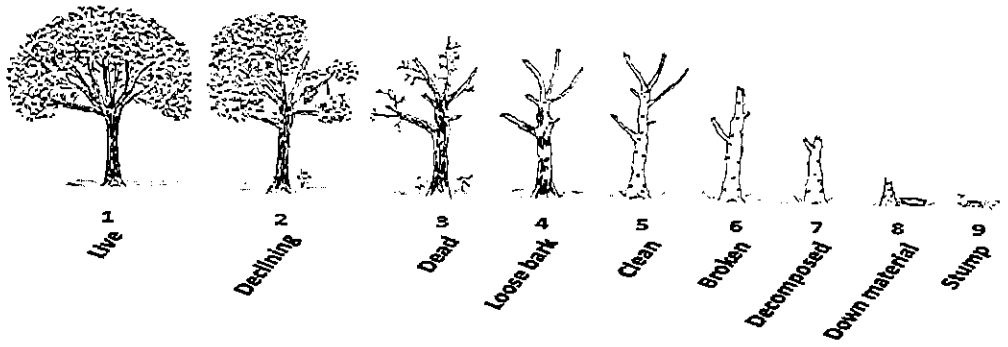
Roost position aspect (deg) 179S

Exfoliating bark on bole (%) 0 % Describe: sloughing __ platy __ tight X

Cavities present? X if so, describe: A few crevaces & decay spots where branches broke off

Roost tree or snag canopy position: Dominant __ Co-Dominant X Suppressed __

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



2017

No. of days at roost (dates) 12/9, 12/10, 12/11, 12/12, 12/14 & 12/15

Observations KC, JH, DP / DP + JH / DP + JH /

Ecological Solutions

12-14-2017

+ USFWS44_New_Dottie Brown_All Projects

Surrounding Habitat Condition

Canopy closure at roost (%) 15

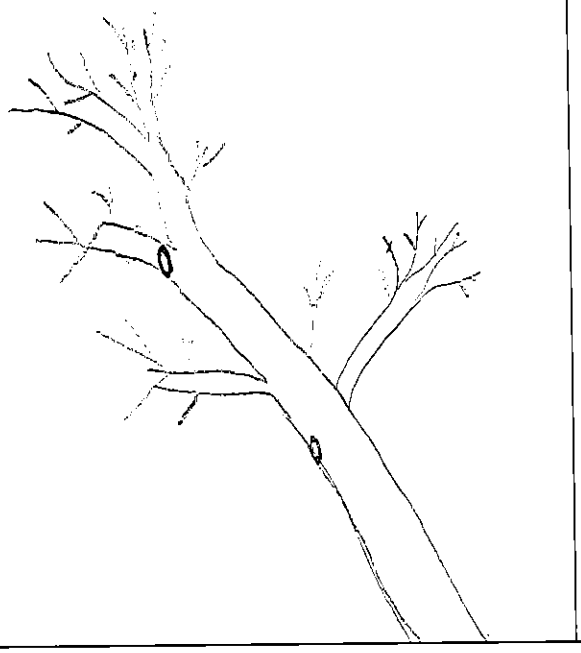
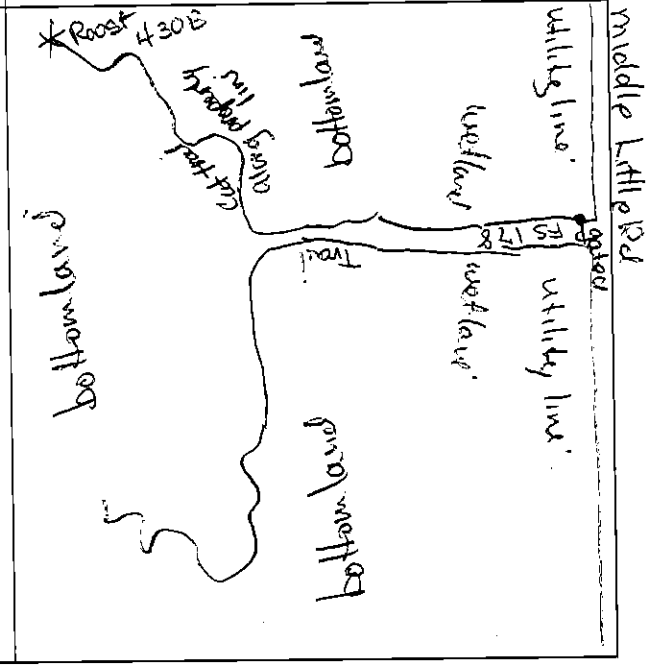
Approximate woodlot size (ac or ha) 13,687 acres **Distance to non-forest (ft or m)** .40 miles

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Mature, mixed deciduous/pine forest, moderate understory, swamp adjacent to creek, mix of snags and live trees, forest in surrounding included loblolly Pine, Pond Pine, Sweet gum, red maple american holly, Swamp bay, Sweet bay magnolia

Community = Coastal Plain Small Stream Swamp, Blackwater Subtype

Additional Comments
Subcanopy - Fetterbush, dog hobble, american holly

Diagram

Roost	Location
	

Ecological Solutions

Bat Species/Sex MYSE / M Frequency 150.430

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Julia Hoeh; Meredith Haggart Date: 12/13/17

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 35.00179 LONG -77.08158 14' accuracy Elev. 68'

Property Owner US FS Croatan NF Phone# 252-638-5628

State NC County Craven Project Name # NCDOT NLEB Research Project

Roost # 430c CROATAN NATIONAL FOREST

Roost Tree Data

Species: Loblolly Bay (Gordonia lasianthus) Live __ Snag X Other __

(If other, explain) _____

DBH (in or cm) 26.5 in Total Height (ft or m) 53 ft

Height of roost area (if known) ±45 ft Dist. from capture site .60 mile

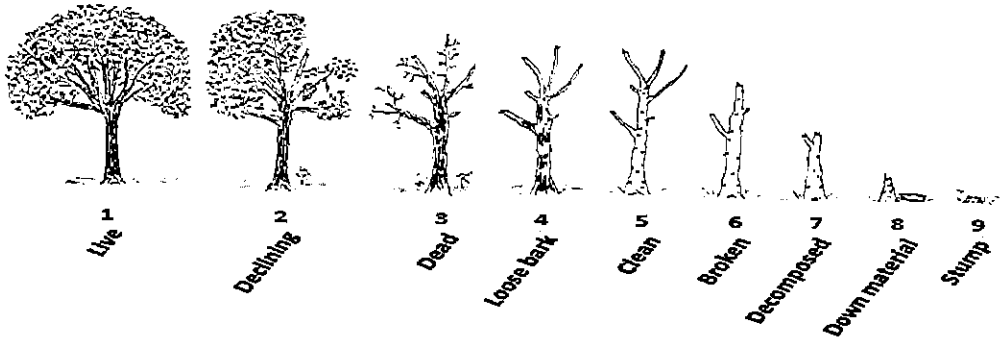
Roost position aspect (deg) 180° S

Exfoliating bark on bole (%) 15% Describe: sloughing __ platy __ tight X

Cavities present? Y if so, describe: few branches broken off, potentially sloughing bark near canopy in sun (potential for cavities)

Roost tree or snag canopy position: Dominant __ Co-Dominant X Suppressed __

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



No. of days at roost (dates) 12/13/2017

Observations JH; MH

Ecological Solutions

KC USFWS 1/4/2018

Surrounding Habitat Condition

Canopy closure at roost (%) 40%

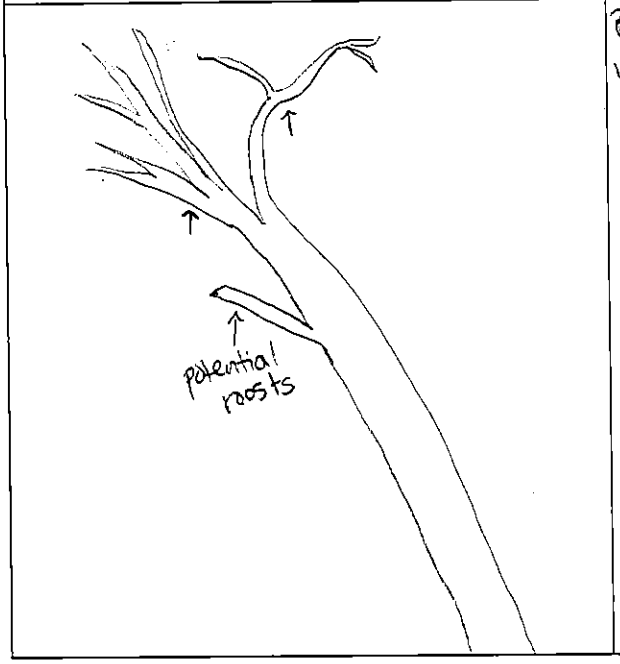
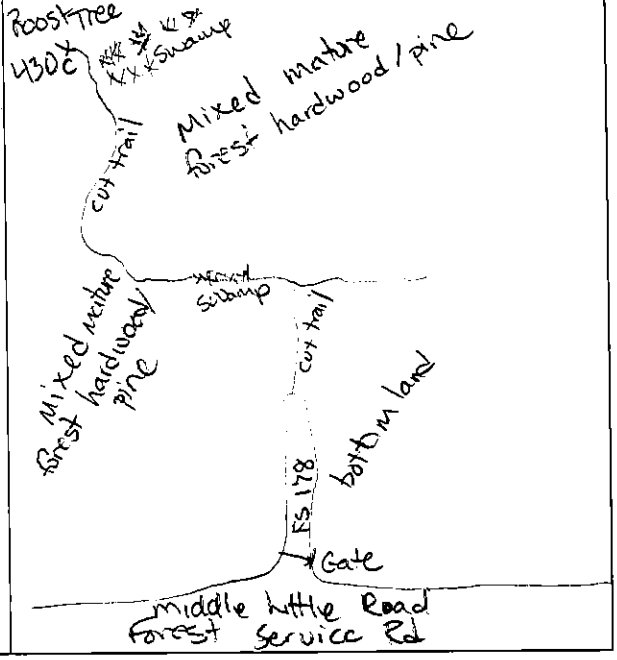
Approximate woodlot size (ac or ha) 13,687 acres **Distance to non-forest (ft or m)** .86 mile

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
mature, deciduous/pine mix loblolly bay. wilderness area, bottomland forest.
Community = Pond Pine Woodland (Typic Subtype)
Tree species = Pond Pine, loblolly bay 85% cover

Community type = Bay Forest

Additional Comments
Sub canopy - highbush blueberry, inkberry, fetterbush, Swamp bay, Smilax spp's Smilax smalli

Diagram

Roost	Location
	

Ecological Solutions

BAT TELEMETRY

Species myse Sex male Bat Frequency 150.430

Capture Date 12/2/17 Capture Site/GPS 4. Craven GPS: 35.00707, -77.07463, Croatan NF, N.C.

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
12/3/17	Kristi Confortin Drew Powell	NO	NA	35.00276 -77.08120 239°SW	good signal
12/4/17	Kristi Confortin Dottie Brown	—	—	35.00693 -77.09555 242°SW 17ft	poor signal
	↓	—	—	35.00686 -77.07631 231 SW 10'	good +
		—	—	35.00666 -77.07746 232 SW 10'	great
		—	—	35.00324 -77.07956 325 NW 9'	good
	↓	Y/430a	Pond pine	35.00138 -77.08186	Roost 150.430a
12/5/17	Drew Powell Meredith Heggatt	Y/430a	Pond pine	35.00138 -77.08186	Roost 150.430a
12/6/17	Drew Powell Meredith Heggatt	Y/430a	Pond pine	35.00138 -77.08186	Roost 150.430a
12/7/17	Drew Powell - Julia Hoeh	Y/430a	Pond pine	35.00138 -77.08186	Roost 150.430a
12/8/17	Drew Powell-Kristi Confortin-Julia Hoeh	Y/430a	Pond pine	35.00138 -77.08186	Roost 150.430a
12/9/17	Drew Powell - Julia Hoeh	Y/430b	Red maple	35.00798 -77.07735	Roost 150.430b
12/10/17	Drew Powell Julia Hoeh & Kristi Confortin	Y/430b	Red maple	35.00798 -77.07735	Roost 150.430b
12/11/17	Drew Powell - Julia Hoeh	Y/430b	Red maple	35.00798 -77.07735	Roost 150.430b
12/12/17	Drew Powell - Meredith Heggatt	Y/430b	Red maple	35.00798 -77.07735	Roost 150.430b

Ecological Solutions

BAT TELEMETRY

Species MYSE Sex Male Bat Frequency 150.430

Capture Date 12/3/17 Capture Site/GPS 4-Craven GPS: 35.00707, -77.07463, Croatan Nf, N.C.

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
12/13/17	Julia Hoeh & Meredith Hoggatt	Y/430c	Loblolly Bay	35.00179, -77.08158	Roost 150.430c
12/14/17	Drew Powell - Julia Hoeh	Y/430b	Red maple	35.00798, -77.07735	Roost 150.430b
12/15/17	Drew Powell - Kristi Confortin	Y/430b	Red maple	35.00798, -77.07735	Roost 150.430b
12/16/17	Drew Powell-Kristi Confortin-Meredith H.	N	N/A	N/A	Did not pick up signal from bat 150.430
12/17/17	Drew Powell - Kristi Confortin	N	N/A	N/A	Bat 150.430 was heard foraging NE of roost 430b at 7:30
	Dottie Brown - Meredith Hoggatt	N	N/A	N/A	Hike in Swamp S. of Roost #1c Hike in Swamp to W of Roost #1c Worked in Wolfpen Run Depot
12/18/17	Drew Powell - Kristi Confortin	N	N/A	35.00816, -77.07676	Transmitter was found on the ground. Signal was still very strong.

Ecological Solutions LLC

APPENDIX E
PHASE 4 (CONT) EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 12/5/2017 **Surveyor(s) Full Name:** Drew Powell / Meredith Haggati

State: NC **County:** Craven **Project Name:** NCDOT NLEB Research Project

Site Name/#: 4 - Craven **Roost Name/#** 430a **Bat #:** 150.430

Lat/Long or UTM of Roost: N 35.00138° W - 77.08186°

Description of Roost/Habitat Feature Surveyed: A pond pine with a large knot half-way up the tree. Multiple dead branches also present.

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

Other Suspected Bat Species (explain): N/A

Weather Conditions during Survey (temperature, precipitation, wind speed): 70°F - 64°F Overcast with a slight breeze. No precipitation.

Survey Start Time: 16:46 **Time of Sunset:** 16:56 **Survey End Time:** 17:33

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
17:23	1	Bat 150.430 left roost and flew NE at 64°. Temp was 64°F

Croatan National forest

12-14-17

H:\USFWS\...New_Dottie_Brown_All Projects

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: 4 - Craven **Roost Name/#:** 430a

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

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

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

Bat 150.430 emerged at approximately 17:23 and immediately flew NE at 31°. The bat did not seem to forage near roost.

APPENDIX E
PHASE 4 (CONT) EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 12/14/2017 **Surveyor(s) Full Name:** Drew Powell / Julia Hoch
State: NC **County:** Craven **Project Name:** NCDOT NLEB Research Project CROATAN NATIONAL FOREST
Site Name/#: 4-Craven **Roost Name/#** 4306 **Bat #:** 150.430
Lat/Long or UTM of Roost: 35.00798, -77.07735
Description of Roost/Habitat Feature Surveyed: A tall red maple that provides many knots/holes for roosting. Tree gets plenty of sunlight
Bat Species Known to be using this Roost/Feature (if not known, leave blank): Myotis septentrionalis
Other Suspected Bat Species (explain): N/A
Weather Conditions during Survey (temperature, precipitation, wind speed): 50° Partly cloudy with a slight breeze and no precipitation
Survey Start Time: 16:27 **Time of Sunset:** 16:57 **Survey End Time:** 17:40

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: 4-Craven **Roost Name/#:** 4306

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	○	Telemetry gear was used during survey.

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

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

N/A

BAT EMERGENCE COUNTS

Species myse **Sex** male **Bat Frequency** 150.430

Capture Date 12-3-17 **Capture Site/GPS** 4- Craven / 35.00707, -77.074463, Croatan National Forest North Carolina

DATE	OBSERVERS	ROOST #	GPS LAT/LONG	Bat Count	COMMENTS
12/3/17	no emergence	TRAN	unable to locate.		unable to locate actual tree
12/4/17	no emergence	430a	35.00135, -77.08186	Na	temps too low
12/5/17	Drew Powell Meredith Hoggatt	430A	35.00135 -77.08186	1	emerged temp 64°F
12/6/17	no emergence	430A			completed 12/5 for Roost 430A
12/7/17	" "	430A			" "
12/8/17	" "	430A			" "
12/9/17	" "	430B	35.00798, -77.07735		bad weather
12/10/17	" "	430B			" "
12/11/17	" "	430B			" "
12/12/17	" "	430B			temps too low
12/13/17	no emergence	430C			temps too low
12/14/17	Drew Powell Julia Hoch	430B	35.00798, -77.07735	0	bat did not emerge
12/15/17	no emergence	430B	35.00798, -77.07735		completed 12/14 for Roost 430B
12/16/17	"	NA			
12/17/17		NA			
12/18/17		Na	Na	Na	transmitter found on ground

Bat Species/Sex INYSE / Male Frequency 150.340

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dottie Brown, Drew Powell, Meredith Haggar Date: 12-20 2017

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 35.04184 LONG -77.06590

Property Owner Croatan National Forest Phone# 252-638-5628

State North Carolina County Craven Project Name # NCDOT NEB Research Project

Roost # 340A CROATAN NATIONAL FOREST

Roost Tree Data

Species: Sourwood (oxydendrum arboreum) Live X Snag __ Other __

(If other, explain) _____

DBH (in or cm) 4.1" Total Height (ft or m) 45'

Height of roost area (if known) 8 ft Dist. from capture site 1.5 miles

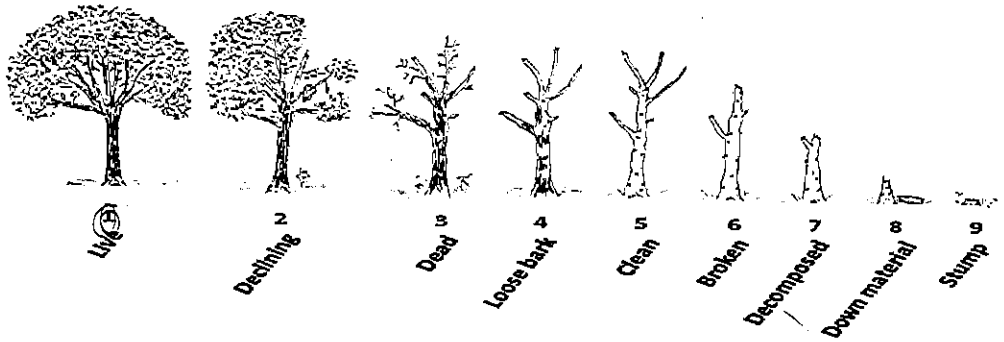
Roost position aspect (deg) 92°

Exfoliating bark on bole (%) 0 Describe: sloughing __ platy __ tight X

Cavities present? Yes if so, describe: Small crevice ~8ft high crevice goes in about up with the trunk

Roost tree or snag canopy position: Dominant __ Co-Dominant __ Suppressed X

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



No. of days at roost (dates) 12/20, 12/21, 2017

Observations _____

12/24 & 12/25 not tracked due to holidays approved by USFWS Raleigh North Carolina office

Ecological Solutions

KC USFWS 1/4/18

Surrounding Habitat Condition

Canopy closure at roost (%) 40%

Approximate woodlot size (ac or ha) 169, 990 **Distance to non-forest (ft or m)** .28 miles

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

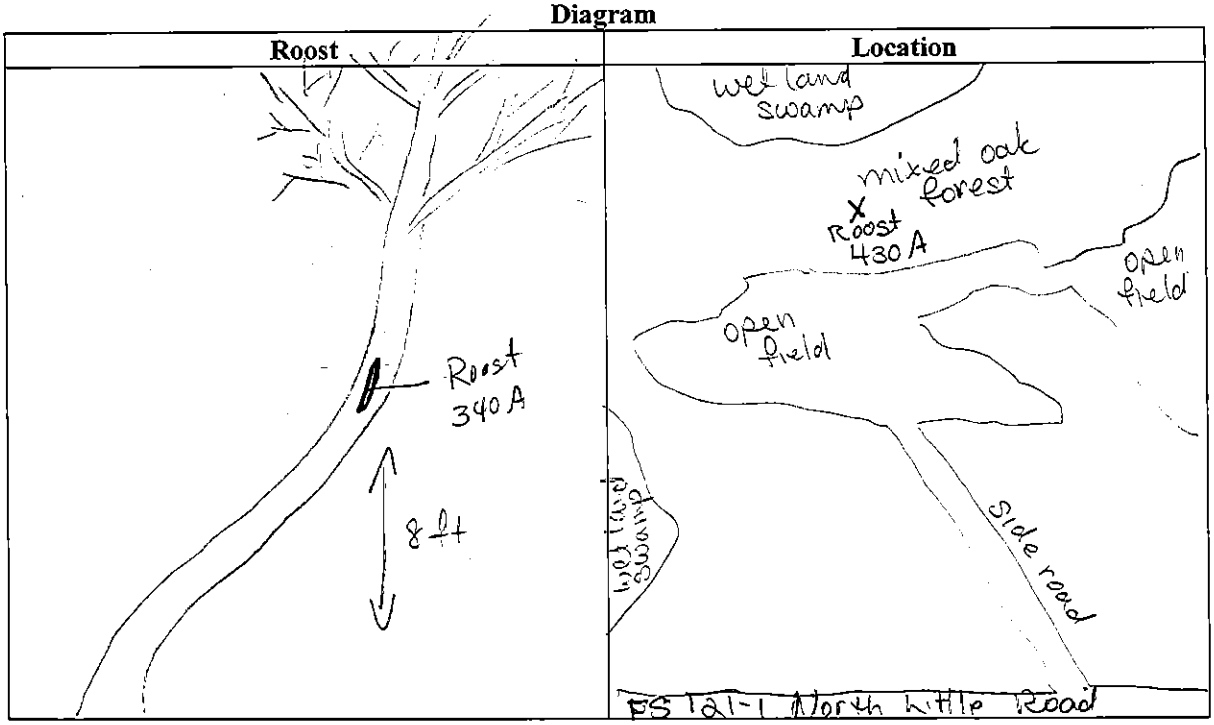
Woodland = Oak dominate forest w/ white oak, loblolly pine, Dogwood, Sour wood, American Sweet gum, S. red oak, Pignut hickory, water oak, turkey oak, holly, understory - Horse sugar, Swamp bay, ilex glabra, smilax, S. alauca

wetland = bald cypress, red maple, water tupelo, swamp bay, gian cane, Fetterbush, sweet magnolia loblolly bay.

Community = Dry mesic oak Hickory Forest

Additional Comments

Diagram



Ecological Solutions

Bat Species/Sex MYSE Frequency 150.340

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dottie Brown + Drew Powell Date: 12-22-17

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 35.04311 LONG -77.06794 9' accuracy

Property Owner Croatan National Forest Phone# 252-638-5628

State NC County Craven Project Name # NCDOT NLEB Research Project

Roost # 340 B Croatan National Forest

Roost Tree Data

Species: Water tupelo (Nyssa aquatica) Live X Snag __ Other __

(If other, explain) _____

DBH (in or cm) 3.75" Total Height (ft or m) 59'

Height of roost area (if known) NA Dist. from capture site 1.5 miles

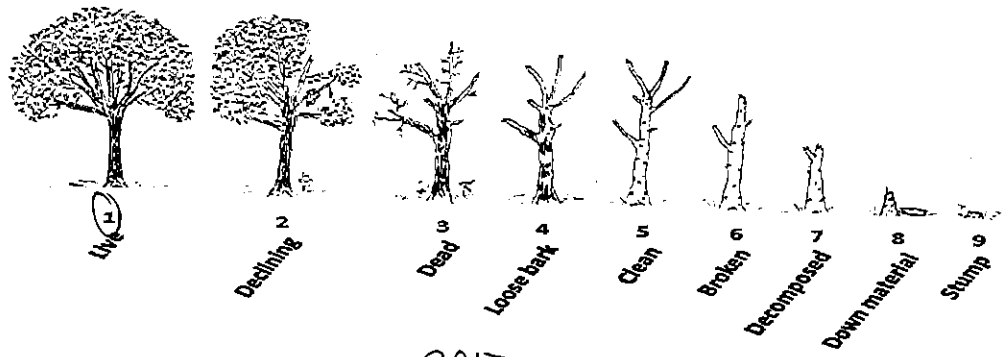
Roost position aspect (deg) 3270

Exfoliating bark on bole (%) 0% Describe: sloughing __ platy __ tight X

Cavities present? Yes if so, describe: _____

Roost tree or snag canopy position: Dominant __ Co-Dominant __ Suppressed X

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



No. of days at roost (dates) 12/22, 12/23 2017

Observations _____

Ecological Solutions

KC USFWS 1/4/2018

Surrounding Habitat Condition

Canopy closure at roost (%) 25%

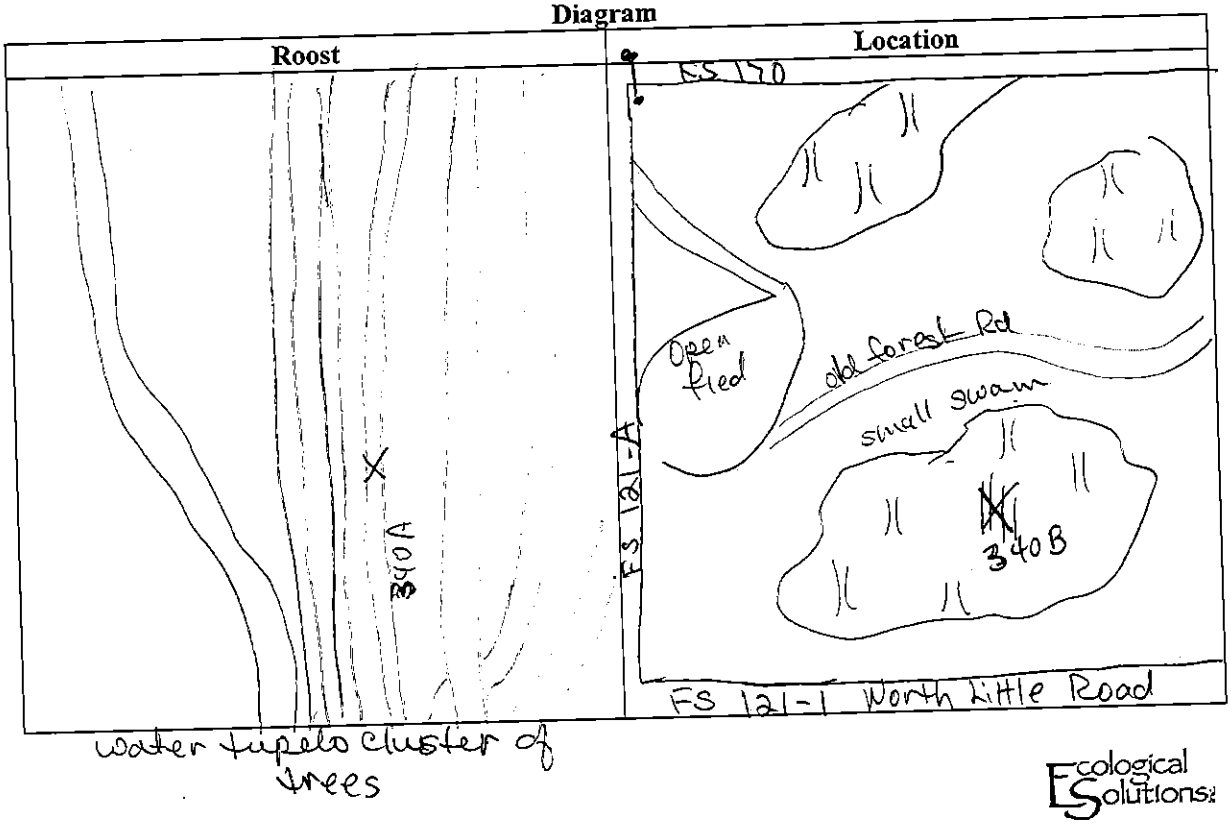
Approximate woodlot size (ac or ha) 169,990 **Distance to non-forest (ft or m)** .28 miles

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Swamp - Water tupelo, Red maple, red maple, a few white pine
Privet bush
small wetland/swamp area surrounded by upland oak/pine forest

Community Type Coastal Plain Small Stream Swamp

Additional Comments
Several cracks & crevices midway up tree and, although, signals were very strong around this area, exact crevice/crack (Roost) was not determined

Diagram



Ecological Solutions

Bat Species/Sex MYSE Frequency 150.340

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dottie Brown Alana Sullivan Date: 12/26/17

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 35.03839 LONG -77.06635

Property Owner Croatan National Forest Phone# 252-638-5638

State NC County Craven Project Name # NCDOT NLEB research project Croatan National Forest

Roost # 340C

Roost Tree Data

Species: bald-cypress (Taxodium distichum var distichum) Live ✓ Snag __ Other __

(If other, explain) "

DBH (in or cm) 36.7" Total Height (ft or m) 83'

Height of roost area (if known) unable to determine Roost bat was in Dist. from capture site ~1.38 miles in large cavity on water tupelo

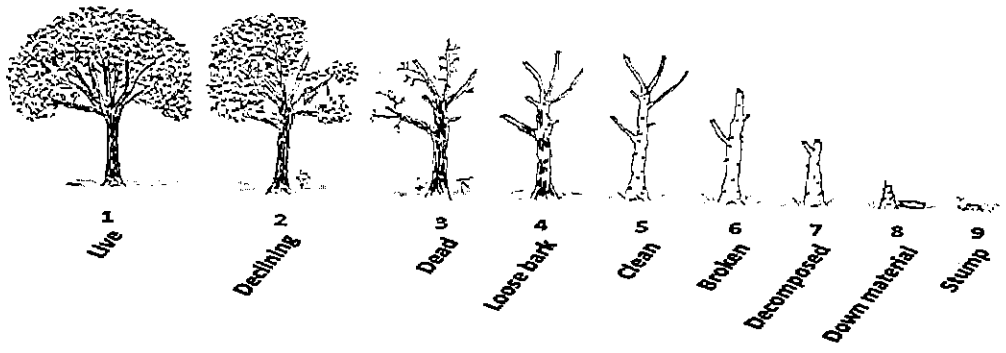
Roost position aspect (deg) 248°

Exfoliating bark on bole (%) 1% Describe: sloughing __ platy __ tight ✓

Cavities present? Y if so, describe: holes, cracks, crevices, dead limbs

Roost tree or snag canopy position: Dominant ✓ Co-Dominant __ Suppressed __

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



No. of days at roost (dates) 12/26, 12/27, 12/28, 12/29, 12/30, 12/31 2017

Observations Roost very high in sunlight

Ecological Solutions

KC USFWS 1/4/18

Surrounding Habitat Condition

Canopy closure at roost (%) 20%

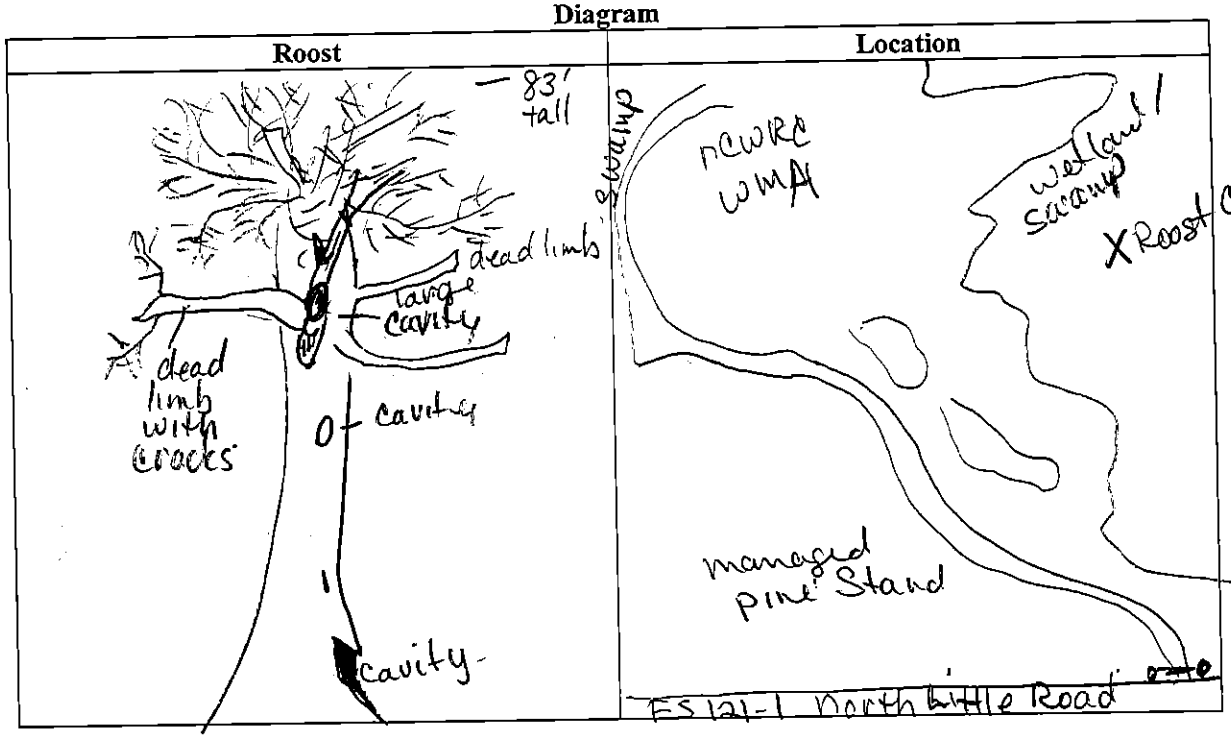
Approximate woodlot size (ac or ha) 169,990 **Distance to non-forest (ft or m)** .43 miles

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
wetland/swamp bald cypress, water tupelo, red maple, sweet gum,
fetterbush, smilax glabra + smalii, red bay + swamp bay

Community type Cypress-Gum Swamp (Blackwater Subtype)

Additional Comments unable to determine roost location potentially w/ large density of water based swirl ~4 feet up in tree

Diagram



Ecological Solutions

Bat Species/Sex MYSE-Male Frequency 150 .340

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Rothie Brown Drew Powell Date: 1-5-17

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 35.01326 LONG -77.02158

Property Owner Croatan NF Phone# 252-638-5628

State NC County Craven Project Name # NCDOT NHEB research project CROATAN National Forest

Roost # 340 D

Roost Tree Data

Species: Bald cypress (Taxodium distichum var. distichum) Live √ Snag __ Other __

(If other, explain) _____

DBH (in or cm) 43.7 in Total Height (ft or m) 81 ft

Height of roost area (if known) 5 ft Dist. from capture site 1.70 miles

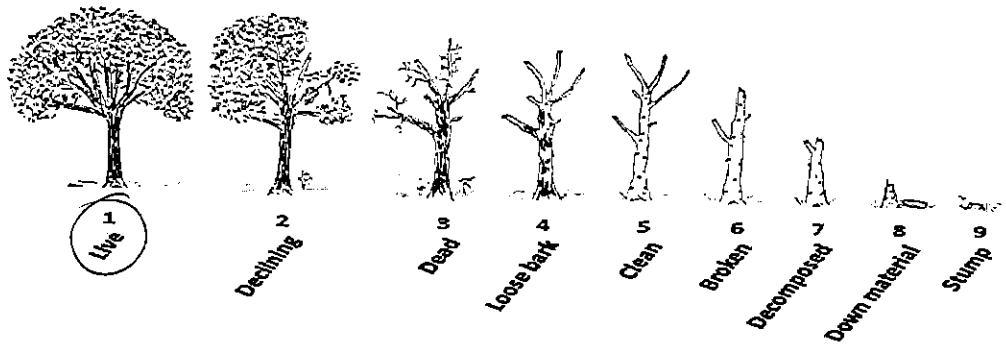
Roost position aspect (deg) 172° S

Exfoliating bark on bole (%) 0 % Describe: sloughing __ platy __ tight X

Cavities present? Yes if so, describe: tiny hole down low / holes/gaps inside hole

Roost tree or snag canopy position: Dominant X Co-Dominant __ Suppressed __

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



2018

No. of days at roost (dates) 1/1, 1/2, 1/3, 1/4, 1/5 – 1/9, 1/20 – 1/31, 2/1, – 2/8

Observations _____

Ecological Solutions

Surrounding Habitat Condition

Canopy closure at roost (%) 40%

Approximate woodlot size (ac or ha) 1,193 ac **Distance to non-forest (ft or m)** .11 miles

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Stream Bruce Creek w/ Bald cypress, Laurel Oak, water tupelo, Sweet gum

border ranges - totally pure. A. Beech, Laurel oak, Red bay, Sweet gum red maple; High bush blueberry, smilax spp.

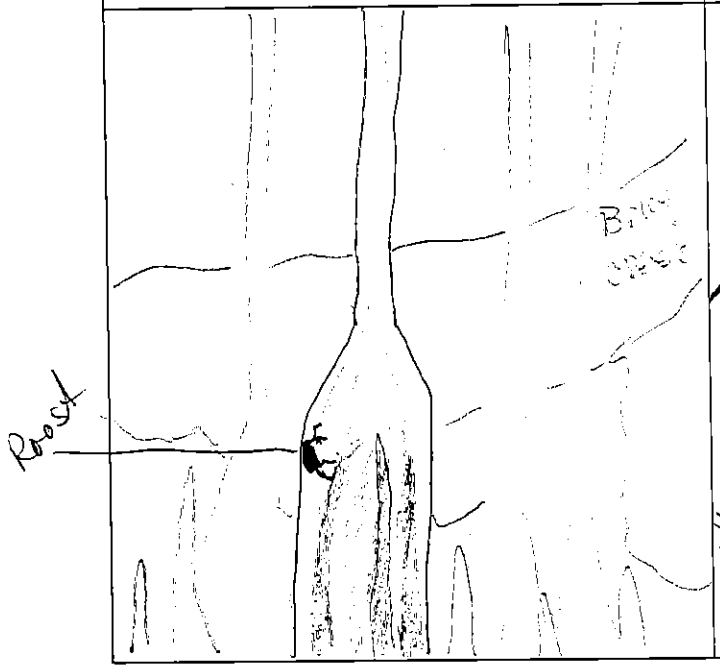
Community type - Coastal Plain Small Stream Swamp

Additional Comments
Roost is in a small cavity/hole on South side of Bald cypress. The hole opens up into a large cavity

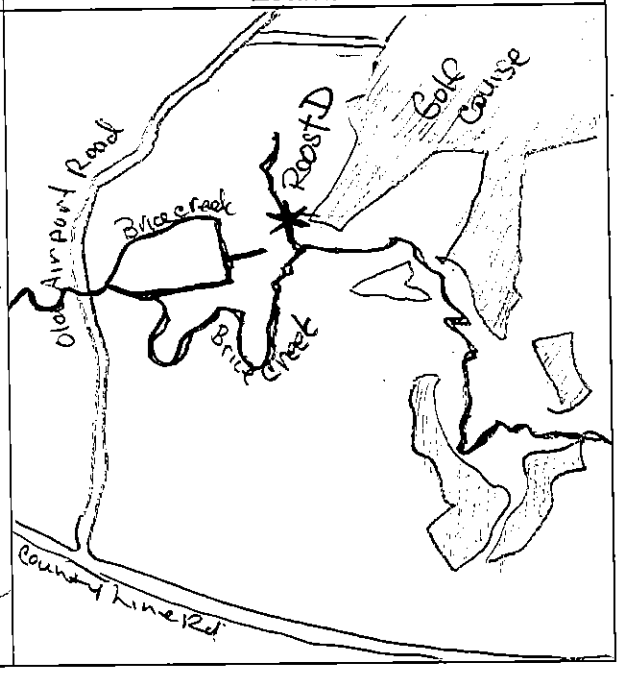
small cavity hole 1.8cm x 2.5cm diameter → depth 6.6"

Diagram

Roost



Location



Ecological Solutions

BAT TELEMETRY

Species MYSE **Sex** Male **Bat Frequency** 150.340

Capture Date 12/18/17 **Capture Site/GPS** 1- Craven / 35.027270 -77.046536, Croatan Nf, N.C.

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
12/18/2017	Drew Powell / Kristi Confortin	N	N/A	Night tracking after capture 35.02666, -77.04462	19:50 - signal weak Signal 150.340 heard due S 180°
12/18/2017	Drew Powell / Kristi Confortin	N	N/A	35.02155, -77.04665	20:46 - Signal weak Signal 150.340 heard SE @ 157°
12/18/2017	Drew Powell / Kristi Confortin	N	N/A	35.03724, -77.05218	23:22 - signal strong Signal 150.340 heard due N 356°
12/19/2017	Drew Powell / Dottie Brown	N	N/A	N/A	Searched Mill Branch Rd. and around the Brice Creek boat ramp. Signal was not heard
12/19/2017	Drew Powell / Kristi Confortin	N	N/A	N/A	We checked multiple times on the northern side of Brice Creek. Checked all the way from the airport, following Brice Creek using Old airport rd Head Signal near County Line rd.
12/19/2017	Drew Powell / Kristi Confortin	N	N/A	35.01128, -77.02862	14:51 - signal strong Signal heard SW @ 243°
12/19/2017	↓	N	N/A	35.00720, -77.03708	15:02 - signal strong Signal heard E @ 81°
12/19/2017	↓	N	N/A	35.01153, -77.03865	15:11 - signal medium Signal heard E @ 90°
12/19/2017	↓	N	N/A	35.00725, -77.02624	15:23 - signal weak Signal heard NW @ 312°
12/19/2017	↓	N	N/A	35.02671, -77.04740	21:13 - Signal medium/Faint Signal heard due S @ 163°
12/19/17	Roost 340-A1	TRAN	N/A	triangulation estimate 35.011221, -77.032625	
12/20/17	Drew Powell, Meredith Haggart Dottie Brown	N	N/A	35.01128, -77.02862	no signal
		N	N/A	35.01153, -77.03865 no signal	Shedded/Suspended 5170 (Mill Branch Rd) ck Brice Creek

Ecological Solutions

BAT TELEMETRY

Species MYSE Sex M Bat Frequency 150.340

Capture Date 12/18/17 Capture Site/GPS 7 craven / 35.027270 -77.046536, CROATAN Nf, N.C.

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
12-20-2017 cont'.	↓	N	N/A	35.05117, -77.06003	Good signal 214°
		N	NA	35.04580, -77.06136	good 236°
		N	N/A	35.04615, -77.06617	182° good
		N	N/A	35.041287, -77.06962	91° great signal
	↓	Yes 340A	sourwood	35.04184, -77.06590	no emergence due to rain
12-21-17	Drew Powell Dottie Brown	Yes 340A	sourwood	↓ ↓	same tree
12-22-17	Drew Powell Dottie Brown	Yes 340B	water tupelo	35.04311, -77.06794	cluster of watertupelo
12-23-17	Drew Powell Dottie Brown	Yes 340B	sourwood	35.04184, -77.06590	Roost 340A
12-24-17	did not track				holidays
12-25-17	did not track				holidays
12-26-17	Dottie Brown Alayna Sullivan	N	NA	35.04198, -77.06665	155° good
		N	NA	35.041210, -77.06949	131° good
		N	NA	35.03879, -7706847	333° great
		Yes 340C	Bald cypress	35.03839, -77.06635	Roost 340C

Ecological Solutions LLC

BAT TELEMETRY

Species Northern long-eared bat Sex Male Bat Frequency 150.340

Capture Date 12/18/17 Capture Site/GPS 1 Craven / 35.027270 -77.046536, CROATAN Nf, N.C.

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
12-27-17	Dottie Brown Alana Sullivan	yes 340C	Bald Cypress	35.03839, -77.06635	Roost 340C
12-28-17	Drew Powell Kristi Confortin	yes 340C	Bald Cypress	35.03839 -77.06635	Roost 340C
12-29-17	Drew Powell Kristi Confortin	yes 340C	Bald Cypress	35.03839 -77.06635	Roost 340C
12-30-17	Drew Powell Kristi Confortin	yes 340C	Bald cypress	35.03839 -77.06635	Roost 340C
12-31-17	Drew Powell Kristi Confortin	yes 340C	Bald cypress	35.03839 -77.06635	Roost 340C
01-01-18	Drew Powell / Kristi Confortin	N	N/A	N/A	Checked all up and down North Little Rd and Mill Branch Rd. Brice Creek boat ramp. No sig
01-01-18	Drew Powell / Kristi Confortin	N	N/A	35.03769 -77.06534	Walked South of roost 340C ± 500 ft. No signal
01-01-18	Drew Powell / Kristi Confortin	N	N/A	35.02581 -77.06362	Walked a side road off of N. Little rd. No signal
01-01-18	↓	N	N/A	35.00780 -77.02641	Signal heard NE @ 35° Old Airport Rd. / Signal strength: Good
01-01-18		N	N/A	35.01300 -77.02525	Signal heard NE @ 64° Old Airport Rd. / Signal strength: Strong
01-01-18		N	N/A	35.00095 -77.02179	Signal heard N @ 8° County Line Rd. / Signal strength: Good
01-01-18	↓	N	N/A	35.01708 -77.02055	Signal heard SW @ 227° Sir James Ln. / Signal strength: Strong
		TRAN	N/A	Triangulation estimate: 35.012882, -77.021059	→ Roost 340 A1

BAT TELEMETRY

Species myse Sex male Bat Frequency 150.340

Capture Date 12/18/2017 Capture Site/GPS 1- Craven / 35.027270 -77.046536, CROATAN Nf, N.C.

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS	
01-02-18	Drew Powell / Kristi Confortin	N	N/A	35.01707 -77.02054	Signal heard S @ 195° Sir James Ln. / Signal strength:	3-elem Strong
01-02-18	Drew Powell / Kristi Confortin	N	N/A	35.01315 -77.02503	Signal heard E @ 101° Old Airport Rd. / Signal strength:	3 elem Stro
01-02-18	Drew Powell / Kristi Confortin	N	N/A	35.00759 -77.02628	Signal heard NE @ 54° Old Airport Rd. / Signal strength:	5 elem Good
01-02-18	Drew Powell / Kristi Confortin	TRAN	See below N/A	35.00073 -77.02167	Signal heard N @ 358° County Line Rd / Signal strength:	5 elem Good
01-03-18	Drew Powell / Kristi Confortin	N	N/A	35.01711 -77.02040	Signal heard S @ 191° Sir James Ln. / Signal strength:	3 elem Strong
01-03-18	Drew Powell / Kristi Confortin	N	N/A	35.01318 -77.02511	Signal heard E @ 109° Old Airport Rd. / Signal strength:	3 elem Strong
01-03-18	Drew Powell / Kristi Confortin	N	N/A	35.00739 -77.02634	Signal heard E @ 73° Old Airport Rd. / Signal strength:	5 elem Good
01-03-18	Drew Powell / Kristi Confortin	TRAN	See below N/A	35.00083 -77.02154	Signal heard N @ 348° County Line Rd. / Signal strength:	5 elem Good
1-04-18	Drew Powell / Kristi Confortin Dottie Brown	N	N/A	35.01321 -77.02216	38° N N. side of creek	Great Sign. Good
				35.01022 -77.02448	52° NE	
				35.01013 -77.02576	38° NE	Great
				35.01323 -77.02188	? NE	
		TraN	NA	Triangulation estimate V4 35.013252, -77.021637	Could not get to roost tree across stream. Will try on 1-5-18	

Roost D = Triangulation 1/1, 1/2, and 1/3 = estimate 35.012882, -77.021059

BAT TELEMETRY

Species myse **Sex** Male **Bat Frequency** 150.340

Capture Date 12/18/2017 **Capture Site/GPS** 1-Craven/35.027270 -77.046536, CROATAN NF, N.C.

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
1-05-18	Dottie Brown Drew Powell	Y 340 D	Bald Cypress	35.01326 -77.02158	Documented actual tree
1-06-18	Dottie Brown Drew Powell	Yes 340D	"	" "	In same tree
1-7-18	Dottie Brown, Drew Powell Kristi Confortin	Yes 340D	"	" "	in same tree
1-08-18	Drew Powell KRISTI CONFORTIN	yes 340D	"	" "	in same tree
1-09-18	Drew Powell / Meredith Hoggatt	Y 340D	"	" "	in same tree
1-10-18	Drew Powell / Julia Hoeh	Y 340D	"	" "	" "
1-11-18	Drew Powell Kristi Confortin / Meredith Hoggatt	Y 340D	"	" "	" "
1-12-18	KRISTI CONFORTIN Julia Hoeh	Y 340D	"	" "	" "
1-13-18	Julia Hoeh meredith Hoggatt	Y 340D	"	" "	" "
1-14-18	KRISTI CONFORTIN meredith Hoggatt	Y 340D	"	" "	" "
1-15-18	Dottie Brown Julia Hoeh	Y 340D	"	" "	signal weakening bat moved while at tree
1-16-18	Dottie Brown Julia Hoeh	Y 340D	"	" "	observed bat in small cavity in tree
1-17-18	Dottie Brown Julia Hoeh	Y 340D	"	" "	observed bat in small cavity in tree/same as yesterday, signal weak

Actual Tree *

21 days

NCDOT + USFWS approved to continue tracking until transmitter fails

BAT TELEMETRY

Species MYSE Sex male Bat Frequency 150.340

Capture Date 12/18/2017 Capture Site/GPS 1 Craven / 35.027270, -77.046536, CROATAN NF, N. C.

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
1-18-18	Dottie Brown Julia Hoch	Y/340	Bald cypress	" "	Signal very weak but in same place as 1/17
1-19-18	Dottie Brown Julia Hoch	Y/340	"	" "	no signal. Bat observed in roost.

Bat Frequency 150.340

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 12-21-2017 **Surveyor(s) Full Name:** Dottie Brown & Drew Powell
State: NC **County:** Craven **Project Name:** NCDOT NLEB Research Project
Site Name/#: Croatan NF Bridge Forest **Roost Name/#** 340 A
Lat/Long or UTM of Roost: 35.04175 -77.06591

Croatan National Forest

Description of Roost/Habitat Feature Surveyed: Sourwood tree w/ small crevice dominated forest & Cypress Swamp
Bat Species Known to be using this Roost/Feature (if not known, leave blank): Northern long-eared Bat
Other Suspected Bat Species (explain):
Weather Conditions during Survey (temperature, precipitation, wind speed): temp / clear with no wind or precipitation
Survey Start Time: 16:30 **Time of Sunset:** 17:00 **Survey End Time:** 17:44

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
17:38	Unable to see bat leave	bat 340 left roost - noted via telemetry
		did notice two other bats emerging from
		trees in the immediate area

Ecological Solutions

Site Name/#: Croaton NF Brice Creek, Roost #: 340 A Bat Frequency 150 - 340

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	none observed	emergence noted via telemetry emerged at 44° temp

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

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

was unable to see bat emerging from tree, documented via telemetry, Did observe two other bats emerge from two other trees in the area

Bat Frequency 150. 340

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 01-09-18 **Surveyor(s) Full Name:** Drew Powell - Julia Hoch

State: NC **County:** Craven **Project Name:** NCDOT NLEB Research Project

Site Name/#: Carolina Colours Golf Course **Roost Name/#** 340D

Lat/Long or UTM of Roost: 35.01326 -77.02158

Description of Roost/Habitat Feature Surveyed: Large bald cypress tree with a large hollowed out cavity at the base of the tree. Located in the floodplains of Brice creek

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

Other Suspected Bat Species (explain): N/A

Weather Conditions during Survey (temperature, precipitation, wind speed): 46°F - 37.5°F / clear with no wind or precipitation

Survey Start Time: 16:43 **Time of Sunset:** 17:13 **Survey End Time:** 18:13

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
NA		bat did not leave roost

Ecological Solutions

Site Name/#: Carolina Colours Golf Course **Roost #:** 340 D **Bat Frequency** 150- 340

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	

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

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

Used telemetry gear to monitor the bats movement during survey. No bats were observed / heard leaving the roost.

BAT EMERGENCE COUNTS

Species Northern long-eared bat **Sex** M **Bat Frequency** 150.340

Capture Date 12/18/2017 **Capture Site/GPS** 1 Craven/35.027270 -77.046536, CROatan NF, N.C.

12/20/17 No emergence due to rain

DATE	OBSERVERS	ROOST #	Triangulate GPS LAT/LONG	Bat Count	COMMENTS
12-19-17	Kristi Conforti + Drew Powell	TRAW	35.011221, -77.032635 estimate		actual roost tree not located
12-21-17	Drew Powell Dottie Brown	340 A	35.04184, -77.06590	1	too dark to see via Via telemetry
12-22-17	Drew Powell Dottie Brown	340 B	35.04311, -77.06794		emergence survey canceled due to rain + fog
					Bat moved Sometime during night
12-23-17	Drew Powell Dottie Brown	340 A	35.04184, -77.06590	0	One alone no emergence on 12/21
12-24-17	no emergence holidays				off holidays
12-25-17	no emergence holidays				off holidays
12-26-17	no emergence	340 C	35.03839, -77.06635		temps @ sunset below 50° F
12-27-17	" "				temps @ sunset below 50° F
12-28-17	" "				" "
12-29-17	" "				" "
12-30-17	" "				" "
12-31-17	" "				" "
1-1-18	no emergence	TRAW.	Triangulation estimate 35.012882, -77.021059		Triangulation, actual, roost tree not located
1-2-18	no emergence	TRAW	" "		" "
1-3-18	no emergence	TRAW	" "		" "
1-4-18	" "	TRAW	35.013252, -77.021637		" "
1-5-18	no emergence	340 D	35.01326, -77.02158		temps @ sunset below 50° F
1-6-18	" "	340 D	" "		" "
1-7-18	" "	340 D	" "		" "
1-8-18	" "				" "

was Road area

was Rd A

Ecological Solutions

BAT EMERGENCE COUNTS

Species MYSE Sex male Bat Frequency 150.340

Capture Date 12-18-2017 Capture Site/GPS 1 Craven / 35.027270, -77.046536, CROATAN Nf, N.C.

DATE	OBSERVERS	ROOST #	GPS LAT/LONG	Bat Count	COMMENTS
1-9-18	Drew Powell / Julia Hoeh	340D	35.01326 -77.02158	0	In same tree. Used telemetry year to monitor movement. No emergence
1-10-18	No emergence	340D	" "	0	Previous emergence completed
1-11-18	" "	340D	" "	—	" "
1-12-18	" "	340D	" "	—	" "
1-13-18	" "	340D	" "	—	" "
1-14-18	" "	340D	" "	—	" "
1-15-18	" "	340D	" "	—	" "
1-16-18	" "	340D	" "	—	" "
1-17-18	" "	340D	" "	—	" "
1-18-18	" "	340D	" "	—	" "
1-19-18	" "	340D	" "	—	" "

Ecological Solutions LLC

Bat Species/Sex MYSE / Male Frequency 150.100

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Julia Hoeh & Drew Bartell Date: 2/17/18

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 34.80635 LONG -77.07892

Property Owner Croatan NF Phone# 252-638-5628

State NC County Craven Project Name # NCDOT NLEB Research Croatan National Forest

Roost # 100-a

Roost Tree Data

Species: Sweet Gum (Liquidambar Styraciflua) Live X Snag __ Other __

(If other, explain) _____

DBH (in or cm) 20in Total Height (ft or m) 79ft

Height of roost area (if known) NA Dist. from capture site 650 ft.

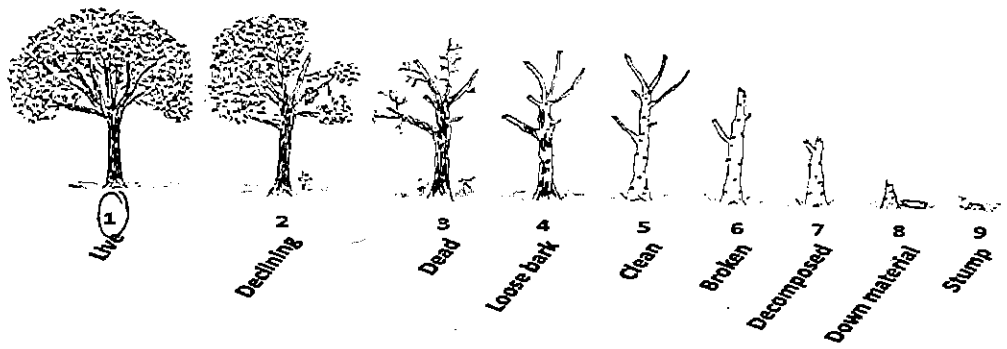
Roost position aspect (deg) 240 (based on telemetry)

Exfoliating bark on bole (%) 0 Describe: sloughing __ platy __ tight __

Cavities present? Y if so, describe: Spots where branches are missing

Roost tree or snag canopy position: Dominant X Co-Dominant __ Suppressed __

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



No. of days at roost (dates) 2017 2/17 2/18

Observations JH & DP

Ecological Solutions

USFWS NC 3112118

Surrounding Habitat Condition

Canopy closure at roost (%) 25%

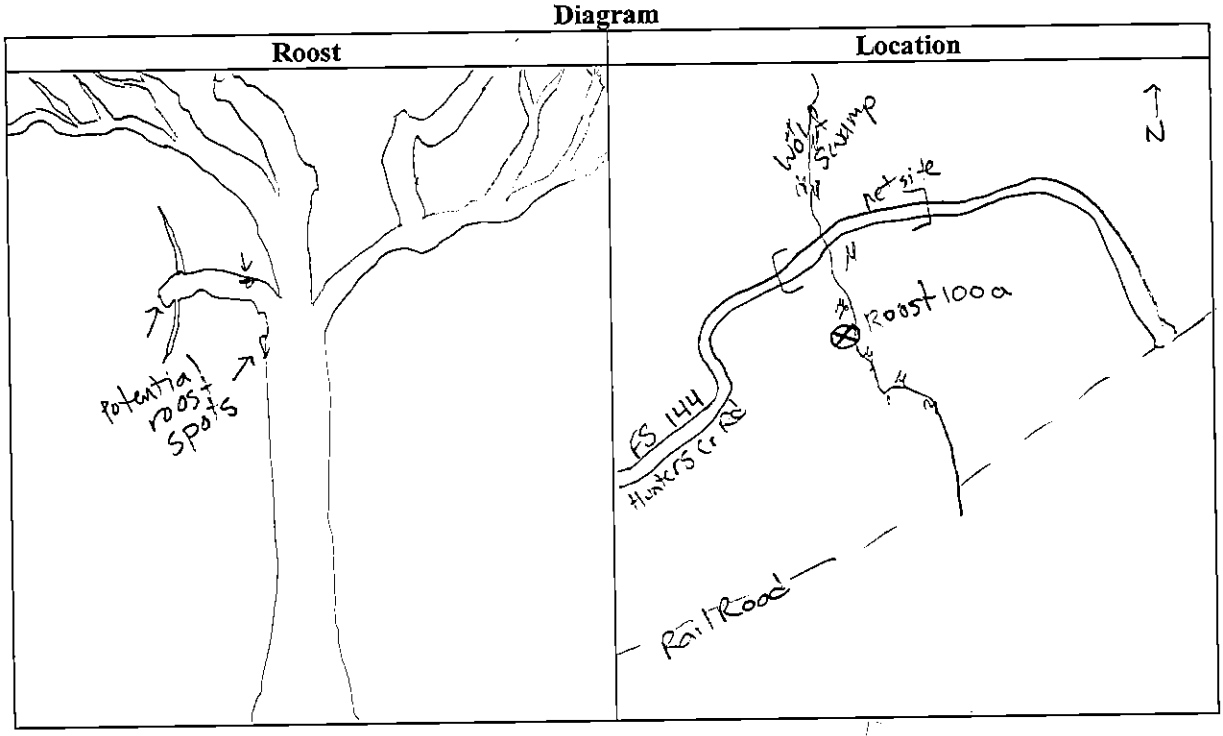
Approximate woodlot size (ac or ha) 139,620 ac **Distance to non-forest (ft or m)** 1.61 miles

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Bottomland wetland, mature age, water tupelo, american holly
Red maple, sweet gum, Red bay, Swamp bay, loblolly pine
↳ Adjacent to managed pine (loblolly + longleaf)
↳ bald cypress, water oak

Additional Comments Carolina jasmine, Fetterbush, large gallberry, dog hobble, saw briar,

Habitat Community - Stream Corridor = Coastal Plain Small Stream Swamp, Blackwater Subtype

Diagram



Ecological Solutions

Bat Species/Sex MYSE/Male Frequency 150.100

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dothe Brown + Drew Powell Date: 02/19/18

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 34.81182 LONG -77.08299 elv. 71'

Property Owner Croatan NF Phone# 252-638-5628

State NC County Jones Project Name # NCDOT NLEB Research Project

Roost # 100b CROATAN NATIONAL FOREST

Roost Tree Data

Species: Nyssa Aquatica (water Tupelo) Live ✓ Snag __ Other __

(If other, explain) _____

DBH (in or cm) 14.5 ins Total Height (ft or m) 82'

Height of roost area (if known) 45' Dist. from capture site .36 miles

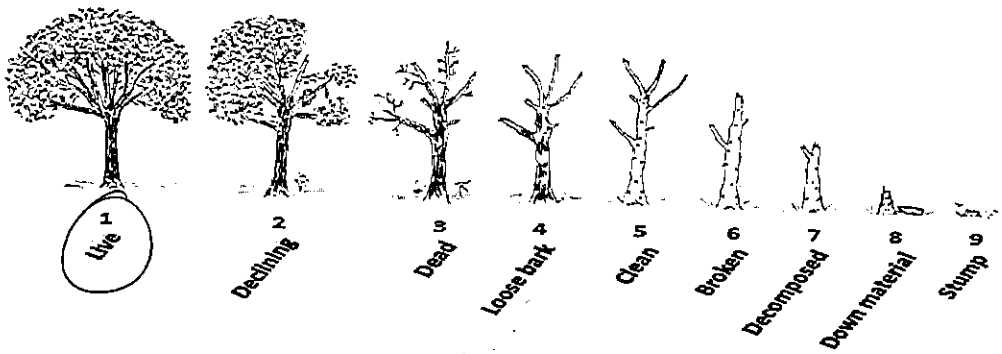
Roost position aspect (deg) 112° SE

Exfoliating bark on bole (%) 0 Describe: sloughing __ platy __ tight ✓

Cavities present? ✓ if so, describe: very small ones near knots & broken branch

Roost tree or snag canopy position: Dominant __ Co-Dominant ✓ Suppressed __

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



No. of days at roost (dates) 2/19, 2/20 2018

Observations Roost high & possibly on large knots

Ecological Solutions

FACFMC-KC-2018

Surrounding Habitat Condition

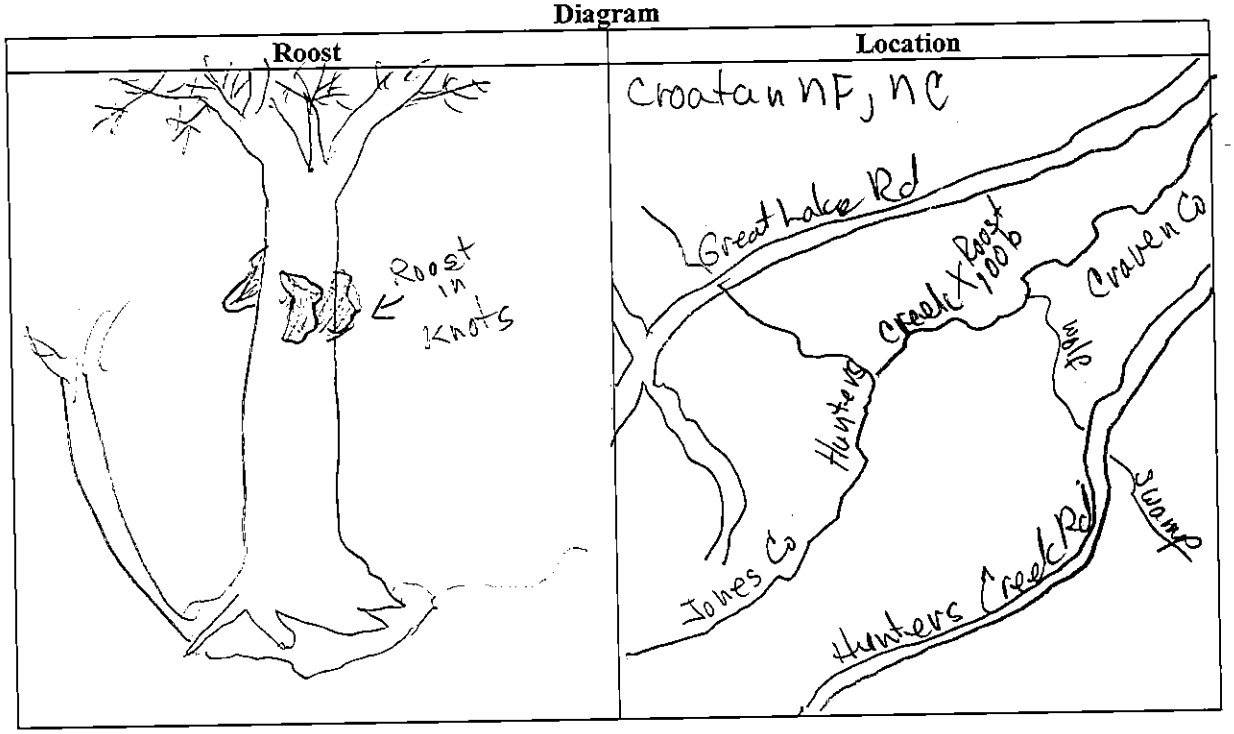
Canopy closure at roost (%) 60%

Approximate woodlot size (ac or ha) 139,620 ac **Distance to non-forest (ft or m)** 1.9 miles

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
wetland/swamp along Hunters Creek. water tupelo, Blackgum, water oak, water birch, swamp red bay, red maple, fetterbush, dog hobble

Additional Comments
Habitat Community - Stream Corridor = Cypress - Gum Swamp (Blackwater Subtype)

Diagram



Ecological Solutions

BAT TELEMETRY

Species MYSE Sex Male Bat Frequency 150.100

Capture Date 2-16-18 Capture Site/GPS 10- Craven /Wolf Swamp/34.80819, -77.07938
Croatan NF, N.C.

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
2/17/18	Julia Hoch + Drew Powell	Y/100-a		1st point 34.80933 -77.07641 152°	
				2nd point 34.80716 -77.06603 245°	
				3rd point 34.80009 -77.07104 318°	
2/17/18	Julia Hoch & Drew Powell	100-a	Water Tupelo	34.80635 -77.07892	
2/18/18	Julia Hoch & Meredith Hoggatt	100-a	Water Tupelo	"	Sounds like the bat is in the same location on tree
2/19/18	Dottie Brown & Drew Powell			34.80816 -77.07940	325° NW good signal
				34.81280 -77.07577	medium signal 236° SW
				34.80649 -77.08361	351° N good
				34.81061 -77.08325	24° NE good
		100-b	water tupelo	34.81182 -77.08299	Roost in a cluster of tree knots (cancer)
2/20/18	Drew Powell & Julia Hoch	100-b	Water tupelo	34.81182 -77.08299	Sounds like same location on tree
2/21/18	Meredith Hoggatt & Julia Hoch			1st point 34.81509 -77.07834 180°	Dropped transmitter recovered at
				2nd point 34.80807 -77.07931 150°	34.80596 -77.07215
				3rd point 34.80006 -077.07649 33°	

Ecological Solutions

Bat Frequency 150.100

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2/17/18 **Surveyor(s) Full Name:** Julia Hoeh & Drew Powell

State: NC **County:** Craven **Project Name:** NCDOT NLEB Research

Site Name/#: 3-Carteret **Roost Name/#** 100-a

Lat/Long or UTM of Roost: 34.80635, -77.07892

Croatan National forest N.C.

Description of Roost/Habitat Feature Surveyed: Water Tupelo in a bottomland Swamp with longleaf pine woodlot.

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

MYSE

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed):

54-49°F, calm wind, no precip

Survey Start Time: 17:20 **Time of Sunset:** 17:53 **Survey End Time:** 18:55

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes

Ecological Solutions

USFWS NC 2/13/18

Site Name/#: 3-Crown Roost #: 100-a Bat Frequency 150.100

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	∅	Tagged bat did not emerge. No other bats observed.

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

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

Bat Frequency 150.100

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 02/19/18 **Surveyor(s) Full Name:** Drew Powell

State: NC **County:** Jones **Project Name:** NCDOT NLEB Research Project Croatan National Forest N.C.

Site Name/#: 10 - Craven **Roost Name/#** 100b

Lat/Long or UTM of Roost: 34.81182 -77.08299

Description of Roost/Habitat Feature Surveyed: A large water tupelo located in the swampy flood plains of Hunters creek.

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

Other Suspected Bat Species (explain): N/A

Weather Conditions during Survey (temperature, precipitation, wind speed):
66° F - 64° F Partly cloudy with no wind / no precipitation

Survey Start Time: 17:25 **Time of Sunset:** 17:55 **Survey End Time:** 19:00

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes

Ecological Solutions

USFWS KC 3/13/15

Site Name/#: 10 - Craven **Roost #:** 1006 **Bat Frequency** 150.100

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	Telemetry gear was used during the survey to monitor his movement. No movement was observed.

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

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

BAT EMERGENCE COUNTS

Species MYSE Sex Male Bat Frequency 150.100

Capture Date 2/16/18 Capture Site/GPS 10 - Craven / Wolf Swamp / Croatan Nf. N.C.

DATE	OBSERVERS	ROOST #	GPS LAT/LONG	Bat Count	COMMENTS
2/17/18	Julia Hoeh & Drew Powell	100-a	34.80635, -77.07892	0	Tagged bat did not emerge.
2/18/18	No emergence	100-a	34.80635, -77.07892	Na	did an emergence on 2/17/18
2/19/18	Drew Powell	100-b	34.81182, -77.08299	0	Tagged bat did Not emerge
2/20/18	No emergence	100-b	34.81182, -77.08299	Na	did an emergence on 2/19/18
2/21/18	No emergence	Na	Na	Na	Found transmitter on ground

Ecological Solutions LLC

Bat Species/Sex MYSE/male Frequency 150.302

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Kristi Conforti Date: 2/21/2018

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 34.77765 LONG -76.96254°

Property Owner Croatan NF Phone# 252-638-5628

State NC County Carteret Project Name # NCDOT NLEB Research Project

Roost # 302a, CROATAN NF

Roost Tree Data

Species: Loblolly pine (Pinus taeda) Live __ Snag ✓ Other __

(If other, explain) _____

DBH (in or cm) 11.9in, Total Height (ft or m) 73ft

Height of roost area (if known) 35ft Dist. from capture site 276.32 feet

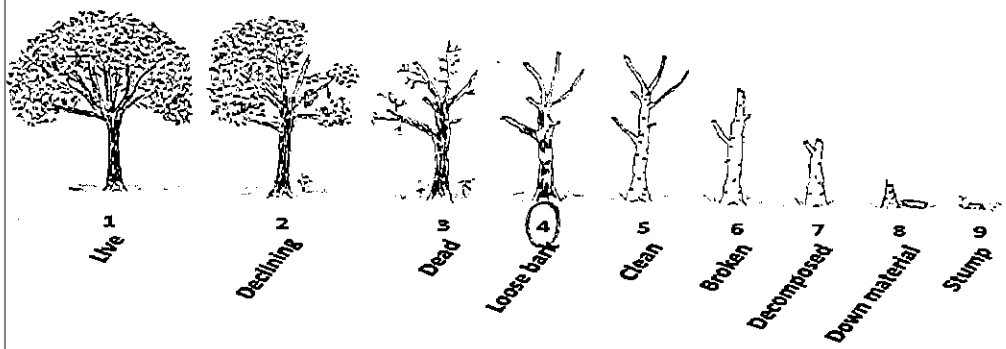
Roost position aspect (deg) 224°SW

Exfoliating bark on bole (%) 45% Describe: sloughing ✓ platy__ tight__

Cavities present? NA if so, describe: _____

Roost tree or snag canopy position: Dominant ✓ Co-Dominant __ Suppressed __

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



No. of days at roost (dates) 2/21/2018, 2/22/2018, 2/24/2018 return 3/11/2018

Observations KC & DP, KC & DP, KC & DP

Ecological Solutions

USFWS KC 3/13/18

Surrounding Habitat Condition

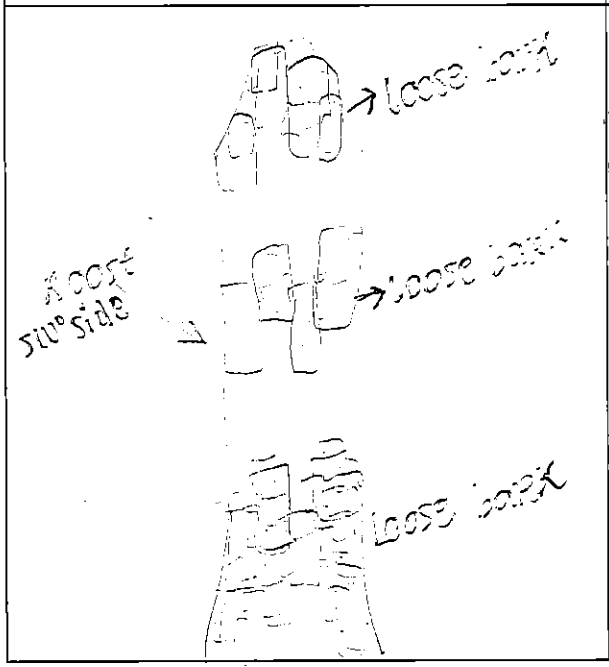
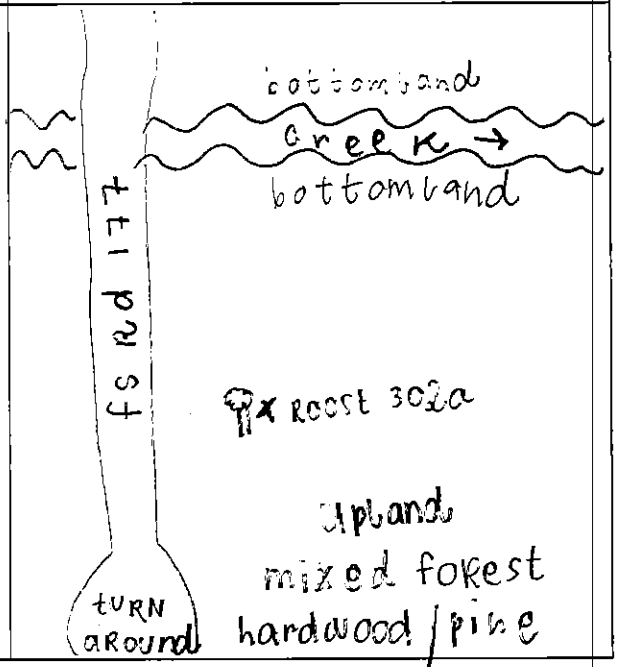
Canopy closure at roost (%) 0%

Approximate woodlot size (ac or ha) 139,620 acres **Distance to non-forest (ft or m)** 589 feet

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
mature managed pine stand of long leaf pine, loblolly pine, long leaf pine, sweetgum, swamp tupelo sweet gum
fetterbush, lg gallberry,

Additional Comments
Habitat Community

Diagram

Roost	Location
	

Ecological Solutions

Bat Species/Sex MYSE / M Frequency 150.302

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Drew Powell ; Julia Hoeh Date: 2/26/18

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 34.77330 LONG -76.96127

Property Owner Croatan National Forest Phone# 252-638-5628

State NC County Carteret Project Name # NCDOT NLEB Research Project

Roost # 302-B CROATAN NATIONAL FOREST

Roost Tree Data

Species: Red Maple (Acer rubrum) Live X Snag __ Other __

(If other, explain) _____

DBH (in or cm) 9.6in Total Height (ft or m) 68ft.

Height of roost area (if known) 37 ft Dist. from capture site .32 miles

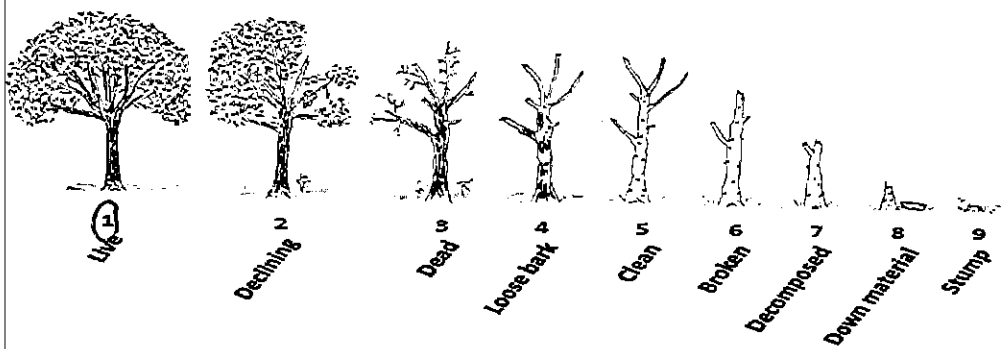
Roost position aspect (deg) 235 SW

Exfoliating bark on bole (%) 0% Describe: sloughing __ platy __ tight X

Cavities present? Y if so, describe: knot holes along main branches

Roost tree or snag canopy position: Dominant __ Co-Dominant X Suppressed __

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



No. of days at roost (dates) 2/26/18

Observations JH & DP

Ecological Solutions

Surrounding Habitat Condition

Canopy closure at roost (%) 20%

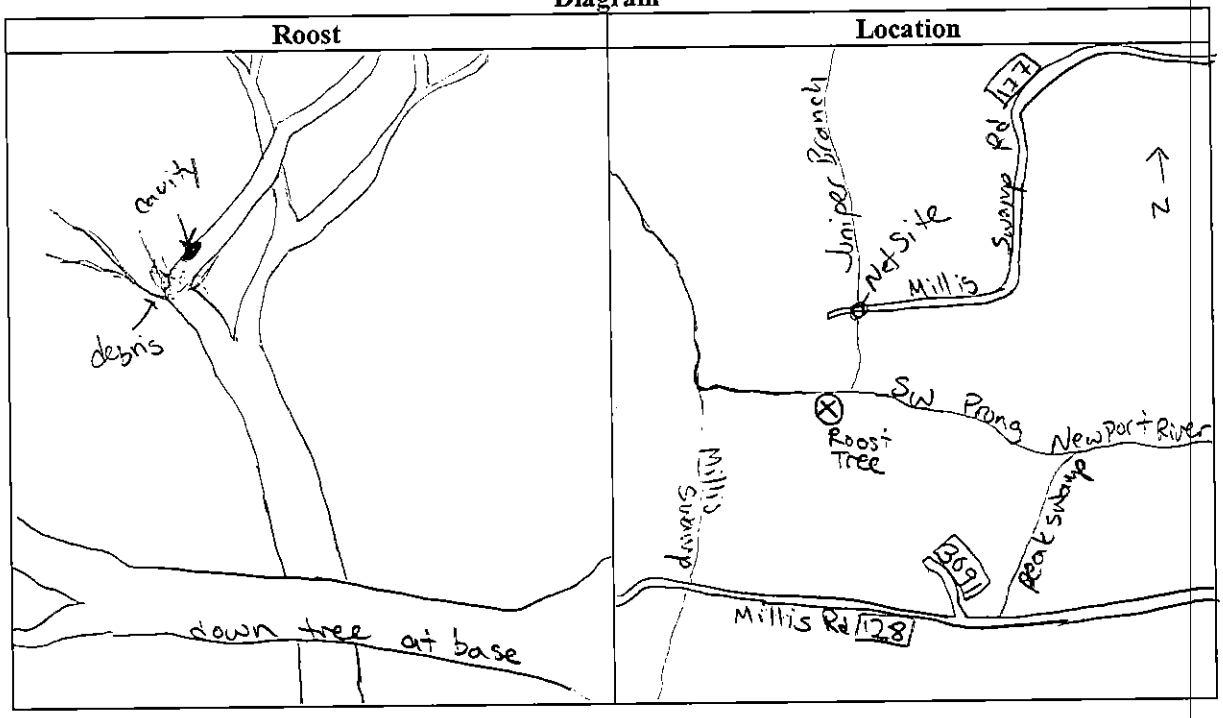
Approximate woodlot size (ac or ha) 139,620 acres **Distance to non-forest (ft or m)** .35 miles

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
Bottomland wetland/swamp adjacent to intersection of Juniper Branch and Southwest Prong Newport River Mature Forest.
Tree species include: Red maple, American holly (Gallberry), pine, Red bay, water tupelo, sweet gum, blackgum tupelo
Cotton bush, Carolina jasmine,

Additional Comments
insects present in forest on days of cooler temps 65° & winds

Habitat Community - Stream Corridor = Coastal Plain Small Stream Swamp, Blackgum-Ash Subtype

Diagram



Ecological Solutions

Bat Species/Sex MYSE / male Frequency 150.302

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Kristi Carfartin Date: 2-27-2018

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 34.77371 LONG -76.9661

Property Owner Croatan NF Phone# 252-638-5628

State NC County Carteret Project Name # NCDOT NLEB Research Project Croatan National Forest

Roost # 302c

Roost Tree Data

Species: Black Tupelo (Nyssa sylvatica) Live √ Snag __ Other __

(If other, explain) _____

DBH (in or cm) 20.3 in Total Height (ft or m) 60 ft

Height of roost area (if known) 40 ft Dist. from capture site .33 miles

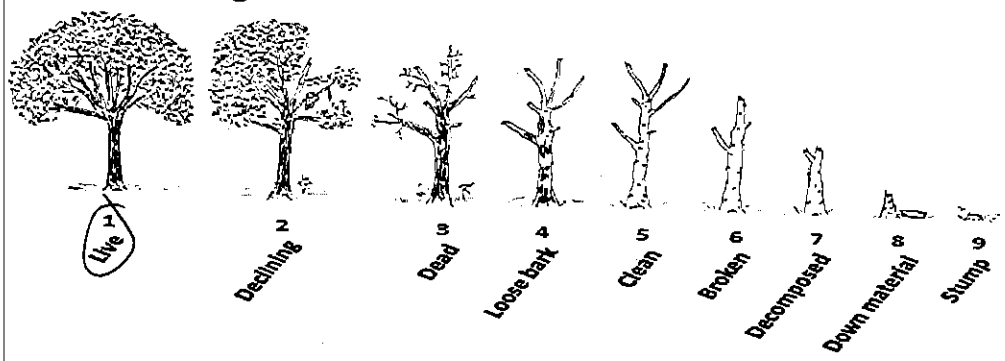
Roost position aspect (deg) 2°

Exfoliating bark on bole (%) 0 Describe: sloughing __ platy __ tight √

Cavities present? Yes if so, describe: holes in tree where bark has broken off

Roost tree or snag canopy position: Dominant √ Co-Dominant __ Suppressed __

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



No. of days at roost (dates) 2-27-18, 2-28-18

Observations KC, MH, JH, KC & DP

Ecological Solutions

Surrounding Habitat Condition

Canopy closure at roost (%) 5%

Approximate woodlot size (ac or ha) 139,620 acres **Distance to non-forest (ft or m)** .45 miles

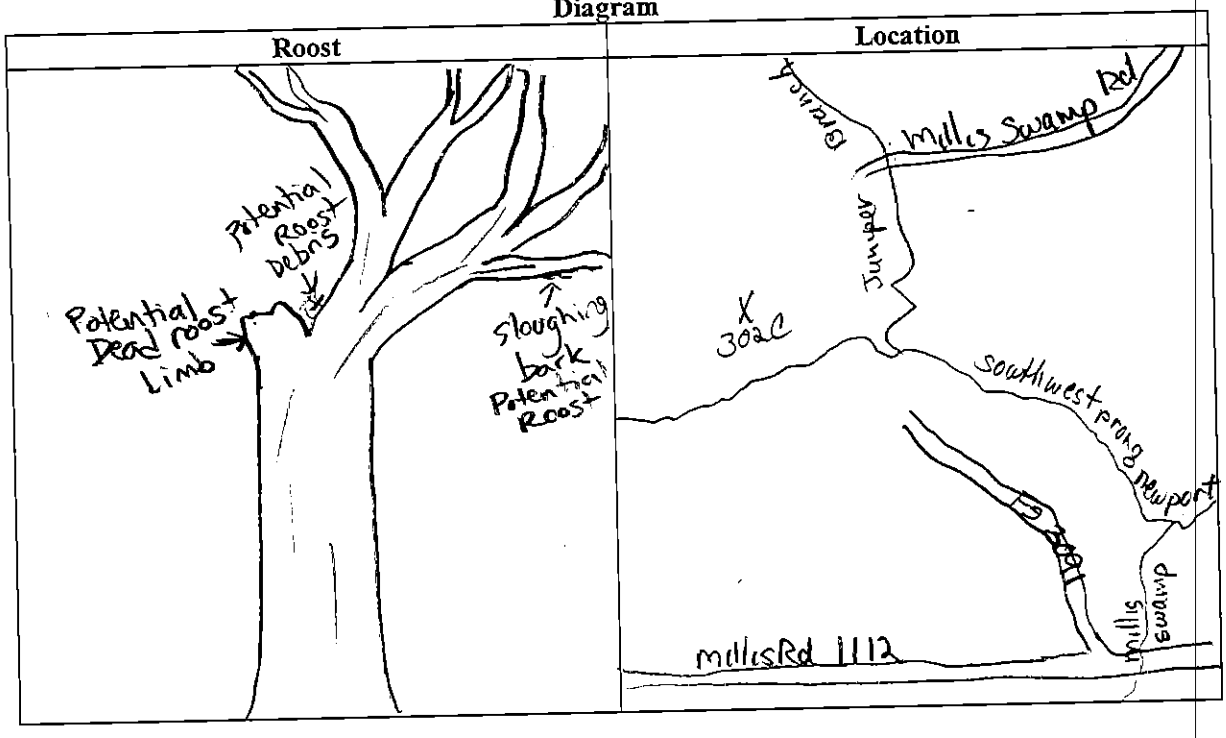
Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
mature, managed, bottomland

American holly, red bay, black tupelo, water tupelo, red maple, swamp bay

Additional Comments
saw greenbrier, fetterbush, sphagnum moss,

Habitat Community - Stream Corridor = Coastal Plain Small Stream Swamp Blackwater Subtype

Diagram



Ecological Solutions

Bat Species/Sex MYSE / Male Frequency 150.302

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Julia Hoch, Meredith Haggett Date: 3-1-2018

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 34.77333 LONG -76.96352

Property Owner Croatan Nat'l Forest Phone# 252-638-5628

State North Carolina County Carteret Project Name # NCDOT NLEB Research Project

Roost # 302 d CROATAN National forest

Roost Tree Data

Species: Red Bay (Persea borbonia) Live ✓ Snag __ Other __

(If other, explain) _____

DBH (in or cm) 15.5 in Total Height (ft or m) 46 ft*

Height of roost area (if known) 36ft* Dist. from capture site .31 miles

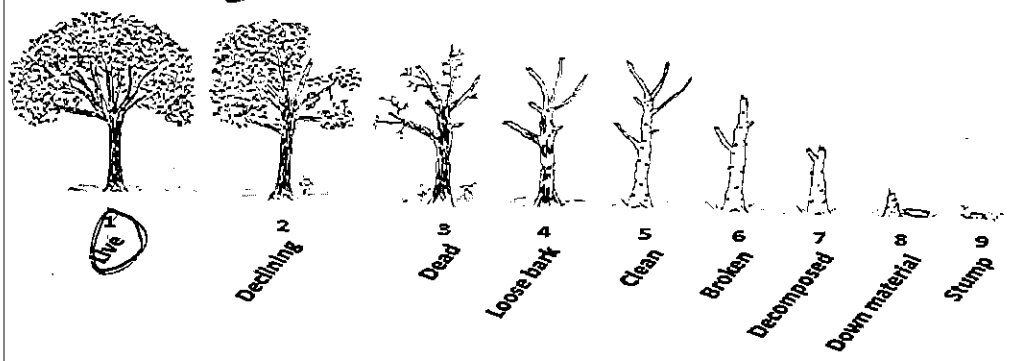
Roost position aspect (deg) 152°

Exfoliating bark on bole (%) 0% Describe: sloughing __ platy __ tight ✓

Cavities present? yes if so, describe: knots on trunk

Roost tree or snag canopy position: Dominant __ Co-Dominant ✓ Suppressed __

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



No. of days at roost (dates) 3-1-2018, 3/3/2018, 3/4/2018, 3/5/2018 return 3/12, 3/13, 3/14

Observations JH, MH, SH & JH, JH & DB, DP

tracked 21 days

Ecological Solutions

Surrounding Habitat Condition

Canopy closure at roost (%) 30%

Approximate woodlot size (ac or ha) 139620 acres **Distance to non-forest (ft or m)** .38 miles

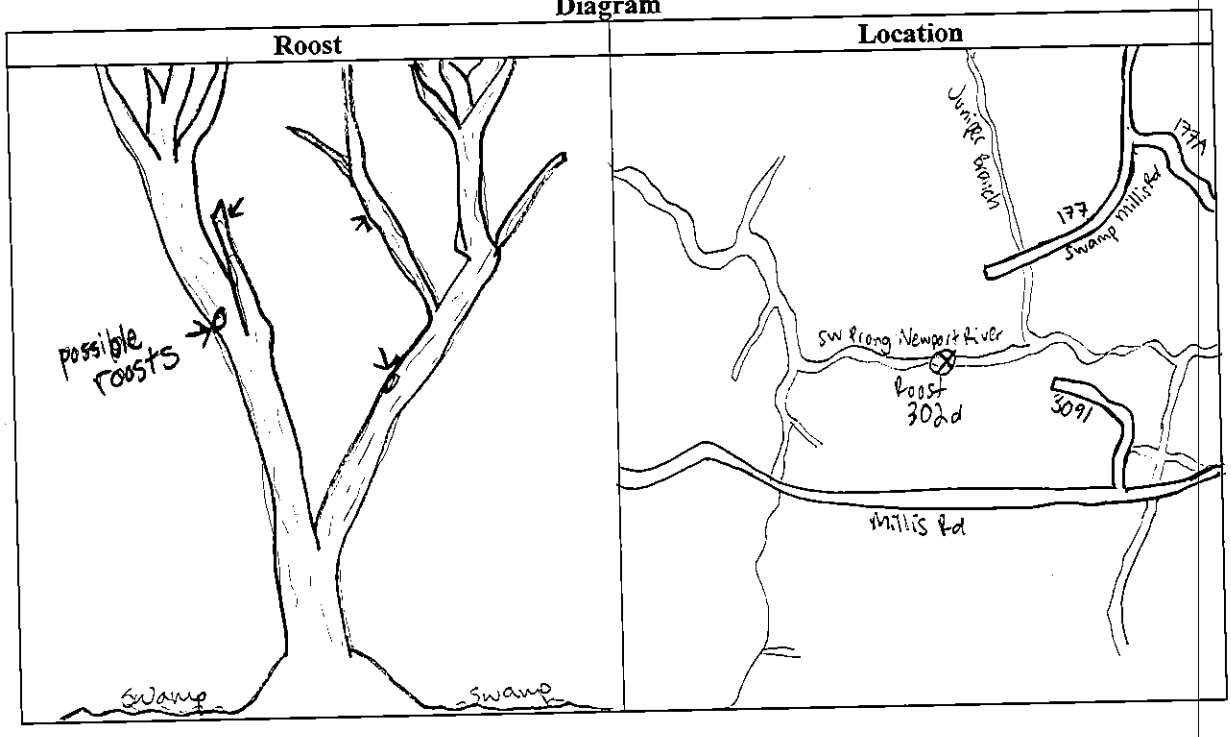
Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
mature bottomland

red bay, American holly, swamp bay, water tupelo, black tupelo, red maple, sweetgum, loblolly, sand oak, sweet magnolia bay, swamp tupelo

Additional Comments
Habitat Community -

fetterbush, greenbrier, sawbrier, Stream Corridor = Coastal Plain Small Stream Swamp, Blackwater Subtype

Diagram



Ecological Solutions

BAT TELEMETRY

Species MYSE Sex male Bat Frequency 150.302

Capture Date 2/20/2018 Capture Site/GPS 2 - Carteret 34.77446, -76.964050, CROATAN NF, N.C.

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS	
2/21/18	Kristi Confortin & Drew Powell	Y 302a	loblolly pine	34.77765 -76.96254	very close to net capture site	
2/22/18	Kristi Confortin & Drew Powell	Y 302a	loblolly pine	34.77765 -76.96254	" "	
2/23/18	NA	—	—	—	did not track due to prescribed fires in area	
2/24/18	Kristi Confortin Drew Powell	Y 302a	loblolly pine	34.77765 -76.96254	very close to net capture site	
2/25/18	Drew Powell + Kristi Confortin	N	—	34.77554, -76.96435	signal heard 118° SE 3-element / signal strong but far	11:28
2/25/18	" "	N	—	34.77552, -76.95805	signal heard 206° SW 3 element / signal strong but far	12:03
2/25/18	" "	N	—	—	checked Millis Rd but no signal due to prescribed burnings in area.	
2/25/18	" "	N	—	34.77839, -76.96071	checked from capture site w/ 5-element and he moved due to fire and smoke from the burning.	
"	" "	"	—	" "	the fire started around 12:30 and bat 302 moved between then and 12:50	Signal lost
2/26/18	Drew Powell + Julia Hoch	N	—	34.77746, -76.96427	signal 149° SE Millis swamp rd.	
2/26/18	" "	N	—	34.77579, -76.94855	no signal 177A	
2/26/18	" "	N	—	34.77151, -76.95921	signal 309' off of 334° NW Millis Rd.	
2/26/18	" "	Y 302b	Red maple	34.77335, -76.96111	Roost 302b found.	
2/27/18	Julia Hoch, Kristi Confortin, Meredith Haggott	Y 302c	Black tupelo	34.77371, -76.96161	Roost just past 302b, on other side of stream.	

Ecological Solutions

BAT TELEMETRY

Species MYSE Sex Male Bat Frequency 150.302

Capture Date 2/20/2018 Capture Site/GPS 2. Carteret 34.77446, -76.964050, CROATAN NF, N.C.

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
2/28/2018	Kristi Confortin Drew Powell	Y 302c	Black Tupelo	34.77371, -76.96611	same roost as 2/27/2018
3/1/2018	Meredith Hoggatt + Julia Hoch	Y 302d	Red Bay	34.77333, -76.96352	new roost
3/2/2018	High winds could not track,				
3/3/18	Sean Hoch & Julia Hoch	Y 302d	Red Bay	34.77333, -76.96352	same as 3/1
3/4/18	Dottie Brown & Julia Hoch	Y 302d	Red Bay	34.77333, -76.96352	same as 3/3 & 3/1
3/5/18	Drew Powell	Y 302d	Red Bay	34.77333, -76.96352	same as 3/1 & 3/3 & 3/4
3/6/18	Drew Powell	Y 302d	Red Bay	34.77333, -76.96352	same as 3/1 & 3/3 & 3/4 & 3/5
3/7/18	Drew Powell	Y 302d	Red Bay	34.77333, -76.96352	same as 3/1, 3/3, 3/4, 3/5, 3/6
3/8/18	Drew Powell	Y 302d	Red Bay	34.77332, -76.96352	same as 3/1, 3/3, 3/4, 3/5, 3/6, 3/7
3/9/18	Drew Powell	Y 302d	Red Bay	34.77333, -76.96352	same as 3/1, 3/3, 3/4, 3/5, 3/6, 3/7, 3/8
3/10/18	Drew Powell	Y 302d	Red Bay	34.77333, -76.96352	Same as 3/1, 3/3, 3/4, 3/5, 3/6, 3/7, 3/8, 3/9
3/11/18	Drew Powell	Y 302a	Long leaf pine snag	34.77765, -76.96294	Same as 2/21/18 - 2/24/18
3/12/18	Drew Powell Kristi Confortin	Y 302d	Red Bay	34.7765, -76.96254	same as 3/1, 3/3, 3/4, 3/5, 3/6, 3/7, 3/8, 3/9, 3/10
3/13/18	Drew Powell	Y 302d	Red Bay	34.7765, -76.96254	same as 3/1, 3/3, 3/4, 3/5, 3/6, 3/7, 3/8, 3/9, 3/10, 3/12

Ecological Solutions

BAT TELEMETRY

Species MYSE Sex Male Bat Frequency 150.302

Capture Date 2/20/2018 Capture Site/GPS 2-Carteret 34.77446, -76.964050, Croatan NF, NC

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
3/14/2018	Dottie Brown Drew Powell	4302D	Red bay	34.7765, -76.96254	same roost as 3/13

Bat Frequency 150.302

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 2-21-2018 **Surveyor(s) Full Name:** Julia Hoch, Meredith Hoggatt

State: NC **County:** Carteret **Project Name:** NCDOT NLEB Research Project

Site Name/#: 2-Carteret **Roost Name/#** 150.302 A

Lat/Long or UTM of Roost: 34.77765, -76.96254

CROATAN National Forest

Description of Roost/Habitat Feature Surveyed: Long-leaf pine snag with sections of exfoliating bark, located in long-leaf stand.

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

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed): 83° at start, wind 1, clouds 0

Survey Start Time: 1730 **Time of Sunset:** 1756 **Survey End Time:** 1830

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
1813	1	69° Emerged from middle exfoliating bark on SW

Ecological Solutions

USFWS

Site Name/#: 2-Carteret **Roost #:** 302a **Bat Frequency** 150.302

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

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

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

Radio-tagged bat only observed emergence dropped into flight and circled left around tree. Heard foraging nearby for rest of count.

Bat Frequency 150.302

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 02/28/2018 **Surveyor(s) Full Name:** Drew Powell

State: NC **County:** Carteret **Project Name:** NCDOT NLEB Research Project

Site Name/#: 2-Carteret **Roost Name/#** 302C

Lat/Long or UTM of Roost: 34.4625, -76.5743

Description of Roost/Habitat Feature Surveyed: Live black tupelo on edge of stream

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

Other Suspected Bat Species (explain): N/A

Weather Conditions during Survey (temperature, precipitation, wind speed): Partly cloudy, no wind no precipitation 63°F - 61°F

Survey Start Time: 17:25 **Time of Sunset:** 18:02 **Survey End Time:** 18:30

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
1819	1	62°F dropped out near half way up tree

Croatan National Forest

Ecological Solutions

Site Name/#: 2-Carteret **Roost #:** 302c **Bat Frequency** 150.302

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	1	Exact roost location still unclear due to heavy clutter surrounding the tree

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

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

Bat 302 emerged from near half the height of tree. He circled the tree once then foraging in the surrounding swamp.

Bat Frequency 150.302

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3-1-2018 **Surveyor(s) Full Name:** Julia Hoeh, Meredith Hogaatt

State: NC **County:** Carteret **Project Name:** NCDOT NLEB Research Project

Site Name/#: 2-Carteret **Roost Name/#** 302 d

Lat/Long or UTM of Roost: 34.77333, -76.96352

Croatan National Forest

Description of Roost/Habitat Feature Surveyed: mixed unmanaged bottomland forest w/ wetland

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

Other Suspected Bat Species (explain):

Weather Conditions during Survey (temperature, precipitation, wind speed):
Start: 71°F, wind 3-4, 0 precip, cloud 100%; sunset: 64.5°F, 0 precip, wind 4; clouds 100%; end: 62°, wind 3, clouds 100 1830

Survey Start Time: 1730 **Time of Sunset:** 1803 **Survey End Time:**

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

1801 got quieter

Time	Number of Bats Leaving Roost*	Comments / Notes
1821	1	62°F, wind 4, precip 0, cloud 100%, flew ESE

Ecological Solutions

USFWS 2017/3.1.1

Site Name/#: 2-Carteret Roost #: 302D Bat Frequency 150.302

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

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

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

Radio tagged bat emerged at 1821 and flew east southeast from the tree.

BAT EMERGENCE COUNTS

Species myse Sex male Bat Frequency 150.302

Capture Date 2/20/2018 Capture Site/GPS 2 - Carteret, 34.77446, -76.964050, Croatan NF, N. C.

DATE	OBSERVERS	ROOST #	GPS LAT/LONG	Bat Count	COMMENTS
2/21/2018	Julia Hoeh meredith Hoggatt	302a	34.77765, -76.96254	1	emerged from SW middle of snag
2/22/2018	No emergence	302a	" "	Na	did an emergence on 2/21/2018
2/23/2018	No emergence	Na	Na	Na	did Not track due to prescribe burn
2/24/2018	No emergence	302a	34.77765, -76.96254	Na	did an emergence on 2/21/2018
2/25/2018	No emergence	Na	Na	Na	did not track due to prescribe burn
2/26/2018	Drew Powell, Julia Hoeh	302b	34.77335, -76.96111	Na	Rain out
2/27/2018	Julia Hoeh	302C	34.77371, -76.9661	Na	did Not due to safety issues
2/28/2018	Drew Powell	302C	34.77371, -76.9661	1	emerged near center of tree @ 18:19
3/1/2018	meredith Hoggatt Julia Hoeh	302D	34.77333, -76.96352	1	emerged on SE side @ 18:21
3/2/2018	No emergence	Na	Na	Na	did Not track due too high winds
3/3/2018	No emergence	302D	34.77333, -76.96352	Na	did emergence on 3/1/2018
3/4/2018	No emergence	302D	34.77333, -76.96352	Na	did emergence on 3/1/2018
3/5/2018	No emergence	302D	34.77333, -76.96352	Na	did emergence on 3/1/2018
3/6/2018	No emergence	302d	34.77333 -76.96352	Na	did emergence on 3/1/2018
3/7/2018	No emergence	302d	34.77333, -76.96352	Na	did emergence on 3/1/2018
3/8/2018	No emergence	302d	34.77333 -76.96352	Na	did emergence on 3/1/2018
3/9/2018	No emergence	302d	34.77333, -76.96352	Na	did emergence on 3/1/2018
3/10/2018	No emergence	302d	34.77333, -76.96352	Na	did emergence on 3/1/2018
3/11/2018	No emergence	302a	34.77765, -76.96254	Na	did emergence on 2/21/2018
3/12/2018	No emergence	302d	34.77765, -76.96254	Na	did emergence on 3/1/2018
3/13/2018	No emergence	302d	34.77765, -76.96254	Na	did emergence on 3/1/2018

Ecological Solutions

BAT EMERGENCE COUNTS

Species ~~MYSE~~ Sex Male Bat Frequency 150, 302

Capture Date 2/20/2018 Capture Site/GPS 2-Carteret 34.7746, -76.96450, Croatan NF NC

DATE	OBSERVERS	ROOST #	GPS LAT/LONG	Bat Count	COMMENTS
3/14/2018	Dottie Brown & Drew Powell	302-D	34.77165, -76.96254	NA	did emergence 3/1/2018

Ecological Solutions LLC

Bat Species/Sex myse/male Frequency 150.180

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Kristi Confortin, Date: 3/1/2018

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 34.80951 LONG -77.07953

Property Owner Croatan Nf Phone# 252-638-5628

State NC County Craven Project Name # NCDOT NLEB research project

Roost # 180a

Roost Tree Data

Species: Bald Cypress (Taxodium distichum) Live √ Snag __ Other __

(If other, explain) _____

DBH (in or cm) 14.4in Total Height (ft or m) 108ft

Height of roost area (if known) 80±ft Dist. from capture site 607 feet

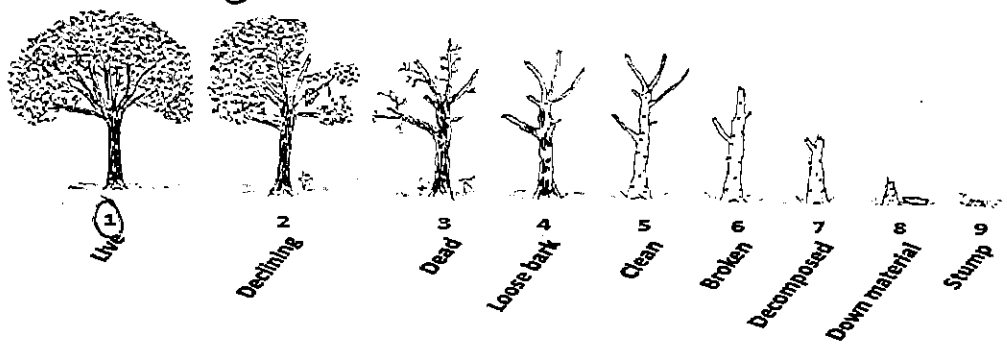
Roost position aspect (deg) 171°

Exfoliating bark on bole (%) 10% Describe: sloughing __ platy __ tight √

Cavities present? NA if so, describe: _____

Roost tree or snag canopy position: Dominant √ Co-Dominant __ Suppressed __

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



No. of days at roost (dates) 3/1/2018

Observations KC & DP

Ecological Solutions

USFWS KC 2/12/18

Surrounding Habitat Condition

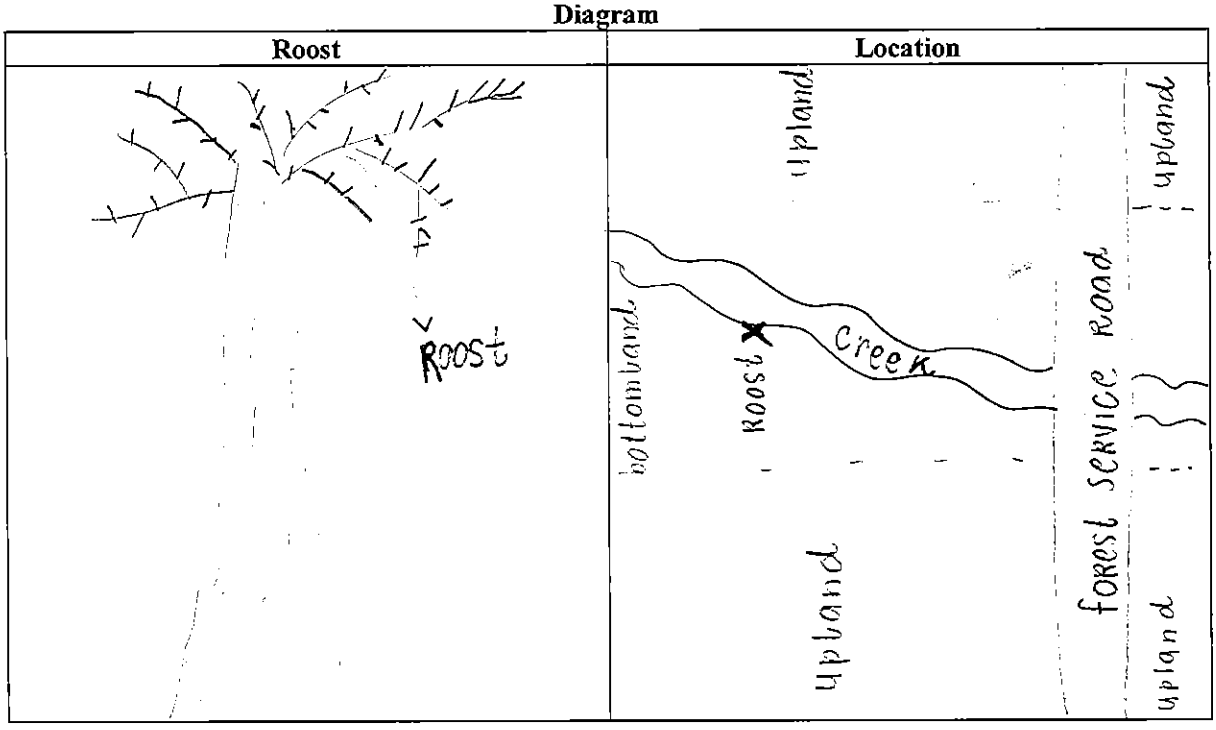
Canopy closure at roost (%) 5%

Approximate woodlot size (ac or ha) 139,620 ac **Distance to non-forest (ft or m)** 1.73 miles

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
red bay, red maple, american holly, bald cypress, water tupelo
mature forest. Right next to creek. Little understory
black tupelo, sweet gum, loblolly pine, swamp bay
fetterbush, doghobble, large gallberry, Climbing hemmnie, saw briar

Additional Comments
Habitat Community - Cypress-Gum Swamp (Blackwater Subtype)

Diagram



Ecological Solutions

Bat Species/Sex MYSE/male Frequency 150.180

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Kristi Confortin Date: 3/3/2018

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 34.80786 LONG -77.07922

Property Owner Croatan Nf Phone# 252-638-5628

State NC County Craven Project Name # NCDOT NLEB research project

Roost # 180b

Roost Tree Data

Species: Red maple (Acer Rubrum) Live √ Snag __ Other __

(If other, explain) _____

DBH (in or cm) 9.3in Total Height (ft or m) 67ft

Height of roost area (if known) 44ft Dist. from capture site 116'

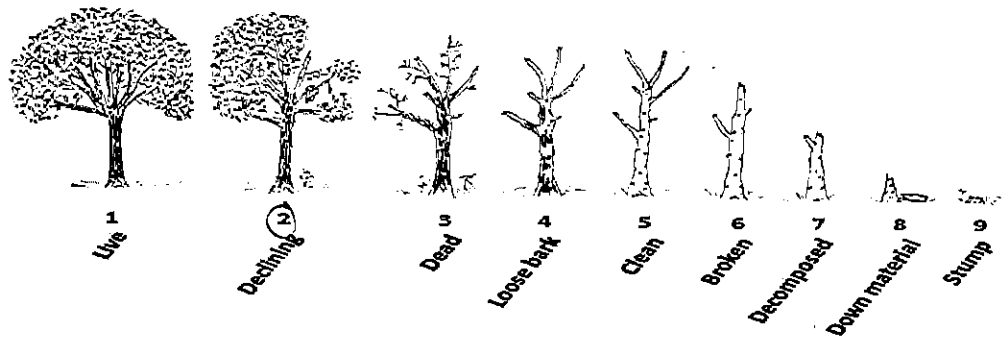
Roost position aspect (deg) 79° E

Exfoliating bark on bole (%) 5% Describe: sloughing __ platy __ tight √

Cavities present? YES if so, describe: small by branching of limbs

Roost tree or snag canopy position: Dominant __ Co-Dominant √ Suppressed __

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



No. of days at roost (dates) 3/3/2018, 3/4/2018, 3/5/2018, 3/6/2018, 3/7/2018, 3/8/2018, 3/9/2018, 3/10/2018

Observations KC & DP, KC & DP, KC & DB, KC & DB, KC & DB

8 days

Returned to roost 3/12, 3/17, 3/18, 3/19, 3/20, 3/21

√ cont'

Ecological Solutions

Surrounding Habitat Condition

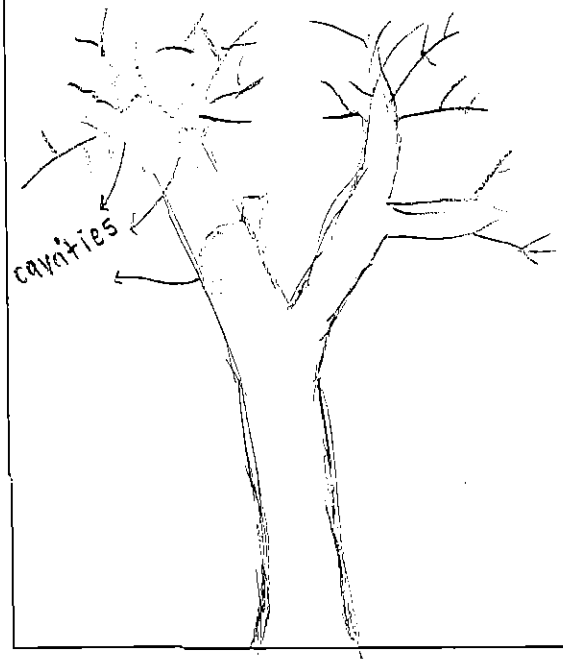
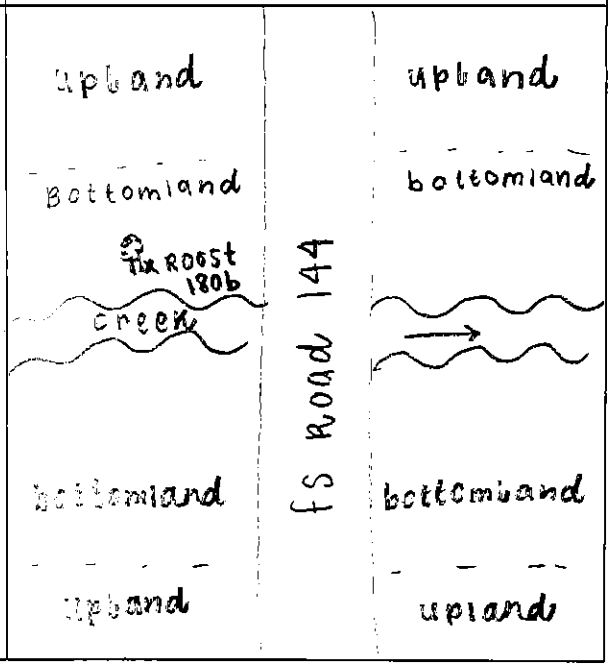
Canopy closure at roost (%) 5%

Approximate woodlot size (ac or ha) 139, 620 acres **Distance to non-forest (ft or m)** 1.73 miles

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
mature forest next to creek close to road, little/no understory bald cypress, red maples, water tupelo, american holly, swamp bay, red bay, sweet gum, flowering dogwood, swamp tupelo fetterbush, lanceleaf greenbrier, giant cane, carleaf greenbrier

Additional Comments
Habitat Community - Coastal Plain Small Stream Swamp, Blackwater Subtype

Diagram

Roost	Location
	

Ecological Solutions

Bat Species/Sex MYSE male Frequency 150. 180

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Dottie Brown Kristi Comforton Date: 3-11-2018

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 34.80931 LONG -77.07870

Property Owner Croatan National Forest Phone# 252-638-5628

State NC County Craven Project Name # Rosea NCDOT NLEB

Roost # 180 C

Roost Tree Data

Species: Swamp Tupelo (Nyssa sylvatica) Live __ Snag X Other __

(If other, explain) _____

DBH (in or cm) 3.4 inches Total Height (ft or m) 26'

Height of roost area (if known) 2.2' Dist. from capture site 493'

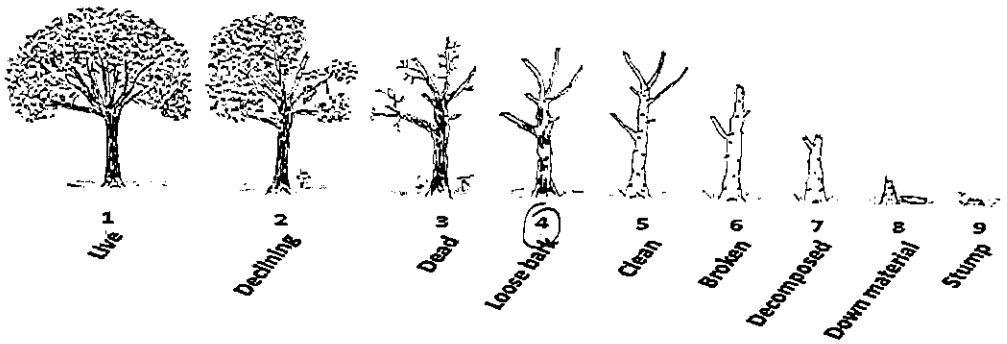
Roost position aspect (deg) 25° NE

Exfoliating bark on bole (%) 60% Describe: sloughing X platy __ tight __

Cavities present? ✓ if so, describe: medium size oval shape cavity

Roost tree or snag canopy position: Dominant __ Co-Dominant __ Suppressed ✓

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



No. of days at roost (dates) 3/11,

Observations roost also to ground

Ecological Solutions

USFWS KC 3/12/2015

Surrounding Habitat Condition

Canopy closure at roost (%) 85%

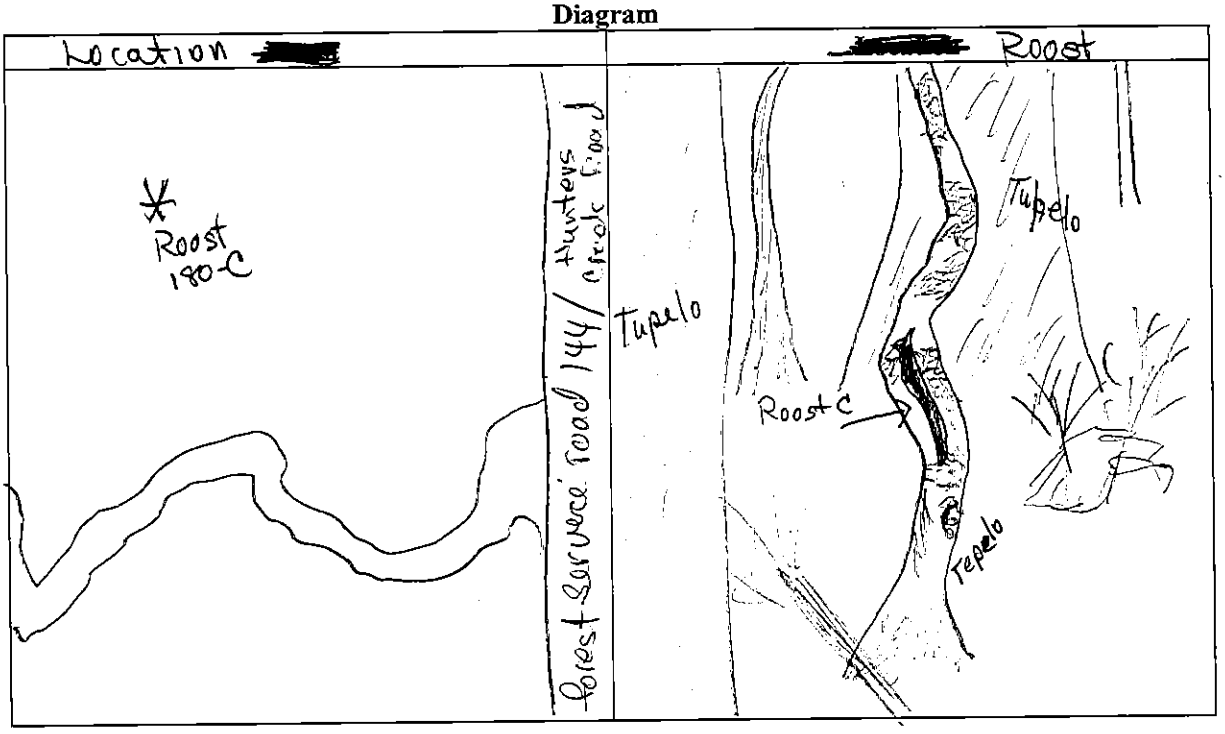
Approximate woodlot size (ac or ha) 139,620 acres **Distance to non-forest (ft or m)** 1.73 miles

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
mature bottomland mixed pine/hardwoods/wetland

Swamp tupelo, loblolly pine, red maple, red bay, black tupelo, american holly, swamp bay, titi, sweetgum, water oak, bald cypress fetterbush, high bush blueberry, large gallberry

Additional Comments
Habitat Community - Coastal Plain Small Stream Swamp Blackwater Subtype

Diagram



Ecological Solutions

Bat Species/Sex MYSE/male Frequency 150.180

Appendix D

Phase 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name): Kristi Confortin, Date: 3/13/2018

UTM: Zone _____ Easting _____ Northing _____ *OR*

LAT 34.81065 LONG -77.07874

Property Owner Croatan, NF Phone# _____

State NC County Craven, Project Name # NCDOT NLEB Research Project

Roost # 180d

Roost Tree Data

Species: Swamp Tupelo (Nyssa biflora) Live √ Snag __ Other __

(If other, explain) _____

DBH (in or cm) 17in Total Height (ft or m) 114ft

Height of roost area (if known) 66ft Dist. from capture site _____

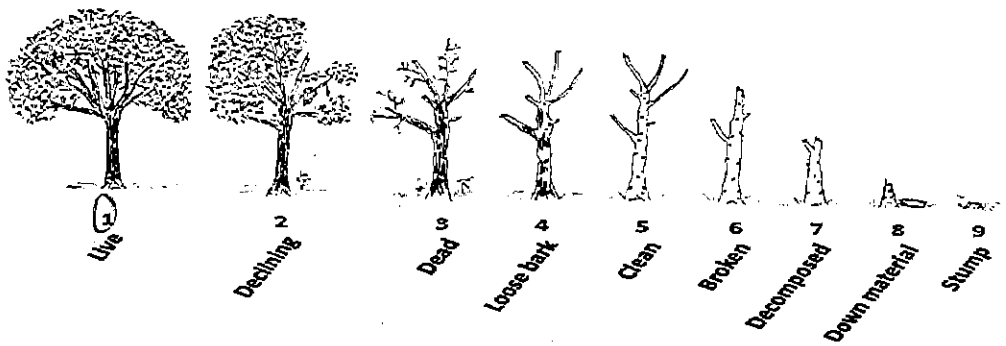
Roost position aspect (deg) 208°SW

Exfoliating bark on bole (%) Na Describe: sloughing __ platy __ tight √

Cavities present? YES if so, describe: Long & slender

Roost tree or snag canopy position: Dominant √ Co-Dominant __ Suppressed __

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



No. of days at roost (dates) 3/12/18, 3/13/18, 3/14/18, 3/15/18, 3/16/18.

Observations KC&DP

Ecological Solutions

USFWS KC 3/2018

Surrounding Habitat Condition

Canopy closure at roost (%) 10%

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

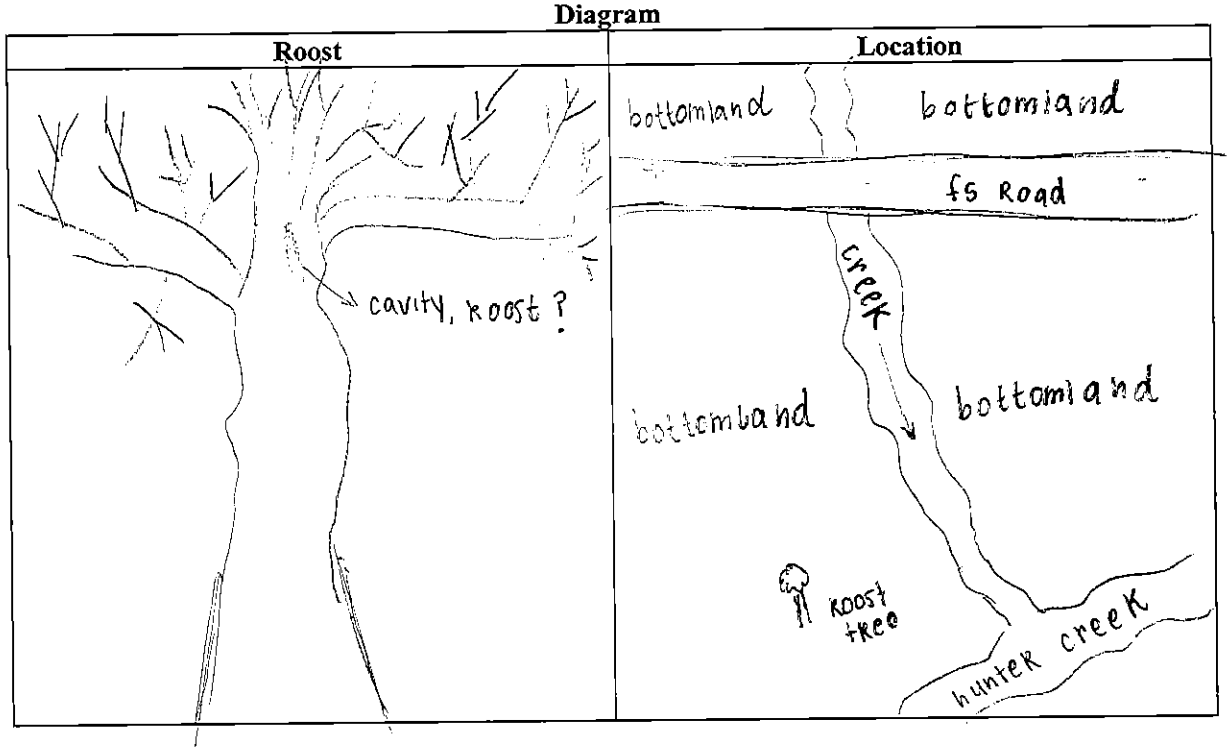
Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)
mature forest near creek

black tupelo, american holly, loblolly pine, sweet gum, red maple

fetterbush, creeping vine, elephant ear, saw brier

Additional Comments
Habitat Community - Cypress- Gum Swamp (Blackwater Subtype)

Diagram



Ecological Solutions

BAT TELEMETRY

Species MYSE Sex male Bat Frequency 150.180

Capture Date 2/28/2018 Capture Site/GPS 34.80819, -77.07938, 10 - Craven

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
3/1/2018	KRISTI CONFORTIN DREW POWELL	Y 180a	Bald cypress	34.80951 -77.07953	next to creek
3/2/2018	NA	—	—	—	wind too strong to track
3/3/2018	KRISTI CONFORTIN DREW POWELL	Y 180b	Red maple	34.80786 -77.07922	close to the road next to capture site
3/4/2018	KRISTI CONFORTIN DREW POWELL	Y 180b	red maple	34.80786 -77.07922	" "
3/5/2018	KRISTI CONFORTIN DOTTIE BROWN	Y 180b	Red maple	34.80786 -77.07922	" "
3/6/2018	KRISTI CONFORTIN DOTTIE BROWN	Y 180b	Red maple	34.80786, -77.07922	" "
3/7/2018	KRISTI CONFORTIN DOTTIE BROWN	Y 180b	Red maple	34.80786, -77.07922	" "
3/8/2018	KRISTI CONFORTIN	Y180b	Red maple	34.80786, -77.07922	" "
3/9/2018	KRISTI CONFORTIN	Y180b	Red maple	34.80786, -77.07922	" "
3/10/2018	KRISTI CONFORTIN DOTTIE BROWN	Y 180b	Red maple	34.80786, -77.07922	" "
3/11/2018	KRISTI CONFORTIN DOTTIE BROWN	Y 18C	Swamp Tupelo	34.80931, -77.07870	" "
3/12/2018	DOTTIE BROWN	Y 180b	red maple	34.80786, -77.07922	" " Temps Newport 50/34 rain
3/13/2018	KRISTI CONFORTIN DREW POWELL	Y180d	Swamp Tupelo	34.81065 -77.07874	3/12 Cold temps & snow and bat moved somewhere
3/14/2018	DOTTIE BROWN DREW POWELL	Y 180d	Swamp Tupelo	34.81065 -77.07874	Cold temps Low 40's high wind

Ecological Solutions

BAT TELEMETRY

Species MYSE Sex Male Bat Frequency 150.180

Capture Date 2/28/2018 Capture Site/GPS 10-Craven 34.80819, -77.07938

DATE	OBSERVERS	ROOST Y/N/#	ROOST TREE SPECIES	GPS LAT/LONG	COMMENTS
3/15/2018	Dottie Brown	Y/180-D	Swamp tupelo	34.81065, -77.07874	
3/16/2018	Dottie Brown Drew Powell	Y/180 D	Swamp tupelo	34.81065, -77.07874	
3/17/2018	Dottie Brown Drew Powell	Y/180b	Red maple	34.80786, -77.07922	returned to B
3/18/2018	Dottie Brown	Y/180b	Red maple	34.80780, -77.07928	Day temps 60/40 light winds evidence of rain night before
3/19/2018	Dottie Brown Drew Powell	Y/180b	Red maple	34.80786, -77.07922	
3/20/2018	Dottie Brown Drew Powell	Y/180b	Red maple	34.80786, -77.07922	sunny temps in 70's
3/21/2018	Dottie Brown Drew Powell	Y/180b	Red maple	34.80786, -77.07922	Rain temps in 40's

Ecological Solutions

Bat Frequency 150. 180

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/1/2018 **Surveyor(s) Full Name:** Drew Powell & Kristi Confortin
State: NC **County:** Craven **Project Name:** NCDOT NLEB Research Project
Site Name/#: 10 - Craven **Roost Name/#** 180a
Lat/Long or UTM of Roost: 34. 80951 -77. 07953
Description of Roost/Habitat Feature Surveyed: bald cypress next to creek
Bat Species Known to be using this Roost/Feature (if not known, leave blank):
myse, Northern long-eared Bat
Other Suspected Bat Species (explain):
Weather Conditions during Survey (temperature, precipitation, wind speed):
Partly cloudy, wind=0, temperature= 62°
Survey Start Time: 17:30 **Time of Sunset:** 17:03 **Survey End Time:** 1840

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes

Ecological Solutions

IAS FWS KC 3/13/19

Site Name/#: 10 - Craven Roost #: 180a Bat Frequency 150.180

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	did Not see bat emerge

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

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

bat did Not emerge

Bat Frequency 150.180

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/3/2018 **Surveyor(s) Full Name:** Kristi Confortin, Drew Powell
State: NC **County:** Craven **Project Name:** NCDOT NLEB Research project
Site Name/#: 10-Craven **Roost Name/#** 180b
Lat/Long or UTM of Roost: 34.80786 -77.07922
Description of Roost/Habitat Feature Surveyed: decaying Red maple near creek
Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Northern long eared bat
Other Suspected Bat Species (explain):
Weather Conditions during Survey (temperature, precipitation, wind speed):
Clear no clouds, slight wind, temperature = 56.5°
Survey Start Time: 17:20 **Time of Sunset:** 18:05 **Survey End Time:** 18:45

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes

Ecological Solutions

USFWS KC 3/3/2018

Site Name/#: 10-Craven Roost #: 180b Bat Frequency 150.180

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	did not see bat emerge end temperature = 49°

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

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

did not see bat emerge

Bat Frequency 150 . 180

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3-11-2018 **Surveyor(s) Full Name:** Dottie Brown

State: NC **County:** Craven **Project Name:** NCDOT WLEB Research Project

Site Name/#: 10-Craven Wolf Swamp **Roost Name/#** 180-C

Lat/Long or UTM of Roost: 34.80931, -77.07870

Description of Roost/Habitat Feature Surveyed: Small oval cavity ~ 2' up from ground

Bat Species Known to be using this Roost/Feature (if not known, leave blank):
MYSE

Other Suspected Bat Species (explain): N/A

Weather Conditions during Survey (temperature, precipitation, wind speed):
Cloudy, NO WIND, temperature = 64°

Survey Start Time: 18:40 **Time of Sunset:** 19:12 **Survey End Time:** 19:43

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
—	0	Temp end 52°

Ecological Solutions

USFWS KC 3/13/18

Site Name/#: 10-Craven Wolf Swamp Roost #: 180-C Bat Frequency 150-180

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	bat did Not emerge, saw it inside ROOST when it was to dark to see end temperature 52°

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

bat did Not emerge, after to dark to see + we turned on headlamps, we saw it at roost entrance

Bat Frequency 150 . 180

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 3/16/2018 **Surveyor(s) Full Name:** Dottie Brown Drew Powell

State: NC **County:** Craven **Project Name:** NCDOT NLEB research project

Site Name/#: 10 - Craven **Roost Name/#** 180 D

Lat/Long or UTM of Roost: 34.81065, -77.07874

Description of Roost/Habitat Feature Surveyed: Black tupelo / wetland / Black water stream

Bat Species Known to be using this Roost/Feature (if not known, leave blank): MYSE

Other Suspected Bat Species (explain): NA

Weather Conditions during Survey (temperature, precipitation, wind speed): Clear, 59°, sunny, calm no wind, no precipitation

Survey Start Time: 18:47 **Time of Sunset:** 19:17 **Survey End Time:** 19:50

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
19:40	1	Did not see bat leave roost. Emergence by telemetry

Temp 67°F

Ecological Solutions

Site Name/#: 10-Craven Roost #: 108-D Bat Frequency 150. 180

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:	0	did not see bat emerge

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

no bat was observed leaving roost, documented by telemetry

Ecological Solutions

BAT EMERGENCE COUNTS

Species MYSE Sex male Bat Frequency 150.180

Capture Date 2/28/2018 Capture Site/GPS 10 - Craven 34.80819 - 77.07938

DATE	OBSERVERS	ROOST #	GPS LAT/LONG	Bat Count	COMMENTS
3/1/2018	Kristi Confortin, Drew Powell	180a	34.80819, -77.07938	0	No bat emerge
3/2/2018	NA	—	—	—	did not track due to high winds
3/3/2018	Kristi Confortin, Drew Powell	180b	34.80786, -77.07922	0	did not see bat emerge
3/4/2018	NA	180b	34.80786, -77.07922	—	already did emergence on 3/3/2018
3/5/2018	NA	180b	34.80786, -77.07922	—	already did emergence on 3/3/2018
3/6/2018	NA	180b	34.80786, -77.07922	—	already did emergence on 3/3/2018
3/7/2018	NA	180b	34.80786, -77.07922	—	already did emergence on 3/3/2018
3/8/2018	NA	180b	34.80786, -77.07922	—	already did emergence on 3/3/2018
3/9/2018	NA	180b	34.80786, -77.07922	—	already did emergence on 3/3/2018
3/10/2018	NA	180b	34.80786, -77.07922	—	already did emergence on 3/3/2018
3/11/2018	Dottie Brown & Kristi Confortin	180c	34.80931, -77.07870	0	did not emerge stayed past when I left + dark observed bat at entrance of roost
3/12/2018	Dottie Brown	180b	34.80786, -77.07922	—	already did emergence 3/3/2018
3/13/2018	NA	180d	34.81065, -77.07874	—	no emergence due to low temps <45
3/14/2018	NA	180d	34.81065, -77.07874	—	" " "
3/15/2018	NA	180d	34.81065, -77.07874	—	no emergence due to high winds >16 mph
3/16/2018	Dottie Brown Drew Powell	180d	34.81065, -77.07874	1	Did not see bat leave documented by telemetry
3/17/2018	NA	180b	34.80786, -77.07922	—	already did emergence on 3/3/2018
3/18/2018	NA	180b	34.80786, -77.07922	—	" " " "
3/19/2018	NA	180b	34.80786, -77.07922	—	" " " "
3/20/2018	NA	180b	34.80786, -77.07922	—	" " " "
3/21/2018	NA	180b	34.80786, -77.07922	—	" " " "

Ecological Solutions

Appendix H
Agency Coordination Emails

Dottie Brown

From: Dottie Brown
Sent: Sunday, December 03, 2017 11:18 AM
To: 'permitsR3ES@fws.gov'; 'Jordan, Gary'; 'Sue Cameron'
Cc: 'Chris Manley'; Katherine Caldwell; David H Allen(david.h.allen@ncwildlife.org); HugoCobos
Subject: northern long=eared bat capture Permit TE94704A-1

FYI
A northern long-eared bat (NLEB) was captured on 12-2-2017 by Dottie Brown USFWS permit # TE94704A-1. An adult male NLEB was captured in the Craven County approximately at 35.00707, -77.07463 within the Croatan National Forest. Surveys are being conducted in coastal NC for the presence of NLEB during the winter months. NLEB will be tracked for approximately 21 days.

Dottie Brown
Senior Ecologist
Director of Bat Management and Conservation
Ecological Solutions, Inc.
630 Colonial Park Drive
Roswell, GA 30076
Mobile-828-244-1898
Office-770-998-7848
dbrown@ecologicalsolutions.net

From: Kristi Confortin
Sent: Tuesday, December 19, 2017 11:23 AM
To: permitsR3ES@fws.gov; gary_jordan@fws.gov; susan_cameron@fws.gov
Cc: Dottie Brown <dottiebrown@ecologicalsolutions.net>; katherine.caldwell@ncwildlife.org; david.h.allen@ncwildlife.org; cdmanley@ncdot.gov; hcobos@fs.fed.us
Subject: Northern Long-eared bat Capture Permit TE48579B-3

Hello everyone,

FYI

A northern long-eared bat (NLEB) was captured on 12-18-2017 by Kristi Confortin USFWS permit # TE48579B-3. An adult male NLEB was captured in the Craven County approximately at 35.027270 -77.046536 within the Croatan National Forest. Surveys are being conducted in coastal NC for the presence of NLEB during the fall and winter months. NLEB will be tracked for approximately 21 days.

Thanks,

Kristi Confortin

Bat Ecologist
Associate Wildlife Biologist®
Ecological Solutions, Inc.
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Office-770-998-7848
kristiconfortin@ecologicalsolutions.net

Dottie Brown

From: Dottie Brown
Sent: Saturday, February 17, 2018 9:46 PM
To: 'permitsR3ES@fws.gov'; 'gary_jordan@fws.gov'; 'susan_cameron@fws.gov'
Cc: 'katherine.caldwell@ncwildlife.org'; 'david.h.allen@ncwildlife.org'; 'cdmanley@ncdot.gov'; 'hcobos@fs.fed.us'; Kristi Confortin
Subject: RE: Northern Long-eared bat Capture Permit TE94704A-1
Attachments: Doc - Feb 17 2018 - 6-21 PM.PDF

Hi all,

It seems this capture is in Craven County and not Carteret County. I documented the county by a map that Forest Service gave me which shows the county line for Craven is north of this site. However this maps county lines are incorrect and Carteret County line is approximately .23 miles to the SE. Gary Jordan pointed it out (thanks Gary) and I pulled it up in Google Earth to confirm. Still the great news is that we captured another NLEB in Craven County.

Let me now if you have any questions.

Thanks

Dottie Brown
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From: Dottie Brown
Sent: Saturday, February 17, 2018 2:55 PM
To: permitsR3ES@fws.gov; gary_jordan@fws.gov; susan_cameron@fws.gov
Cc: katherine.caldwell@ncwildlife.org; david.h.allen@ncwildlife.org; cdmanley@ncdot.gov; hcobos@fs.fed.us; Kristi Confortin <kristiconfortin@ecologicalsolutions.net>
Subject: RE: Northern Long-eared bat Capture Permit TE94704A-1

FYI

In accordance with protocols for USFWS permit #TE94704A-1, I am reporting the capture of a northern long-eared bat (NLEB) captured on 2-16-2018 by Dottie Brown. An adult male NLEB was captured in the Carteret County approximately at 34.80819, -77.07938 within the Croatan National Forest. Surveys are being conducted in coastal NC for the presence of NLEB during the fall and winter months. NLEB will be tracked for approximately 21 days.
Let me know if you have any further questions.
Thanks,

Dottie Brown
Senior Ecologist
Director of Bat Management and Conservation

Dottie Brown

From: Dottie Brown
Sent: Wednesday, February 21, 2018 2:55 PM
To: permitsR3ES@fws.gov; gary_jordan@fws.gov; susan_cameron@fws.gov
Cc: katherine.caldwell@ncwildlife.org; david.h.allen@ncwildlife.org; cdmanley@ncdot.gov; hcobos@fs.fed.us; Kristi Confortin
Subject: Northern Long-eared bat Capture Permit TE48579B-3

FYI-
In accordance with protocols for USFWS permit #TE48579B-3, I am reporting the capture of a northern long-eared bat (NLEB) captured on 2-20-2018 by Kristi Confortin. An adult male NLEB was captured in the Carteret County (this time it is in Carteret Co.) approximately at 34.77446, -76.964050 within the Croatan National Forest. Surveys are being conducted in coastal NC for the presence of NLEB during the fall and winter months. NLEB will be tracked for approximately 21 days.
Let me know if you have any further questions.

Thanks,

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Dottie Brown

From: Dottie Brown
Sent: Thursday, March 01, 2018 2:09 PM
To: 'permitsR3ES@fws.gov'; 'gary_jordan@fws.gov'; 'susan_cameron@fws.gov'
Cc: 'katherine.caldwell@ncwildlife.org'; 'david.h.allen@ncwildlife.org'; 'cdmanley@ncdot.gov'; 'hcobos@fs.fed.us'; Kristi Confortin
Subject: RE: Northern Long-eared bat Capture Permit TE94704A-1

FYI-
In accordance with protocols for USFWS permit #TE94704A-1, I am reporting the capture of a northern long-eared bat (NLEB) captured on 2-28-2018 by Dottie Brown. An adult male NLEB was captured in the Craven County, NC at approximately at 34.80819, -77.07938 within the Croatan National Forest. Surveys are being conducted in coastal NC for the presence of NLEB during the fall and winter months. NLEB will be tracked for approximately 21 days.
Let me know if you have any further questions.

Thanks,

Dottie Brown
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