

**FINAL REPORT**  
**White-nose Syndrome Grants to States SC-E-F17AP00633**  
South Carolina Department of Natural Resources  
October 1, 2017 – September 30, 2018

Project Title: South Carolina White-nose Syndrome State Support in 2017

The purpose of this grant was to fund an hourly technician to assist the SCDNR bat biologist for one year in bat population monitoring and disease surveillance; to help provide WNS outreach and Northern long-eared bat information to Nuisance Wildlife Control Operators (NWCO's), caving groups, and the public, and to update the SC Bat Conservation and SC WNS Response plans. This grant also funded WNS-related supplies and materials, and covered travel of the SCDNR bat biologist to the 2018 WNS workshop and regional Southeastern Bat Diversity Network meetings.

After this grant was awarded, the performance period of a previous White-nose Syndrome (WNS) grant (WNS State Support FY 2016) was given a no-cost extension for Dec 1, 2016 – Dec 31, 2017. Thus, there is a slight overlap in the reporting period between that extension and this grant. However, everything reported here is new and does not repeat what was in the final report for WNS State Support FY 2016. The WNS FY 2016 grant funded personnel costs of the full time SCDNR bat biologist through the extension to Dec 31, 2017, after which the State Wildlife Grant *SC-T-F17AF01195 South Carolina Bat Monitoring and Research Project* began covering costs for the SCDNR bat biologist. Thus, this report includes activities the bat biologist managed in conjunction with the hourly technician's efforts.

Objective: Continue to ship bat samples from rabies-negative bats submitted to the South Carolina Department of Health and Environmental Control (SCDHEC) to the Southeastern Cooperative Wildlife Disease Study (SCWDS) for WNS testing, as SCDHEC makes those specimens available. Ship specimens of hibernating species from public sources, and sick or dead bats collected from Objective 2.

Accomplishments:

SCDHEC did not receive any rabies-negative bats that weren't Brazilian free-tailed bats (*Tadarida brasiliensis*, or TABR) from October 2017 through the end of March 2018. Therefore, we did not ship any bats to SCWDS for *Pseudogymnascus destructans* (*Pd*) testing during this time. In the past we had not requested TABR be saved since it's a common species and had not been known to be affected by WNS. However, because *Pd* was detected on TABR in 2018, I requested that individuals of this species also be saved for testing in the winter of 2018/19. My contact, Christy Jeffcoat (SCDHEC Supervisor, Virology & Rabies Laboratory) explained that SCDHEC receives many TABR in the winter, so we agreed they could save a few a month, focusing on those from the SC coastal plain since *Pd* has not yet been detected in that ecoregion.

A tri-colored bat (*Perimyotis subflavus*, or PESU) from Table Rock State Park (Pickens County) was picked up from the deck at the waterfall viewing area just up from the trailhead at Table Rock State Park on April 16, 2018. SCDNR submitted that bat to SCWDS and the results show the fungus that causes WNS was not detected. Necropsy findings in this bat were suggestive of trauma, and the bat was in good body condition, with abundant ingesta and adequate fat stores. Additionally, a swab collected on March 18, 2018 from a PESU netted by Jason Robinson, a contractor at Palmetto Bluff Conservancy (Beaufort County), was submitted to SCWDS by SCDNR. Results show *Pd* was not detected by polymerase chain reaction testing in that bat.

Significant deviations:

There were no significant deviations.

Objective: Conduct WNS surveillance at eight or more hibernacula in the winter of 2017/2018.

Accomplishments:

The hourly technician assisted with 11 winter counts from January 19, 2018 to February 13, 2018 (Table 1) in 9 mines and 2 rock shelters, for a total count of 132 PESU. Five bats at 2 sites in Oconee County (a county that previously tested *Pd* positive) surveyed during this time had some small white fungal growth indicative of WNS on the face and ears. Three sites in previously untested counties were tested for *Pd* through the NWHC. Results from WNS testing indicated that *Pd* was present in these 3 new counties: Cherokee, York, and Spartanburg.

Two of 9 PESU at the Cherokee County site (22% of those sampled) tested positive for *Pd*; 8 of 19 PESU at the York County site (42% of those sampled) tested positive for *Pd*; and 6 of 30 PESU at the Spartanburg County site (20% of those sampled) tested positive for *Pd*. Following the National Wildlife Health Center (NWHC) definition, these counties are now considered WNS suspect since no bats at those sites had no obvious clinical signs of WNS. It was noted that our counts in 2018 showed tri-colored numbers were up from past surveys: in Cherokee Co, 9 bats from 1 in 1992; in York Co, 19 bats from 8 in 2010; in Spartanburg Co, 55 bats from 36 in 2014. The reason for this is unclear. However, counts have been sporadic and numbers may have fluctuated significantly between surveys. Another possibility is that *Pd* hasn't been established long enough and hasn't reduced these bat populations yet. Surveys of these sites the next few years will help clarify this.

The hourly technician completed Element of Occurrence Records for each site where bats were present and entered them into the Heritage Trust database; wrote thank you letters with hibernacula results and sent them to land owners for the 2017/2018 winter survey season; found contact information for future hibernacula counts and potential locations; reached out to landowners about unvisited sites to determine their awareness of a mine on their property and to obtain permission to visit the site; assisted with *Pd* swabbing; and worked with SCDNR Geospatial Analyst, Joe Lemeris, to learn more about accessing and using Lidar to find more bat hibernacula.

Table 1. Winter bat counts in South Carolina (winter 2017-2018). Type: B = building, C = cave, M = mine, RS = rock shelter, T = Tunnel. Bat Count/Previous Count: CORA (Rafinesque's big-eared bat) = *Corynorhinus rafinesquii*, PESU (tricolored bat) = *Perimyotis subflavus*, Myotis = unknown *Myotis* species. Lines highlighted in gray are new counties considered WNS suspect in 2018.

Type	Date	Site	County	Bat Count	Previous Count	<i>Pd</i> testing	Ownership
M	2/13/18	Dickey (Allison) Gold Mine 2	Cherokee	9 PESU*	2/7/92: 1 PESU, 1 Myotis	NWHC	Private
M	1/19/18	Buck 120 SE	Oconee	0	12/24/95: 0 bats		Public
M	1/19/18	Sw230	Oconee	5 PESU	12/28/95: 1 PESU		Public
M	1/22/18	Jkelly	Oconee	0	12/28/95: 0 bats		Public
M	1/22/18	MoldyCricket	Oconee	19 PESU	2/5/16: 15 PESU, 1 CORA		Public
M	1/22/18	Ridge	Oconee	15 PESU	3/12/12: 3 PESU, 1 CORA		Public
M	1/26/18	Soap107c	Oconee	1 PESU	1/28/10: 0 bats		Public
RS	2/2/18	Rockhouse Mt1	Oconee	1 PESU	2/20/13: 2 PESU		Public
RS	2/2/18	Rockhouse Mt2	Oconee	8 PESU	2/20/13: 16 PESU		Public
M	2/14/18	Hammet Mine	Spartanburg	55 PESU*	3/1/14: 36 PESU	NWHC	Private
M	2/13/18	Dickey (Allison) Gold Mine 1	York	19 PESU*	2/17/10: 8 PESU	NWHC	Private

\*Swab of at least 2 PESU positive for *Pd* per NWHC report

In addition, SCDNR collected summer swab samples from mist-netted bats at Santee Coastal Reserve/WMA between 5/21 and 6/6/18 for NWHC national *Pd* surveillance. Individuals swabbed included 15 PESU; 12 southeastern bats (*Myotis austroriparius*, MYAU); 15 evening bats (*Nycticeius humeralis*, NYHU); 8 Seminole bats (*Lasiurus seminolus*, LASE); 13 big brown bats (*Eptesicus fuscus*; EPFU); 14 Eastern red bats (*Lasiurus borealis*, LABO); 3 TABR; and 3 Northern long-eared bats (*Myotis septentrionalis*, MYSE). No visible fungus or mortality was noted in the bat population at the time of the survey. Combined wing/muzzle swabs from 24 bats and 1 environmental swab (mist-net) sampled at this location tested negative for *Pd* by real-time PCR.

#### Significant deviations:

There were no significant deviations.

Objective: Conduct some summer and fall netting or trapping on state-owned or conservation partner-held properties; emphasis will be on sites not previously sampled, or sites with MYSE, and/or on sites slated for acquisition. This will help identify important habitat. The target location and number of sites will be based on results from sampling planned this summer.

#### Accomplishments:

SCDNR successfully captured 3 Northern long-eared bats (MYSE) on the coastal plain and tracked 2 of these individuals. Below are details on mist netting and radio-tracking surveys.

### Mist Netting Surveys

Between May 21, 2018 and July 10, 2018, the best and most probable locations for bat captures across the state were netted at 3 properties within the known or potential range of MYSE. These sites were Stumphouse Tunnel Heritage Preserve (HP), Belfast Wildlife Management Area (WMA), and Santee Coastal Reserve WMA/Washo Reserve. Stumphouse Tunnel HP is located in the historic, previously known range for MYSE in the Blue Ridge ecoregion; Belfast WMA is at the boundary of the historic range in the Piedmont ecoregion; and Santee Coastal Reserve WMA/Washo Reserve is located on the coastal plain and within the recently expanded range area for Northern long-eared bats. Washo Reserve is owned by The Nature Conservancy and exists within Santee Coastal Reserve WMA. For simplicity, we refer to this entire site as Santee Coastal through the rest of this document.

With major assistance from the hourly technician, the netting effort resulted in 173 nets deployed over 19 nights and a total of 131 bats captured representing 8 species (see Table 2). Three total MYSE were captured, all at Santee Coastal. This site was important during the summer netting season because all 15 *Myotis* species captured in 2018 were at Santee Coastal. These *Myotis* made up 18% of captures at this site, and 11% of captures across all 3 sites. TABR, an unusual species to capture using mist nets, were also captured at this site. PESU were captured at two properties, 94% of which were captured on the coastal plain. Another single LASE was captured in the Blue Ridge ecoregion, the second we've captured in that region in 2 years. This species is considered rare for the area, so continued captures in this region make us question how common LASE might be in the Blue Ridge.

The hourly technician assisted by prepping gear for the season including checking the condition of all the old mist nets; assisted with *Pd* swabbing, handling, and banding of bats while following national WNS decontamination protocols; helped organize and instruct volunteers; conducted decontamination and organization of gear at the end of the season; set up small mist netting poles with PVC pulley system; and entered all netting data as Element of Occurrence Records for each site where bats were present and entered them into the Heritage Trust database.

Table 2: Mist netting survey sites and results for summer 2018. WMA = Wildlife Management Area, HP = Heritage Preserve. Net nights are calculated using the method in the Range-wide Indiana Bat Summer Survey Guidelines (April 2018).

Location	Dates	County	Net Sites	Net Nights	Bats <sup>a</sup>							
					PESU	LABO	LASE	EPFU	NYHU	MYAU	MYSE	TABR
Santee Coastal Reserve WMA	5/21 - 6/6	Charleston	25	84	15	14	8	13	15	12	3	3
Belfast WMA	6/18 - 6/28	Laurens/ Newberry	10	45	1	15	0	7	20	0	0	0
Stumphouse HP	7/2 - 7/10	Oconee	13	44	0	2	1	2	0	0	0	0
<b>Totals</b>	<b>19</b>	<b>4</b>	<b>48</b>	<b>173</b>	<b>16</b>	<b>31</b>	<b>9</b>	<b>22</b>	<b>35</b>	<b>12</b>	<b>3</b>	<b>3</b>

<sup>a</sup> PESU = *Perimyotis subflavus*, LABO = *Lasiurus borealis*, LASE = *Lasiurus seminolus*, EPFU = *Eptesicus fuscus*, NYHU = *Nycticeius humeralis*, MYAU = *Myotis austroriparius*, MYSE = *Myotis septentrionalis*, TABR = *Tadarida brasiliensis*

### *Radio-tracking Surveys*

At Santee Coastal in June 2018, 3 MYSE were captured: 1 adult male, 1 subadult male, and 1 subadult female. These captures were the first ever records of MYSE at Santee Coastal, and the presence of subadults indicates they were breeding in the area. The young MYSE were already volant (flying) by early June, suggesting they were born at least 3 weeks previous. This means their maternity colony was likely set up by the end of April, a time frame at least a few weeks earlier than what the [USFWS suggests](#) (late May). We suspect many coastal South Carolina bat populations begin maternity colonies much earlier than what has been seen elsewhere in the US.

The two subadults were fitted with radio transmitters and tracked to day roost sites (Appendix I). The hourly technician and one volunteer tracked these bats while the SCDNR bat biologist was at the WNS meeting. The female provided the most roost data, with roosts under the bark of 50-foot longleaf pine in greater stands of uniform age longleaf pine in an area about 1 mile from the fresh water pond capture location. She roosted in a different longleaf pine for 5 days, but all roosts were within 300 ft of each other. We noted her presence near the capture location the night after she was captured there.

Overall, MYSE used longleaf pine at Santee Coastal and most likely are roosting under bark. This in contrast to historical mountainous habitat used, which were often mature hardwoods. Though 5 points from one bat (subadult female) is a small sample size, the roost habitat measured during those two weeks in early June are as follows:

- 15 - 25% canopy closure
- 12 - 24" DBH
- ~ 50' tall
- All live trees
- 15 - 30% exfoliating bark
- Used different long leaf pine each day, approximately 300 ft of each other

### Subadult female

On the night of 06-05-18 we captured a female sub-adult MYSE near a pond within a long leaf pine savannah (33.14585, -79.40541). We attached a radio transmitter (freq 151.782) to her back. The next day we tracked her to a long leaf pine (33.14867, -79.39191), approximately 4,250 ft from the capture location. That night when we were netting again, we checked the receiver and heard a strong signal from this female, likely foraging in the area. The hourly technician and volunteer tracked the female MYSE for four more days (June 7, 12, 14, and 15). She used a different long leaf pine each day, but they were all within approximately 300 ft of each other and were in a uniform age stand. The trees were along the main dirt road entering the Santee Coastal Reserve in a dry area with an understory of ferns, poison oak, blackberries, and other low growing scrub. This area is burned on a regular basis. For example, the location where the bats were captured was burned in the winter of 2015/2016. Roost 1 was burned in the winter of 2016/17 and roosts 2-5 were burned at the beginning of 2018. The canopy is relatively open, ranging from 15-25% canopy closure. Roost tree measurements were between 12 - 24" DBH and approx 50' tall. All of the trees were alive and had between 15-30% exfoliating bark.

### Subadult male

On the night of 06-06-18, we netted at the same pond and captured two more MYSE and placed a transmitter (freq. 151.741) on a sub-adult male. The hourly technician was able to locate the sub-adult male MYSE on two occasions, June 8 and 15. On June 8 he was approximately 840' from the capture location. The exact tree was not determined due to weather, but he was likely in a long leaf pine near the edge of a small creek (33.148097, -79.406004). On June 15 he was located near Collins Creek

approximately 3000' from the capture location. The technician was unable to determine the exact tree he was roosting in due to swampy terrain, but it was near the point (33.15382, -79.40647).

Table 3: Locations of Northern long-eared bats captured and radio-tracked at Santee Coastal Reserve Wildlife Management area in June 2018.

#	Age	Sex	Frequency	Date	Lat	Long	Notes
C	Subadult	F	151.782	06-05-18	33.14585	-79.40541	Capture site
R1	Subadult	F	151.782	06-06-18	33.14867	-79.39191	Longleaf pine roost
R2	Subadult	F	151.782	06-07-18	33.14823	-79.39383	Longleaf pine roost
R3	Subadult	F	151.782	06-12-18	33.148193	-79.393417	Longleaf pine roost
R4	Subadult	F	151.782	06-14-18	33.14833	-79.39330	Longleaf pine roost
R5	Subadult	F	151.782	06-15-18	33.14831	-79.39330	Longleaf pine roost
C	Subadult	M	151.741	06-06-18	33.14585	-79.40541	Capture site
R1	Subadult	M	151.741	06-08-18	33.148097	-79.406004	Approx location
R2	Subadult	M	151.741	06-15-18	33.15382	-79.40647	Approx location

Significant deviations:

There were no significant deviations.

Objective: Provide WNS outreach and NLEB information to: (1) NWCOs and notify them about any training opportunities and updated WNS and bat-related protocol or regulatory changes, (2) local caving, scouting, and mining groups, and (3) the public via signs at critical sites, links on the DNR website, news releases and social media.

Accomplishments:

Letters updating 132 NWCOs listed as working on bats were distributed on March 21, 2018, and 127 were distributed on September 24, 2018 for a total of 259 letters sent. The hourly technician assisted with the writing of and sending of these letters and kept the NWCO spreadsheet updated based on letters that bounced back. These NWCO letters included information about newly identified WNS suspect counties in SC from the winter of 2017/18, current WNS brochures from the [whitenosesyndrome.org](http://whitenosesyndrome.org) website and updates on WNS, and other relevant research projects and decontamination information (Appendix II). The technician also created and included a bat ID guide for NWCO's (Appendix III).

A total of 2 news releases, 5 presentations, 1 interviews/article, and 1 newsletter provided WNS outreach and bat information. Outreach conducted from Oct 1 – Dec 31, 2017 was already reported as part of a no cost extension for the previous WNS FY16 grant. A Bats of South Carolina flyer (printed using a different funding source) with WNS info was provided to the public at each outreach event. The hourly technician assisted with the creation of slides for presentations; writing of news releases; creation of a South Carolina WNS map (Appendix IV) including counties surveyed for *Pd* with negative results in the past, posted on the SCDNR WNS website here: <http://www.dnr.sc.gov/wildlife/bats/batswns.html> provided in the March 14<sup>th</sup> news release; and a summary of bat netting efforts for the newsletter. The hourly technician assisted most with the following: Mar 14, 2018: "Deadly bat fungus in three new South Carolina counties": [http://www.dnr.sc.gov/news/2018/mar/mar14\\_bats.html](http://www.dnr.sc.gov/news/2018/mar/mar14_bats.html); Apr 3, 2018: presented at DNR/FS Coop meeting - 20 people in attendance; Apr 28: presented WNS info as part of Bat Watch (citizen science project) training in Traveler's Rest on Apr 28 - 15 people in attendance; Sep 20: presented at the SC Bat Working Group in Columbia, SC; Sep 28: SCDNR bat biologist emailed 46 members of the South Carolina Interstate Grotto about updated decontamination, map of *Pd* and WNS positive counties, and other pertinent WNS information.

The hourly technician posted a WNS sign at the Spartanburg site determined to have *Pd* present (Hammet Mine). The owner of the other two sites found to have *Pd* present was also offered these signs, but he declined. These signs indicate the site is WNS-positive and ask people to help prevent the spread of white-nose syndrome. These signs were purchased with an earlier WNS-State Support Grant.

Significant deviations:

There were no significant deviations.

Objective: Review, circulate, and update the SC Bat Conservation and SC WNS Response Plans.

Accomplishments:

Both the WNS Response Plan and the South Carolina Bat Conservation Plan were edited, updated and posted on the SCDNR website. The SC WNS Response Plan and SC Bat Conservation Plan were both updated and posted online on April 4, 2018. The SC WNS Response Plan was updated once more and posted online on Sep 27, 2018. The hourly technician assisted with these edits, specifically for updates regarding the Northern long-eared bat and its range, the spread of *Pd* in SC and across the US, and other species specific WNS information.

Significant deviations:

There were no significant deviations.

Objective: Keep staff and partners current by participating in WNS partner conference calls, the 2018 WNS Workshop, and the 2018 Southeastern Bat Diversity Network (SBDN) meeting in Roanoke, VA.

Accomplishments:

The WNS tech (travel costs for tech covered by SCDNR) and SCDNR bat biologist participated in monthly WNS partner conference calls, and attended the SBDN meeting in Roanoke, VA from March 26 – 30<sup>th</sup>. The SCDNR bat biologist attended the WNS conference in Seattle, WA from June 12 – 14<sup>th</sup>.

Significant deviations:

There were no significant deviations.

Literature Cited:

Estimated Federal Cost: \$23,091

Recommendations: Close the grant.

Beyond the life of this grant, we recommend using Lidar to find more potential hibernacula, especially in the piedmont and coastal plains of South Carolina, to monitor hibernating bats and test for *Pd*. This will help determine the edge of the southern range of this devastating disease. We also recommend continued mist netting efforts to learn more about the distribution and status of South Carolina's bat populations, especially those most at risk from WNS such as the Northern long-eared bat and tri-colored bat.

Appendix I: Figures of Northern long-eared bats on the South Carolina coastal plain.

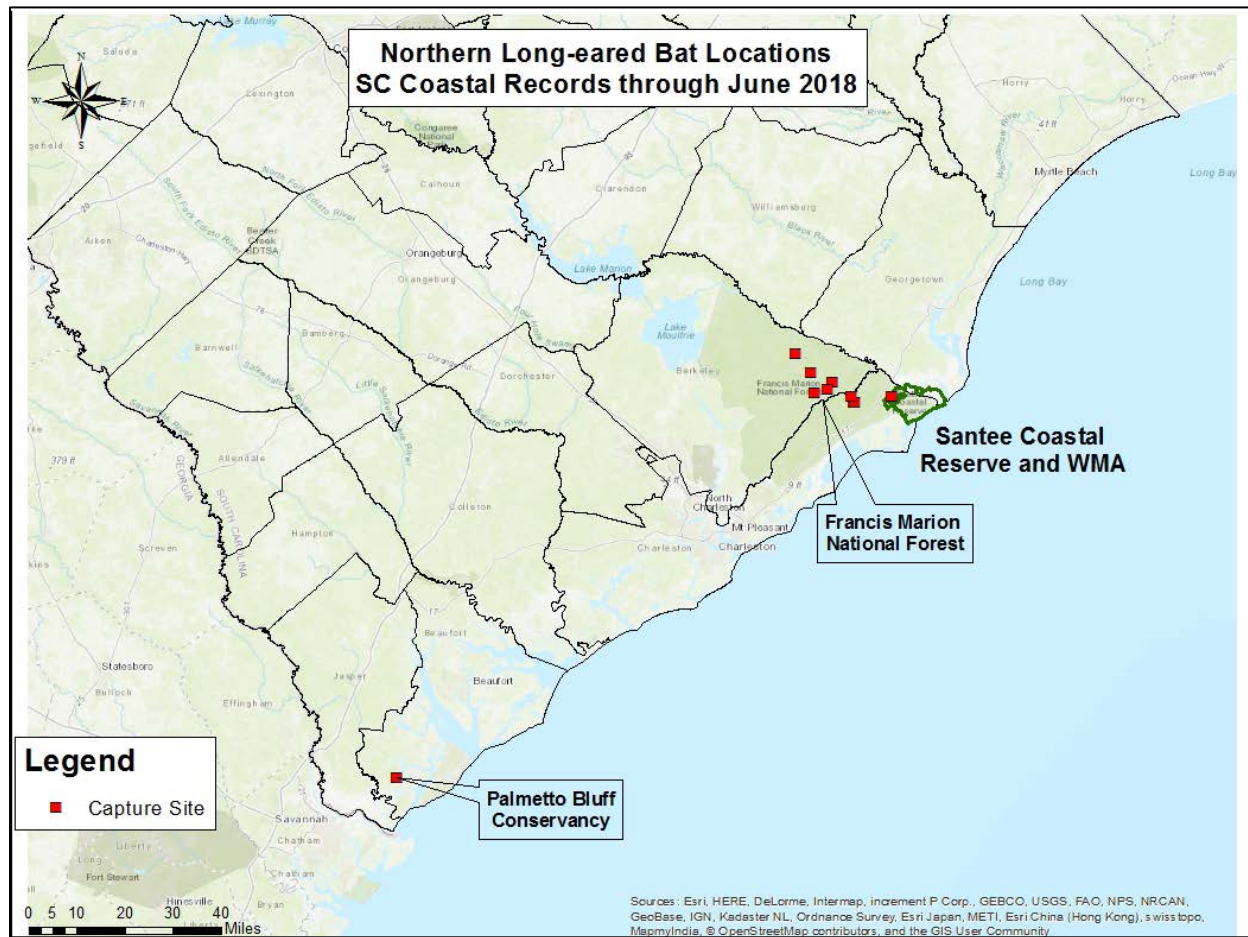


Figure 1: Overview of known captures of Northern long-eared bats on the South Carolina coastal plain.



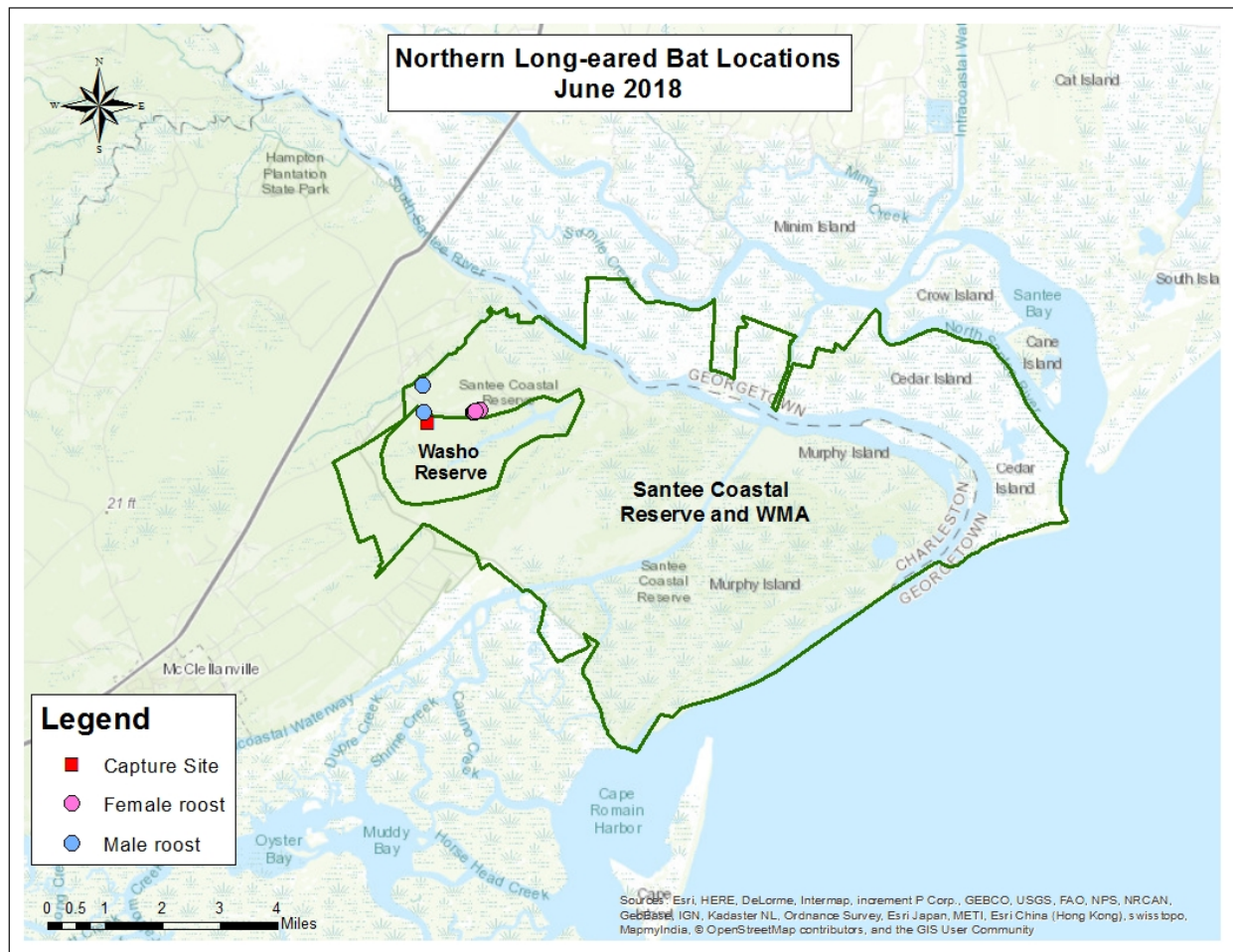


Figure 2: Overview of Northern long-eared bat captures and movements at Santee Coastal Reserve and WMA and Washo Reserve.

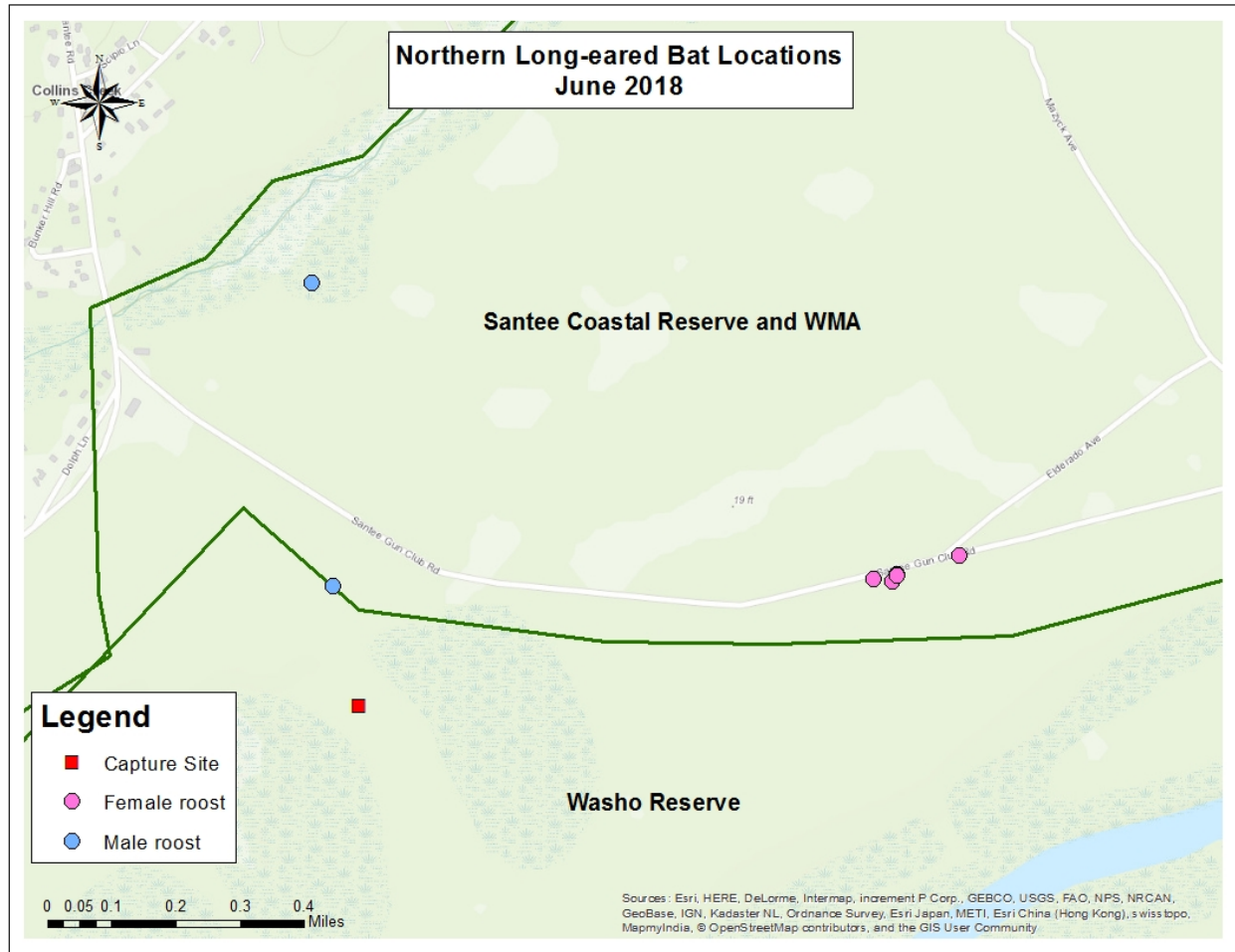


Figure 3: Detailed view of Northern long-eared bat captures and movements at Santee Coastal Reserve and WMA and Washo Reserve.

# South Carolina Department of Natural Resources

124 Wildlife Drive  
Union, SC 29379

March 21, 2018



Alvin A. Taylor  
**Director**

Emily C. Cope  
Deputy Director for  
**Wildlife and Freshwater Fisheries**

Dear Wildlife Control Professional,

My name is Jennifer Kindel, Wildlife Biologist with the SCDNR. I am writing you/your company because you're listed on the SCDNR website as a wildlife control specialist that handles nuisance bat jobs. This letter, as well as the most current National White-nose Syndrome (WNS) Decontamination Protocol and WNS fact sheet, are being sent as a courtesy to help keep you informed on bat related issues in South Carolina.

- **New: Cherokee, Spartanburg, and York counties all tested positive for *Pd* (the fungus that causes WNS) this year.** These new counties are now considered WNS suspect. Swabs from bats in each of these counties tested positive for *Pd*, even though bats did not show visible signs of WNS. That makes a total of 10 counties either WNS positive (Oconee, Pickens, and Richland) or WNS suspect (Cherokee, Greenville, Lancaster, Laurens, Spartanburg, Union, York) in South Carolina so far. See [https://www.whitenosesyndrome.org/sites/default/files/resource/wnsspreadmap\\_3\\_14\\_2018.jpg](https://www.whitenosesyndrome.org/sites/default/files/resource/wnsspreadmap_3_14_2018.jpg)
- We still must assume the entire state is WNS positive and appropriate precautions must be followed. Please consult the included WNS decontamination guidelines for treating materials used on bat exclusions. Please do not move bat exclusion materials between states. Never move bats to new locations; you may accidentally speed the spread of WNS. Please periodically check the national WNS website for updates: <https://www.whitenosesyndrome.org/>
- The April 2016 National WNS Decontamination Protocol continues to be the most updated protocol. Treatment of submersible equipment is in water maintained at 55°C (131°F) for a minimum of 20 min. Isopropyl Alcohol Wipes (70%) and Hydrogen Peroxide Wipes (3%) demonstrate immediate effectiveness following contact and associated drying time, while new ingredients found in previously approved products (pre-Apr 2016 protocol) render them ineffective against *Pd*. Please see enclosed National WNS Decontamination Protocol, also available at: [https://www.whitenosesyndrome.org/sites/default/files/resource/national\\_wns\\_decon\\_protocol\\_04.12.2016.pdf](https://www.whitenosesyndrome.org/sites/default/files/resource/national_wns_decon_protocol_04.12.2016.pdf)
- Acceptable Management Practices for Bat Control Activities in Structures - A Guide for National Wildlife Control Operators is still available (if you have trouble downloading this document, please contact me and I will mail you a copy) [https://www.whitenosesyndrome.org/sites/default/files/resource/wns\\_nwco\\_amp\\_1\\_april\\_2015\\_0.pdf](https://www.whitenosesyndrome.org/sites/default/files/resource/wns_nwco_amp_1_april_2015_0.pdf)
- WNS does not affect non-hibernating Brazilian free-tailed and evening bats. Please see enclosed WNS fact sheet for current information. If you are handling bats in SC mountains and think they are *Myotis* bats, please contact me.
- Useful SCDNR bat related links - the public can report known bat roosts, find out about SCDNR's new citizen science project, Bat Watch, and view the SC Bat Conservation Plan at: <http://www.dnr.sc.gov/wildlife/bats/>

Sincerely,

Jennifer Kindel  
[KindelJ@dnr.sc.gov](mailto:KindelJ@dnr.sc.gov)  
864-419-0739

Enclosures: April 12, 2016 National WNS Decontamination Protocol; October 2017 WNS Fact Sheet

# South Carolina Department of Natural Resources



Alvin A. Taylor

**Director**

Emily C. Cope

Deputy Director for

**Wildlife and Freshwater Fisheries**

124 Wildlife Drive  
Union, SC 29379

September 24, 2018

Dear Wildlife Control Professional,

My name is Jennifer Kindel, Wildlife Biologist with the SCDNR. I am writing you/your company because you're listed on the SCDNR website as a wildlife control specialist that handles nuisance bat jobs. This letter, as well as the most current National White-nose Syndrome (WNS) Decontamination Protocol and WNS fact sheet, are being sent as a courtesy to help keep you informed on bat related issues in South Carolina.

- **There is an updated version of the National WNS Decontamination Protocol as of September 13, 2018.** This version reflects the current known distribution of *Pd* (the fungus that causes WNS) in the US and recent lab testing results of previously approved decontamination agents. Hibiclens is removed from the list until further testing due to mixed results in recent tests, and the product "Accel" has been renamed "Rescue." See enclosed National WNS Decontamination Protocol, also available at the [www.whitenosesyndrome.org](http://www.whitenosesyndrome.org) website. Click on the heading "What Can I Do" then click on "Decontamination."
- Ten SC counties are positive for either WNS or *Pd*. Oconee, Pickens, and Richland are WNS+ and Cherokee, Greenville, Lancaster, Laurens, Spartanburg, Union, York are *Pd*+ (WNS suspect). See <https://www.whitenosesyndrome.org/static-page/where-is-wns-now>
- We still must assume the entire state is WNS positive and appropriate precautions must be followed. Please consult the included WNS decontamination guidelines for treating materials used on bat exclusions. Please do not move bat exclusion materials between states. Never move bats to new locations; you may accidentally speed the spread of WNS. Please periodically check the national WNS website for updates: <https://www.whitenosesyndrome.org/>
- **A Bat Standards course may be offered in February of 2019 at the NWCOA/NPMA Wildlife Expo in Myrtle Beach.** Acceptable Management Practices for Bat Control Activities in Structures - A Guide for National Wildlife Control Operators is still available on the [www.whitenosesyndrome.org](http://www.whitenosesyndrome.org) website. Just search for "nuisance wildlife control" using the magnifying glass icon in the upper right-hand corner of the website.
- The fungus that causes WNS has now been found on Brazilian free-tailed bats, a common bat found in buildings in SC. It is the only SC species with a tail that extends past the tail membrane. Evening and big brown bats are the other 2 species common in structures. If you see any other species, contact us or send us a picture (with face and ears visible). **While bats can certainly be a nuisance, several species are in trouble because of WNS. With your help we can better monitor their populations.** See included bat ID guide.
- The public can report known bat roosts, find out about SCDNR's new citizen science project, Bat Watch, and view the SC Bat Conservation Plan at: <http://www.dnr.sc.gov/wildlife/bats/>

Sincerely,

Jennifer Kindel  
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864-419-0739

Enclosures: September 2018 National WNS Decontamination Protocol; June 2018 WNS Fact Sheet; Bat ID Guide

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EQUAL OPPORTUNITY AGENCY

[www.dnr.sc.gov](http://www.dnr.sc.gov)

PRINTED ON RECYCLED PAPER A small recycling symbol consisting of three chasing arrows forming a triangle.



## SC Bat ID Guide

Many of the 14 bat species found in SC can be tough to identify due to their nocturnal nature. Take good photos when possible without disturbing bats. Sometimes, dead bats may be found at a roost. If so: take pictures of the bat, wear thick gloves to avoid direct contact, place in two Ziploc bags, transfer to a freezer, and contact Jennifer Kindel (864-419-0739, [Kindelj@dnr.sc.gov](mailto:Kindelj@dnr.sc.gov)) immediately. DO NOT handle live bats.

### MOST LIKELY TO USE BAT BOXES:

#### Big Brown Bats (*Eptesicus fuscus*)



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Big brown bats are closely associated with humans, often roosting in human-made structures and commonly using buildings as hibernacula. It is the 3<sup>rd</sup> largest bat in SC. Big brown bats have a relatively heavy body, black ears and wing membranes, and a large head with a broad nose and powerful jaw. The pelage (fur) is dark above and light below and varies from glossy dark brown to pale. The ears and tragus are short and rounded. They can be found throughout the state. Little brown bats are considerably smaller with pointier ears and a small muzzle. Evening bats look very similar to big brown bats but are smaller.



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#### Brazilian/Mexican Free-tailed Bats (*Tadarida brasiliensis*)

This species is the easiest bat to identify in South Carolina. It is the only bat with a tail that extends beyond the tail membrane. The upper lip of this species is strongly wrinkled, the blackish ears are short and nearly square, and the short, velvety pelage is dark brown to dark gray. In the past, Brazilian free-tailed bats were found primarily south of the Piedmont region, but in recent years they have been commonly recorded into the upper Piedmont.

### MORE LIKELY IN BUILDINGS THAN BOXES:

#### Evening Bats (*Nycticeius humeralis*)



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The evening bat is a medium sized bat with dark brown pelage above and paler below, generally with light ash-gray hair tips on the dorsal area. The bats are found statewide. This bat is just over 2 inches in length. This species has a short, broad skull and the ears are short and rounded. In South Carolina, it is common throughout the majority of the state.

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



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Rafinesque's big-eared bat is a medium sized bat with ears that measure 1.5 inches long. Another distinctive feature of this species are the facial glands located on either side of the nose. The pelage is a gray brown to dark brown above and whitish with dark rooted hairs below, and the hair on the claws extend past the toes. This species has been found in all parts of SC other than the Piedmont region.

## OTHER SPECIES KNOWN TO ROOST IN BOXES, BUT MUCH LESS LIKELY TO FIND:

### Eastern Small-footed Bats (*Myotis leibii*)



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The eastern small-footed bat is the smallest bat in South Carolina. This species is a small brown bat with a black mask, black ears, and distinctively small feet measuring only 0.2 to 0.3 inches. The pelage is black at the root with glossy brown on the tips, and is dark on the back and whitish to buff on the belly. The wing and tail membranes, as well as the muzzle, are a dark chocolate color. This species has short, broad wings with rounded wingtips. In SC, this species is only found in the Blue Ridge region.

### Little Brown Bats (*Myotis lucifugus*)



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This species is scarce in the southern part of its range. The little brown bat is small to medium sized with a pelage of dark brown to cinnamon-buff with long glossy tips above, and pale gray to buffy below. The ears and membranes of the wing and tail are dark brown to black. The ears are narrow and pointed.

### Northern Long-eared Bat (*Myotis septentrionalis*)



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The northern long-eared bat is a medium sized bat with short, broad wings. Its pelage is light brown to gray brown on its back and pale grayish brown to pale brown below. The ears and membranes of the wing and tail are slightly darker brown than the dorsal pelage. The ears are narrow and pointed, and the long tragus is pointed. In SC, this species is primarily found in the Blue Ridge Mountains, but there are also some reports on the coastal plain.

### Southeastern Bat (*Myotis austroriparius*)



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The southeastern bat is a small to medium sized bat. It can vary in color, but generally, the pelage is dark at the base with whitish tips, and is thick, wooly, and relatively short. Though there are a few records of this species in the upstate, it is usually limited to the upper and lower Coastal Plain in South Carolina.

If you're completing roost counts and can't be certain which bats you have, always mark unknown.

For further information about bat species of SC, visit:

<http://www.dnr.sc.gov/wildlife/bats/SCBatConservationPlanChapter3.pdf>

To find out more about the SCDNR Bat Watch program, visit:

<http://www.dnr.sc.gov/wildlife/bats/batwatch.html>

## White-nose Syndrome in South Carolina

