Nightwing News

The Newsletter of the Southeastern Bat Diversity Network

Volume 108, Number 2 Fall/Winter 2018

PRESIDENT'S ADDRESS

It is hard to believe that this will be my last letter from the president! Two years have gone by in a flash and I'll be passing on the job to Steve Samoray at the Jacksonville, FL SBDN meeting in February. It's difficult to feel a sense of accomplishment when there's so much left to do. I still have two years on the executive committee as past president and I'm sure Steve will keep me busy.

Bat Week 2018 was another big success this year. A number of states had proclamations signed by their governors including West Virginia, Pennsylvania, Georgia, Minnesota, South Carolina, Washington, Colorado and Idaho. Governors in these states agree that bats are "critically important!" I never would have expected to see that coming from our state's Governor when I started working here almost 14 years ago.

My social media feeds were blowing up with bat week activities, news stories and bat facts. And the public response was somewhat surprising. In an online world filled with negativity, almost all the reactions to posts were likes and smiles and hearts. One of our posts in Georgia about a project we worked on with our DOT to protect bats on an interstate bridge received 700 likes and 330 shares. And all the comments were positive! I watched the post carefully to check for negative reactions and they didn't come. Regular people in Georgia and across the country were excited about DOT protecting our bats!

This trend is something that I've noticed over the years as I've fielded questions related to bats. Most of the calls and emails I receive now are from people who have questions about how to deal with bats without harming them. In fact, most people want to keep bats on their property, even if they need to evict them from their homes. Now certainly not all the calls are positive, but the vast majority are. And I think we can all pat ourselves on the back for doing a better job educating our citizens about our sky puppies!

It takes a lot of time to put together public programs, cater to media at events and submit information to your agency or organization's social media team. But more and more we are seeing evidence that it is worth our time. Those of us that spend most of our careers working to protect the habitats and species we love are very lucky. We have an obligation to share information and increase awareness of these species and habitats that mean so much to us.

Thank you to everyone on the executive committee and the membership who have supported me during my term as president. I hope to see all of you at the meeting in Jacksonville!

Trina

706-557-3220

In This Issue

Executive Committee Meeting

Southeastern Bat Diversity Network
Executive Committee
Minutes of the Mid-Year Board Meeting
November 28, 2018

Attendees

Trina Morris, President
Brian Carver, Past President
Luke Dodd, Treasurer
Katherine Caldwell Etchison, Secretary
Pete Pattavina, Member at Large
Steve Samoray, Incoming President Elect

Action Items

AI1: Morris, Samoray, and Carver work together to update and post the meeting host package to the website. Incorporate feedback from Terry Doonan regarding planning for 2019 meeting.

AI2: Morris work with contributors to post bat blitz host package to website.

AI3: Dodd and Samoray post student travel award reimbursement document to SBDN website.

AI4: Samoray contact Wilhide regarding recruiting a replacement for Rojas to help with the newsletter.

AI5: Carver work with poster committee to make progress on poster.

AI6: Dodd and Caldwell get membership records updated.

AI7: Morris will contact BCI regarding drafting a letter and will ensure any official statement is approved by the EC. Will also reach out to state and regional working groups who may be interested in working together on a letter

Call to order: 2:02PM EST, President Morris

March 2018 Executive Committee Meeting Action Items:

- Not Complete. **AI1**: Morris, Samoray, and Carver work together to update and post the meeting host package to the website.
- Not Complete. **AI2**: Morris work with contributors to post bat blitz host package to website.
- Action Items 3-4 are complete.
- Not Complete. **AI5**: Carver work with poster committee to make progress on poster this summer.
- Action Item 6 is complete.
- Not Complete. **AI7**: Dodd and Caldwell get membership records updated

New Business:

2019 SBDN Meeting/Mammal Colloquium Planning (Feb 20 – 22, Jacksonville, FL)
Registration is open and website registration is going smoothly. Morris and Samoray have been working with Doonan on planning and everything is on track. Meeting hosts are working on obtaining sponsors, particularly local sponsors. Dodd will be added to planning conference calls with hosts to facilitate timely payments.

2020 SBDN Meeting/Mammal Colloquium Planning (Feb 12 – 14, Athens, GA)
Morris will sign contract with the Classic Center soon and invites any comments from the EC. A nonrefundable payment of $1,000 is due. Hotel blocks are reserved at the Hyatt, which is adjacent to the Classic Center and the Holiday Inn, which is within walking distance and offers government rate rooms. Occupancy should be sufficient for meeting attendees. A social will be held on Wednesday night and working groups may potentially be held this day. The main meeting will take place on Thursday and Friday as has traditionally occurred. Georgia DNR has dedicated $5,000 to the meeting from State Wildlife Grants.

2021 SBDN Meeting/Mammal Colloquium
Potential ideas include Charleston, South Carolina or elsewhere in SC or potentially Arkansas. No definite plans have been made and suggestions are welcome.

Treasurer's Report
As of 28 Nov 2018, there were $65,992.64 in SBDN accounts. Of that, $1,592.27 was in our general account. Membership dues remain our primary source of operating income. The largest expenses to be incurred this past year are related to tax preparation ($600, awaiting invoice) and website maintenance ($2,367.29 total across 5 transactions). The gain of $2,120.20 in the year to date is directly attributable to a serendipitous final surplus of funds following the 2018 joint meeting with NEBWG and MWBWG. To reiterate previous notes, all outstanding pre-registration funds due from OBC have been delivered in full. Otherwise, disbursements of $7,039.74 were made to both NEBWG and MWBWG. SBDN incorporated $6,885.74 into 'colloquium surplus funds' portion of our ledger. The inflow of funds for the year to date totaled $101,723.03, whereas outflows totaled $99,602.83. We serve as a bank for 5 different state bat working groups (AL, GA, KY, NC, and TN). As is readily apparent from the amount of money moving through our bank account, and the amount of money held on behalf of various functions and groups, we perform a valuable service to the bat community. On a final note, there have been 123 transactions in the year to date. Respectfully submitted: 28 Nov 2018 – By Luke Dodd – SBDN Treasurer.

EC Elections 2019
A request for nominations was sent out. A few nominations have been received and a few others are in the works.

Next EC Meeting
The next EC Meeting will be held on Wednesday, Feb 20 from 3-5pm in Jacksonville prior to the annual SBDN meeting.

Dead Bat Import to the U.S.
Morris will contact BCI regarding drafting a letter and will ensure any official statement is approved by the EC. Will also reach out to state and regional working groups who may be interested in working together on a letter.

COMMITTEE UPDATES

Website Committee (Samoray) - Will continue working with Dodd on how to separate information needed from the transactions made on the website. The recent website update has improved function. Robinson is prepared to take over as webmaster after the upcoming SBDN meeting. SBDN has agreed to help the Midwest Bat Working Group with their registration since OBC used to do it. Finally, given increasing costs for website maintenance and the heavy use of the website for transactions related to annual meetings, the executive committee voted to approve the motion that $1000 would be moved from each year's residual meeting funds to be put towards website maintenance and upkeep (with a retroactive assignment of $1000 for 2018 after the past joint meeting).

Blitz Committee (Whitby) – NC is working on obtaining sponsors. Will be held June 3-7, 2019 in Columbia, NC.

Membership Committee (Bergeson) - No update.

Awards Committee (Burnett): Email was sent out for Lifetime Achievement Awards nominations – awaiting nominations. Awards Committee is preparing for upcoming meeting.

WNS Committee (Pattavina): An update was provided for the upcoming newsletter. Anne Ballman is trying to harmonize surveillance across the nation and coming up with guidance for participants by spring 2019. Federal WNS funding determination for 2019 will occur on December 7. Doonan is working on a WNS workshop for the day before the upcoming meeting.

NABCA Update (Morris): Still working on wiki page: *http://batconservationalliance.wikidot.com/* and the State of North America's Bats Project, which is similar to the project done for birds. Determined having the SBDN President serve on NABCA during the full 6-year SBDN President term (President-elect, President, and Past President) will maximize effective representation. Morris will continue to serve on NABCA for next two years.

Meeting adjourned at 3:34PM EST.

Executive Committee Contact Information

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Committee Reports

BAT BLITZ COMMITTEE:

See the North Carolina section for information on the 2019 SBDN Bat Blitz.

No changes to current committee membership.

AWARDS COMMITTEE:

Chris Comer, one of our members has moved on to a new job with Safari Club International Foundation. Since his involvement with SBDN is going to drop off, so we are looking for a volunteer to join the committee.

We're also seeking nominations for the SBDN Lifetime Achievement Award and the SBDN Service Award. The full announcements will go out on the SBDN email list soon Please see the Awards and Recognition section for information on the awards and making nominations.

WHITE-NOSE SYNDROME COMMITTEE:

See report on Page 8.

No changes to current committee membership.

BYLAWS COMMITTEE:

There is no committee business to report.

No changes to current committee membership.

WEBSITE COMMITTEE:

The website continues to operate as a source for SBDN announcements and serving state working groups by providing registration and payment options. We recently had the site cleaned up by our web hosting company in the hopes of providing a more effective mechanism for these services. Jason Robinson has continued to assist the current webmaster Steve Samoray and will be moving into the webmaster role starting after the to the 2019 meeting.

White Nose Syndrome Update

Pete Pattavina
Bat Biologist/Southeast White-nose Syndrome Coordinator
U.S. Fish and Wildlife Service

After some uncertainty with U.S. Fish and Wildlife Service's white-nose syndrome funding in last year's (FY 2018) preliminary budget, Congress singled out white-nose syndrome as a priority in the annual appropriations bill with the following directive: White-Nose Syndrome: The four Federal land management agencies and the U.S. Geological Survey are expected to continue to prioritize research on, and efforts to address, white-nose syndrome in bats and to work with other Federal, State, and non-governmental partners to implement the North American Bat Monitoring Program.

Each year, USFWS delivers approximately 75% of its $4 million allocation toward disease surveillance, research, education and outreach, and the development of field-applicable disease treatments through four grant programs. The newest grant program, geared toward field treatments and with $1 million USFWS annual investment, is The Bats for the Future Fund, now in its second year. In October 2018, The Bats for the Future Fund awarded nearly $1.1 million toward four projects that would look to develop: (1) a white-nose syndrome vaccine; (2) the efficacy of polyethylene glycol 8000 and ultraviolet light as an environmental treatment against the pathogen Pseudogymnoascus destructans (Pd); (3) understanding the role a partitivirus plays in the virulence of Pd; and (4) an integrated disease management approach in Texas culverts.

Nick Sharp, Alabama Department of Conservation and Natural Resources and Alyssa Stulberg, University of Winnipeg conduct research on the efficacy of polyethylene glycol (PEG) 8000 for suppression of white-nose syndrome in a mine in Birmingham.

This year's grant slate can be found here: https://www.nfwf.org/bats/Documents/2018grantslate.pdf.

For an interactive map of the many WNS projects funded throughout North America, follow the link here: https://www.whitenosesyndrome.org/funding-projects

White Nose Syndrome cont.

As white-nose syndrome establishes itself as a long-term, unwelcome visitor in the Southeastern United States, biologists in many states are trying to determine where and what species are exhibiting potential persistence in areas affected for multiple years, while others are shifting surveillance efforts to new areas to attempt to resolve the southern limits of the fungal pathogen *Pseudogymnoascus destructans*. In many of these areas, where karst habitats are limited, biologists are filtering out to investigate and perform disease surveillance in some of the tens of thousands of roadway culverts that offer stable winter roosting habitat for tri-colored bats, southeastern myotis (*Myotis austroriparius*), Rafinesque's big-eared bats (*Corynorhinus rafinesquii*), and other species. In the Coastal Plain regions of Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina we have no documented declines of bats from white-nose syndrome, compared to an approximate 90% decline of tri-colored bats in mountainous and foothill regions in the Southeast, areas rich with karst resources .

Tri-colored bats observed clustering in a Mississippi culvert. Photo credit: Kathy Shelton.

Lisa Smith, Florida Fish and Wildlife Conservation Commission, emerges from a flooded culvert during winter roost surveys. Photo credit: Jeff Gore.

However, over the past few years, three equivocal Pd surveillance results, meaning proteins consistent with Pd were detected at very high cycle threshold (CT) values, but below the accepted threshold value and sensitivity of real-time polymerase chain reaction (PCR) surveillance assays, in the Coastal Plain regions of Louisiana, Mississippi, and Georgia. What these equivocal results mean for the potential expansion of the fungal pathogen in the Southeast is unknown, whether and invasion of the fungus failed, or if the pathogen is persisting at extremely low levels, avoiding our positive detection. These questions highlight the importance of continued disease surveillance.

Large cluster of southeastern myotis in a Mississippi culvert. Photo credit: Kathy Shelton, MS Museum of Natural Science.

State Updates

Submit Your State Updates

Thank you for your submissions! We love reading about all of the research and outreach you are conducting in your regions. From those regions that didn't contribute this year, we look forward to hearing from you for next year's state updates.

Send in your reports and photos anytime from the following states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

Send summaries and photos to nightwingnews@gmail.com

Alabama

Leah Storino
Natural Resources Program Manager
Environmental Section
Fort McClellan Army National Guard Training Center
Alabama Army National Guard

Copperhead Environmental Consulting captured a juvenile male, Mexican free-tailed bat (*Tadarida brasiliensis*) while conducting a routine bat survey this August on Ft McClellan Army National Guard Training Center near Anniston, AL. It was captured on the first night in a location never netted before. It was the first time the species has been caught here. Apparently it is a bit rare to catch this species in nets because they fly high.

Alabama

Nicholas W. Sharp
Nongame Biologist for North Alabama
Alabama Department of Conservation & Natural Resources

Bat Conservation International was awarded a Bats for the Future Fund grant to test experimental treatments for WNS at Ruffner Mountain Nature Preserve in Birmingham, AL. The experiment will take place in an abandoned iron ore mine. Alabama Wildlife & Freshwater Fisheries is also a partner on this project. Here's an excerpt from the press release:

BIRMINGHAM, AL (October 30, 2018) – On the eve of Halloween, the National Fish and Wildlife Foundation (NFWF) announced more than $1.1 million in grants to combat white-nose syndrome (WNS) and promote the survival of bats in North America. The grants were announced at the Ruffner Mountain Nature Center in Birmingham, Alabama, where Bat Conservation International (BCI), one of the grantees, is working with two non-toxic anti-fungal agents, ultraviolet light and polyethylene glycol, as a way to reduce the impact of WNS. This project builds on promising research funded last year.

"The Bats to the Future Fund has been a game-changer for advancing research on potential solutions to help bats survive the devastating impacts of white-nose syndrome. Bat Conservation International is working with several research partners to test novel solutions and assess the efficacy and feasibility of delivering solutions to bats in need, " said Dr. Winifred Frick, Chief Scientist at Bat Conservation International. "Our latest grant builds on work by Dr. Dan Lindner of the U.S. Forest Service and Dr. Barrie Overton at Lockhaven University to test two methods, ultraviolet light and non-toxic polyethylene glycol, to remove the fungus that causes WNS from mine walls where bats hibernate. At BCI, we believe building collaborative teams and working on multiple solutions is key in this fight when every year matters for saving our bats from WNS."

Group photo *- From the left Nick Sharp (AWFF), Pete Pattavina (USWFS), Winifred Frick (BCI), Reid Robertson (Ruffner), Alyssa Stulburg (Univ. of Winnipeg). (Photo credit Winifred Frick)*

Alyssa Stulburg (Univ. of Winnipeg) applies polyethylene glycol to a treatment cell in an abandoned iron ore mine at Ruffner Mountain Nature Preserve, Alabama. (photo credit Pete Pattavina)

The full press release is here:
https://www.nfwf.org/whoweare/mediacenter/pr/Pages/nfwf-announces-more-than-1-1-million-in-grants-to-help-bats-2018-1030.aspx

Arkansas

Blake Sasse
AR Game and Fish Commission

Blake Sasse continued his intensive study of survival of small-footed bats roosting in bridges in northern Arkansas. This project will be featured on an upcoming episode of the Commission's television show, "Arkansas Wildlife." The Commission contracted with Mitigation Surveying Services again this summer to perform mist net surveys on Wildlife Management Areas across the state as well as for the decades-long monitoring of endangered bat caves.

University of Central Arkansas:

Dr. Vicki McDonald brought on two graduate students in 2018. Pepper Veerhusen is studying roosting ecology of small-footed bats in glade habitats in the Ozarks and Sarah Martin is evaluating use of artificial bark roosting structures by Indiana bats and other bat species.

Virginie Rolland
AR State University

Stacy Scherman, A-State student in Dr. Virginie Rolland's lab, finished her second field season of research on Southeastern myotis (*Myotis austroriparius*) and Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) winter ecology in the Cache River National Wildlife Refuge. In this second season, she tracked 21 Rafinesque's big-eared bats and 17 Southeastern myotis, including a dozen recaptures, to 78 confirmed roost trees. As temperature dropped and the refuge flooded, both species selected winter tree roosts that do not completely flood, allowing them to continue activities. In fact, calls recorded on an Anabat SD2 indicate that both species remained active during fall and winter even as temperatures drop below freezing. As Stacy continues analyzing her data, more results about roost-switching habits, roost selection, and roost microclimate throughout the season are expected.

Above right: Stacy in a tree.

Left: Southeastern Myotis with transmitter

Photo credit: Stacy Sherman

Arkansas

Dr. Tom Risch's student, Kyle Edmonds, conducted his second field season in the U.S. Forest Service, Ozark-St. Francis National Forest Mount Magazine Ranger District to shed light on the roosting and physiological ecology of Northern long-eared bats (*Myotis septentrionalis*) whose population is declining in the region. Kyle is analyzing data on diurnal roost trees and skin temperature collected with temperature-sensitive radio-transmitters.

Other A-State students in Dr. Risch's lab, Crystal Griffin, Ben Spitz, and Arin Vann, also collected data this past summer on foraging and torpor in a barn colony of Rafinesque's big-eared bats, and on spring migration by Indiana bats.

Northern long-eared bat—band and transmitter. Photo credit: Kyle Edmonds.

Dr. Anna Doty, post-doctoral researcher at A-State analyzed air samples from healthy (i.e., not affected by white-nose syndrome) individuals of eight bat species and found that all eight bat species have a distinguishable unique aroma signature profiles. The next phase will be to establish an aroma profile of infected bats. If the profiles of healthy and infected individuals differ, these profiles could be used to detect the presence of white-nose syndrome and implement a disease-suppression plan in a timely fashion.

A-State students continued the endangered species survey this past summer for the Surveying and Monitoring of Indiana Bats (*Myotis sodalis*) project, a collaborative effort between A-State, the U.S. Forest Service, the U.S. Fish and Wildlife Service, and the Arkansas Game and Fish Commission. The eight-people crew focused on the U.S. Forest Service, Ozark-St. Francis National Forest Boston Mountain and Sylamore Ranger Districts. They successfully tracked multiple Indiana bats and captured a record high number of gray bats (*Myotis grisescens*).

Above: Boston Mountain Office.
Left: Devil's Den Outreach.
Photo credit: Kyle Edmonds.

As in years past, A-State students and Professor Dr. Thomas Risch were invited to Devil's Den State Park to host a large-scale public outreach event to raise bat awareness.

Florida

Mark A. Hayes, PhD
Senior Bat Ecologist
NORMANDEAU ASSOCIATES, INC.

Vampire bats and climate change

The common vampire bat (*Desmodus rotundus*) feeds on the blood of wildlife and livestock, and they sometimes bite and feed on the blood of people. Recently, vampire bats have been documented within about 35 miles of the Texas border. This has resulted in concern and speculation about the potential movement of vampire bats to areas within the United States as a result of changing climates in different parts of North America. There are relatively high numbers of cattle and other livestock in northeastern Mexico and some parts of the southeast, and some wildlife managers and ranchers are concerned that vampire bats could survive in these areas and spread disease. This could have serious economic impacts to livestock producers since vampire bat bites are known to weaken cattle, reduce milk production, and cause secondary infections and sometimes death, especially if cattle contract rabies. To gain a better understanding of the likelihood of such movement and possible changes in distribution, my colleague Dr. Toni Piaggio, a molecular ecologist at the U.S. Department of Agriculture's National Wildlife Research Center, and I analyzed and mapped the potential distributions of vampire bats under various climate change scenarios.

Toni and I compiled and reviewed more than 7,000 reports of vampire bats in northern Mexico and then used five species distribution modeling approaches to map the potential distribution of the species in North America through the year 2070. These model results were then projected into future climate change scenarios to reflect our current understanding of how common vampire bat distributions might change in the future. We concluded that while the southern tip of Texas and Florida may become suitable by year 2070, none of our models predicted that contiguous areas would become suitable between the current northern limit of vampire bats and Arizona or California. Nevertheless, given that prey densities are relatively high in northeastern México and in southern Texas, it would be reasonable to conclude that vampire bats could spread into extreme southern Texas under current and future climate conditions. Southern Florida would also appear to represent future suitable habitat for vampire bats.

The paper can be found here: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0192887

Lisa Smith
Research Associate
Terrestrial Mammal Group
Fish and Wildlife Research Institute
Florida Fish and Wildlife Conservation Commission

Acoustic Monitoring at Florida Keys Wildlife Environmental Area

Staff at the Florida Keys Wildlife and Environmental Area began a survey in July 2018 to collect baseline acoustic data from Key Largo to Key West. Bat detectors are placed at each of 12 sites for 4 nights. Recording will occur during each season over the course of a year. Prior to this work, velvety free-tailed bats (*Molossus molossus*) were thought to be the only resident species, with others considered incidental. Preliminary analysis indicates the presence of several species at multiple sites. Results of the survey will provide greater understanding of the bat community in a freshwater-limited area.

Florida

Long-term Bat Monitoring Program underway

Thanks to funding from the Florida State Wildlife Grants Program (SWG), the Florida Fish and Wildlife Conservation Commission (FWC) has hired a full-time biologist for 2-years to establish a Long-term Bat Monitoring Program (LTBMP) for the state of Florida. This program has two objectives: 1) to conduct standardized monitoring on priority NABat grid cells, and 2) to facilitate long-term bat monitoring of all types on public and private lands through the coordination of monitoring resources, implementation of standardized protocols, and development of a data management process that can be used to make data more accessible to all participants. Information collected by FWC biologists and partners will be used to identify potential threats to bats, detect changes in the status of bat populations, and understand the impact of land management activities on bat communities. FWC encourages the involvement of partner agencies and volunteers to conduct these monitoring activities.

Flatwoods habitat in Osceola National Forest where monitoring has been started.

White-nose Syndrome Monitoring and Surveillance.

FWC biologists surveyed 60 caves last winter to monitor Florida's cave roosting bats and complete surveillance efforts for Pd. No physical sign of WNS was observed on any of the roosting bats and all 7 caves swabbed for the fungus came back negative for Pd. Florida appears to be safe from WNS for another year. Despite this, overall numbers of tri-colored bats have declined in recent years. In addition, this past winter a catastrophic flooding event at Florida's second largest hibernacula caused the loss of >90% of tri-colored bats in that cave. Ongoing USFWS funding support will enable us to continue monitoring and surveillance efforts this upcoming winter so that we can evaluate trends in Florida's cave bat populations.

An FWC biologist prepares to enter a cave as part of Florida's WNS monitoring program.

Florida

Bats in Culverts

Last winter FWC began surveying culverts for use by bats to determine if they may provide important winter habitat. In January, biologists surveyed over 100 culverts and found tri-colored bats and southeastern myotis in more than 50% of them. Surveys will continue this winter to evaluate the potential of culverts for transmitting Pd into non-karst areas, determine their potential as WNS treatment sites (if WNS reaches FL), and evaluate factors that make a culvert attractive as a winter roost.

A cluster of southeastern myotis cling to the edge of a weep hole in a culvert.

Bat Surveys at Spirit of The Wild Wildlife Management Area

Florida bat acoustical and mist net surveys were conducted within Spirit of the Wild Wildlife Management Area (SOWWMA for species abundance, diversity, and response to management. From the stationary acoustic surveys, a total of 9,380 files from 54 survey nights were analyzed. None of these contained bonneted bats (*Eumops floridanus*), but species identified included the northern yellow bat (*Lasiurus intermedius*), tri-colored bat (*Perimyotis subflavus*), evening bat (*Nycticeius humeralis*), big brown bat (*Eptesicus fuscus*), Seminole bat (*L. seminolus*), and the Brazilian free-tailed bat (*Tadarida brasiliensis*). From the mobile acoustic surveys, a total of 39 files from 1 survey night were analyzed. Of these, 1 file contained a potential Florida bonneted bat call, which indicated presence in 2017. The netting surveys rendered one captured bat, an evening bat, during the December 2017 netting. Yearly surveys will be continued to understand which bat species occur on SOW by developing a species list; determining their relative abundance; and noting their changes in occurrence over time.

One of 6 caves designated as a part of the Withlacoochee Caves CWA.

Withlacoochee Caves CWA

Critical Wildlife Areas (CWAs) are established by the Florida Fish and Wildlife Conservation Commission (FWC) to protect important wildlife concentrations from human disturbance during the most vulnerable periods of their life cycles. With support from the Florida Forest Service, six caves in Withlacoochee State Forest were established as the Withlacoochee Caves CWA to protect bats during the winter hibernation period and during maternity season. The Withlacoochee Caves CWA is the only CWA in the state of Florida currently established for the protection of bats. Public access is prohibited within areas posted as "Closed to Public Access." Closure of these caves to public access during key months of the year provides these species with necessary refuge from human disturbance. Tri-colored bats and southeastern myotis call these caves home and are surveyed each winter and summer to monitor bat use.

Florida

Florida Bat Festival

FWC and the Florida Bat Working Group joined Lubee Bat Conservancy to celebrate their 14th Annual Florida Bat Festival. Members of both groups presented information on native Florida bats, WNS and decontamination protocols, and had a craft station where visitors young and old could decorate their very own Florida bonneted bat mask.

FWC biologists man the Florida bonneted bat mask craft station.

Susie Nuttall
Fisheries & Wildlife Biological Scientist III
Florida Keys Wildlife and Environmental Area
Florida Fish and Wildlife Conservation Commission

Staff at the Florida Keys Wildlife and Environmental Area began a survey in July 2018 to collect baseline acoustic data from Key Largo to Key West. Bat detectors are placed at each of 12 sites for 4 nights. Recording will occur during each season over the course of a year. Prior to this work, velvety free-tailed bats (*Molossus molossus*) were thought to be the only resident species, with others considered incidental. Preliminary analysis indicates the presence of several species at multiple sites. Results of the survey will provide greater understanding of the bat community in a freshwater-limited area.

Georgia

Emily Ferrall
Wildlife Technician, Wildlife Conservation
Wildlife Resources Division
Georgia Department of Natural Resources

Anabat Routes

Georgia had many acoustic routes being run this year across the state; continuing work started years ago for many of these routes (http://georgiawildlife.com/AnabatProject). Most of the routes were completed during the 2018 season, but analysis is just beginning for this season. Results from 2014 and 2015 are available on the website listed above. We just finished analyzing our 2016 and 2017 results, and will have those result posted on our website soon.

NA Bat

Georgia continued to run NABat routes that were begun in 2016, and this year they began running four new routes that were developed in 2017. The four new sites are on state owned lands; three Wildlife Management Areas and one state park.

Bat associates Monica Matson and Madison Brackett preparing to run an NABat route.

Photo by Trina Morris.

UGA Grad Student

UGA PhD student Jack Grider completed the field work for his joint project between UGA and GA DNR in 2017. He has since been working on creating a distribution map for Myotis septentrionalis to refine their range in Georgia.

Georgia

Bats in Bridges

The Georgia Department of Natural Resources organized two bats in bridges training classes for GDOT and private consultants. The purpose of these classes was to teach individuals how to detect and properly survey for bats in bridges to obtain accurate information on these roosts. These classes were a huge success, and we have already gotten requests for further similar trainings, so this is something GA DNR will be continuing in the years to come.

Coastal Plain Culvert Sampling

The Georgia Department of Natural Resources began sampling culverts in the coastal plain of the state to look for bat presence, and to determine use by Tri-colored bats. They worked on this survey effort as a part of a master's project by a student at Kennesaw State University, and received survey assistance from the U.S. Fish and Wildlife Service. This effort was met with many successful bat discoveries, and GA DNR plans to continue this survey monitoring into the future.

This research aims to address the knowledge gap regarding tri-colored bat ecology in coastal Georgia by surveying transportation structures such as bridges and culverts for bat presence. Additionally, we are collecting swabs of the animals and substrate to test for the presence of P. destructans. This data will allow us to assess the potential for roadways in coastal Georgia to be used as disease transmission corridors for P. destructans and gain a better understanding of how tri-colored bats use the landscape in coastal Georgia. During the 2017 -2018 hibernation season we surveyed 109 bridges and culverts in the coastal plains and coastal region of Georgia. Bat presence, species and location within the culvert was recorded. We collected over 100 swabs and will use qPCR (quantitative polymerase chain reaction) to determine fungal presence and burden. During the 2018 maternity season we selected 12 representative culverts and secured three temperature data loggers in each culvert. This year we plan to resurvey the 12 representative culverts monthly and collect swabs during the hibernation season.

GA DNR's Emily Ferrall and Bronson Curry observe bats in a weep hole of a culvert.

Photo by Trina Morris.

Georgia

White Nose Syndrome Winter Monitoring and Surveillance

As with previous years, we do not have the manpower with our biologists throughout the state to monitor every cave in the state every year. We are continuing to ask for caver volunteers from around the state to assist with WNS winter monitoring and surveillance. We ask these volunteers to submit a survey form, even if bats are not present. If there are bats present, then we ask those volunteers with swab kits to collect samples for us. More information on this project can be found here: http://georgiawildlife.com/WNS. We could not conduct the monitoring that we do without the help of these volunteers!

This year, total bat numbers in all yearly monitored sites with previous declines were down 93% from the previous high counts, which is a 1% increase from the 2017 counts. The reason for the increase is unknown but it could be related to the colder temperatures this winter or a sign of successful reproduction in surviving bats. No *Myotis* bats were observed in caves besides *Myotis grisescens. Myotis* bats have had lower numbers in Georgia caves compared to our most abundant cave species, *Perimyotis subflavus*, but we are now seeing declines in both of these groups. This decline in tri-colored bats being documented during summer mist-net surveys and acoustic monitoring work. The GA DNR social media staff has worked hard to create an interactive page for the public to view regarding WNS, and this also contains the link to our yearly cave report. That page can be found here: https://georgiawildlife.com/WNS

GA DNR technicians Emily Ferrall and Bronson Curry standing in an underground cavern during a cave survey.

Photo by Trina Morris.

TAG Fall Cave-In

Education about bats and WNS continues to be a focus for GA DNR. We attended the Fall TAG Cave-In once again this year to provide information about WNS and decontamination protocols. We had crafts for kids related to bats; which was a huge success! This booth is a popular stop for event attendees, and it allows us to spread the most current knowledge we have on bats and WNS in the southeast.

Georgia

Bat Blitz 2018

This year Georgia and Alabama's Bat Working Groups teamed up and worked from Lakepoint State Park in Eufaula, AL from May 29th-June 1st. Netting sites were scattered around public lands in southwest Georgia and southeast Alabama. Over 50 people participated in the blitz from both states and many attended the education event on the final night of the event. Due to the excessive amount of rain before the blitz, bats were not concentrated in typical flyways and capture success was low. Species captured in Georgia included 4 big brown bats, 2 Eastern red bats, 2 Seminole bats, and 2 evening bats. The sites trapped during the bat blitz were sampled by the Wildlife Conservation mist net crew in FY 2019 when water levels were lower and found capture success to be higher. Overall, the blitz was a great chance for participants from Alabama and Georgia to interact and learn new techniques for capturing bats.

GBWG board members:

Laci Coleman, GA DNR, laci.coleman@dnr.ga.gov - Chair
Emily Ferrall, GA DNR, emily.ferrall@dnr.ga.gov – Secretary
Maggie Hunt GA DNR, aduddell.ma@gmail.com- Treasurer
Kristi Confortin, NC WRC, kristialexiss@gmail.com - Board
Pete Pattavina USFWS, pete_pattavina@fws.gov - Board
Chris Cornelison, Kennesaw State University, ccornel5@kennesaw.edu - Board
Trina Morris GA DNR, katrina.morris@dnr.ga.gov - Board
Nikki Castleberry, GA Museum of Natural History, neotoma@uga.edu - Board/Social Media Liaison

GA Bat Working Group Meeting Announcement

The next meeting will be held Flinchum's Phoenix in Athens, GA from December 17-18, 2018. Visit the GA Bat Working Group Webpage (https://www.gabats.org/news-and-events/) for more information.

GA Bat Working Group (http://www.gabats.org/)

Kentucky

3rd Annual Kentucky Bat Working Group Bat Blitz on Pine Mountain, Bell County, Kentucky
James D. Kiser (Stantec Consulting) and Zack Couch (KY Department of Fish and Wildlife Resources)

The Kentucky Bat Working Group (KBWG) hosted its 3rd annual Bat Blitz from August 23 – 25, 2018. Located around the city of Pineville, Kentucky, blitz participants were provided access to over 15,000 acres of public and private land to conduct bat inventories. Participants were housed in the city of Middlesboro, Kentucky (the only city known to be located within a meteorite crater); the gateway to Cumberland Gap National Historic Park. As with previous years, lodging was made possible for participants through funding from Kentucky Natural Lands Trust by way of a research and monitoring grant through the Imperiled Bat Conservation Fund (IBCF). The goals of the blitz were to 1.) Collect data on bat populations along Kentucky's southern portion of Pine Mountain on public, and conservation oriented private, lands and 2.) Provide less experienced biologists the opportunity to get hands on training with permitted bat biologists. A focus was also placed on capturing the Northern long eared bat (*Myotis septentrionalis*) and locating roost trees for that species within the study area.

The blitz area was located along Pine Mountain, which is a ridge in the Appalachian Mountains that extends for 125 miles from the The Breaks near Elkhorn City, Kentucky southwest to Pioneer, Tennessee. In the blitz area the elevation was around 2,200 feet on the ridge and 1,050 feet in valley where the Cumberland River cuts through the mountain in Pineville. Natural water available for bats is nearly absent on the mountain due to small size of streams and dense vegetation, especially giant laurel (*Rhododendron maximum*), that prevent bats from accessing the water, but numerous road-ruts and ponds provide drinking water.

Pine Mountain Landscape Looking up the Clear Creek Valley

Prior to the blitz, Google Earth was used to identify potential mist net sites Pine Mountain near Pineville, Kentucky. To conduct mist net surveys, Special Use Permits were received from the Kentucky Tourism, Arts and Heritage Cabinet, Department of Parks, Kentucky Office of Nature Preserves, and Kentucky Natural Land Trust (a nonprofit land holding group). Approximately 20 potential mist net sites were evaluated in order to attempt to maximize sampling in a variety of habitats. Ultimately, nine sites for mist net surveys were chosen. Methods for capturing and processing bats at each of the sites followed the USFWS 2018 Range-wide Indiana Bat Summer Survey Guidelines, and the most recent USFWS White Nose Syndrome (WNS) Disinfectant Protocols. Mist net activities at each site was conducted under the direct supervision of Federally and State permitted biologists. A single northern long-eared bat captured at a ridgetop site in Pine Mountain State Park was fitted with a transmitter and radio-tracked for 5 days. Photographs of select bats were obtained during survey efforts.

Kentucky

A total of 30 people participated in the blitz. During the 41 net-nights of effort, 63 bats representing 9 species were captured. Bat captures included 2 federally listed species, including the endangered gray bat (*M. grisescens*), and the threatened northern long-eared bat. The most common species captured were the eastern red bat (*Lasiurus borealis*) and big brown bat (*Eptesicus fuscus*). A complete list of bats captured is provided (Table 1).

MS-03 Ridgetop Road-rut where Eastern Small-footed and Northern Long-eared Bat Captured

A 0.27g radio transmitter was affixed to the adult post lactating female northern long-eared bat. An attempt was made daily to locate the roost location, which was estimated (via triangulation) to be on the northern slope of Pine Mountain near Pine Mountain State Resort Park. Unfortunately, the roost was located on private land, which restricted access. Because of this, no additional information on the roost (exact location, tree species, colony number, etc.) was gathered. The bat was tracked to roughly the same location for 4 days before the signal was lost.

Gray Bat Night-roosting under bridge.
(Photo By: Kelly Vowels)

At least 11 additional bats, representing 3 species, were found night-roosting underneath a bridge in the blitz area. The eastern small-footed bat, big brown bat, and gray bat were all roosting on the concrete girders against the concrete decking of the bridge.

Eastern Small-footed Bat Night-roosting under bridge.
(Photo By: Kelly Vowels)

When compared to previous years bat blitz activities in Kentucky, the overall bat captures were greatly decreased, but the Pine Mountain blitz species richness (N=9) was surpassed by no other KBWG blitz. Overall, the main objectives of this blitz were achieved by providing less experienced biologists the opportunity to get hands on training and experience with permitted biologist by inventorying bat communities in less surveyed portions of the state.

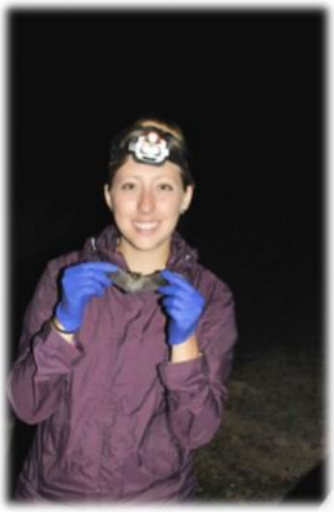
Kentucky

Table 1. Bat Capture by site and location during the 2018 Kentucky Bat Working Group's 2018 Pine Mountain Bat Blitz, Bell County, Kentucky, August 23 – 25, 2018

		Species									
Site	**Location**	**LABO**	**LACI**	**EPFU**	**NYHU**	**PESU**	**MYGR**	**MYLE**	**MYLU**	**MYSE**	**Total**
MS-01	Ridgetop	6	0	1	0	0	0	1	0	0	**8**
MS-02	Ridgetop	0	0	0	0	0	0	0	0	0	**0**
MS-03	Ridgetop	3	0	1	0	1	0	8	0	1	**14**
MS-04	Ridgetop	1	0	1	0	1	0	0	1	0	**4**
MS-05	Ridgetop	0	0	0	0	0	0	0	0	0	**0**
MS-06	Riparian	4	0	2	0	0	0	2	0	0	**8**
MS-07	Riparian	3	1	7	0	4	0	0	0	0	**15**
MS-08	Riparian	1	0	4	1	0	1	0	0	0	**7**
MS-09	Riparian	4	0	1	0	0	1	0	1	0	**7**
Total		**22**	**1**	**17**	**1**	**6**	**2**	**11**	**2**	**1**	**63**

LABO = *Lasiurus borealis*; LACI = *Lasiurus cinereus*; EPFU = *Eptesicus fuscus*; NYHU = *Nycticeius humeralis*; PESU = *Perimyotis subflavus*; MYGR = *Myotis grisescens*; MYLE = *Myotis leibii*; MYLU = *Myotis lucifugus*; MYSE = *Myotis septentrionalis.*

Left: Eastern Small-footed Bat Captured at MS-01 on Pine Mountain Narrows Tract



Kristen Clemens with her first Eastern Small-footed bat at MS-01

Blitz Team Leader Processing Bats

Kentucky

Nikki Lally and Zoe Bryant Looking at Big Brown Bat from MS-01

MS-06 Clear Creek and SR-190 bridge used by night-roosting Bats

Acknowledgments

The authors and KBWG would like to thank the Kentucky Natural Lands Trust (KNLT), especially Greg Abernathy and Preston Lacy, for assisting with funds to cover participants lodging. Additionally, we thank Lee Andrews (U.S. Fish and Wildlife Service) and Luke Dodd (Eastern Kentucky University). A special thanks is extended to Robert Meyer (Kentucky State Parks), Preston Lacy (KNLT), and Josh Lilpop (Office of Kentucky Nature Preserves) for issuing "Special Use Permits" to conduct mist net surveys on property they manage.

The annual bat blitz wouldn't be possible without the permitted bat biologists who volunteer time to lead netting efforts. We would like to thank this year's permitted bat biologists, including Jeremy Jackson (Jackson Environmental), Prescott Weldon (ERM), Rebecca James (Kentucky National Guard), Rob Stinston and Ray Eaton (Copperhead Consulting), and Santiago Martin (U.S. Fish and Wildlife Service) for leading mist netting efforts. Kristen Clemens (*Environment & Archaeology, LLC)* showed great determination while attempting to radio-track the northern long-eared bat the following week and deserves a big thank you.

Finally, I (JDK) would like to send a special thank you to my friend and colleague, John MacGregor, for assisting me with two nights of mist net surveys at the blitz, and his continued attempts to transfer his extensive natural history knowledge to me.

John MacGregor and Nikki Lally removing Big Brown Bat from net at MS-01

Kentucky

2018 Kentucky Bat Working Group (KBWG) Annual Meeting

James Kiser - President

The Kentucky Bat Working Group Annual Meeting was held at Barren River Lake State Resort Park on November 8 & 9. This meeting wouldn't have been possible without the generosity of our sponsors, including Biological Systems Consulting, Copperhead Environmental Consulting, Environment & Archaeology, GAI Consultants, HMB Professional Engineers, Redwing Ecological Services, Stantec Consulting Services, and SWCA Environmental Consultants. This year's meeting was attended by 46 folks representing environmental consultants, state and federal agencies, non-profit groups, academia, and private industry. These folks were enlightened and entertained by 15 oral presentations, including 5 student papers. The five student papers were very well researched and presented, and made the 6 presentation judges' job very difficult awarding this year's 1st annual "Best Student Paper Award". With the generous support of our sponsors this year, KBWG was able to award $150 to Ms. Courtney Hayes (Eastern Kentucky University) for her presentation entitled **"Regional Surveillance Efforts of Eastern Spotted Skunks and Mesopredator Diversity Across the Appalachian Foothills of Kentucky".**

During Business Meeting attendees discussed the location of next year's bat blitz and annual meeting, along with possibility of having a work weekend to assist with cleanup of Coach and James Cave Systems, and the need to obtain nominations and have an election for some new board members. A recommendation was brought to the floor for discussion on having next year's bat blitz in the Big South Fork & Little South Fork in McCreary and Wayne Counties. The group was also in favor of asking the Tennessee Bat Working Group (TBWG) if they would like to join us. Since our KBWG meeting, I attended the TBWG annual meeting and discussed the joint bat blitz with their meeting attendees, and they expressed interest in the joint blitz. This blitz would be scheduled for the end of August. At our business meeting we also discussed the location for next year's annual meeting and the group seemed to be in favor of having next year's meeting at either Carter Caves State Park, or Natural Bridge State Park. We will attempt to schedule the meeting at one of these state parks during the last two weeks in October, so we can trap bats at one of the caves. Mr. Charlie Bishop (James Cave Group) made a request for the KBWG to inquire with our membership about possibly assisting with a cave cleanup, primarily removing old decaying wooden material left from the commercialization of the Coach and James Cave systems. This cave cleanup request will be further researched and presented to membership later this winter to gauge the amount of interest. The final business meeting discussion involved the need to have nominations and elections for three board member positions due to term limits.

Current Board Members:

President – James Kiser – December 31, 2019

Past President – Seth Bishop – December 31, 2019

Secretary – Teresa Wetzel – December 31, 2019

Consultants – Todd McDaniel – December 31, 2019

Student – Phillip Arant – December 31, 2019

At Large – Shelby Fulton – December 31, 2019

Academics – Terry Derting – December 31, 2018

State Government – Zack Couch – December 31, 2018

Federal Government – Santiago Martin – December 31, 2018

Thanks to everyone for helping protect and manage the Commonwealths Bats.

Kentucky

James Cox
MS student
Indiana State University

A team of researchers (James Cox, Joy O'Keefe, Jaime Neill, Angela Fletcher, and Justine Jusack) from the Center for Bat Research, Outreach, and Conservation at Indiana State University studied the bat community in Cumberland Gap National Historical Park during fall 2017 and summer 2018. We acoustically monitored 47 trail sites and mist-netted 15 trail, creek, and cave mist-net sites over 33 nights. In total, we captured 180 bats including 59 big brown bats, 43 eastern small-footed bats, 33 eastern red bats, 22 male little brown bats, 14 male tri-colored bats, 5 male Indiana bats, 2 male evening bats, 1 male hoary bat, and 1 male silver-haired bat. We applied radio transmitters to 17 bats and located 28 roosts including trees, buildings, caves, and rocks. We tracked the foraging behavior of 11 bats including 2 male big brown bats, 3 male tri-colored bats, 4 eastern small-footed bats (3 female, 1 male), and 2 male Indiana bats. During tracking, we discovered an eastern small-footed bat maternity colony in historic, mountaintop cabins (see photo). These wooden structures are part of Hensley Settlement, a high-elevation (~1000 m) meadow area with 42 historic structures built in the early 1900s. We also tracked big brown bats and little brown bats to these structures. Male tri-colored bats roosted near streams in the foliage of live trees, including tulip poplars, red maples, and chestnut oaks. Male Indiana bats roosted in oak snags at the base of the mountain. Male big brown bats exhibited widely varied behavior, with one tracked male foraging around its building and tree roosts in a small area around Hensley Settlement, while another foraged and roosted in trees atop Pinnacle Mountain half the of time, and foraged in livestock pastures around its tree roost outside of the park the other half.

An historic cabin on Hensley Settlement in Cumberland Gap National Historic Park that housed a maternity colony of eastern small-footed bats.

Justine Jusack and Jaime Neill help set nets over Station Creek in Cumberland Gap National Historic Park

Mississippi

Mississippi Bat Working Group
Becky Rosamond

First Cave Gating in Mississippi!!

Thanks to a partnership between Partners for Fish and Wildlife and the Mississippi Bat Working Group, the first bat gates have been erected at a cave in Mississippi. Pitt's Cave is the longest cave in Mississippi and is well known to local residents. The cave has the largest known maternity colony of southeastern myotis and is a significant winter roost for both the southeastern myotis and the tri-colored bat. The two gates were designed and installed by Kristen Bobo along with volunteers from the U.S. Fish and Wildlife Service, MS Department of Wildlife Fisheries and Parks, Bureau of Land Management, and other MS Bat Working Group members. While Mississippi is not known for its caves, there are several that are locally important hibernacula or maternity sites for bats. The group is making plans to protect these other cave sites in the future.

Photos by K. Bobo

Second Annual Culvert Blitz

In a continuing effort to monitor winter populations of bats in Mississippi, the Working Group held its second annual culvert blitz January 5 – 7, 2018. Culverts were primarily associated with interstate highways and major (4-lane) state highways, with routes (typically consisting of 8 – 12 culverts) spread across the state.

Thirty volunteers ran 15 routes and checked 234 culverts. Of the inspected culverts, 116 had bats present. A total of 3,287 bats were found representing five species, with the southeastern bat accounting for nearly two-thirds of the observations (2,009 individuals). Nearly half of these (953) were found in a single culvert and the majority (1,761) were found along a single route. Other species detected (in order of abundance) include tri-colored bat (1,046), big brown bat (115), Brazilian free-tailed bat (110+) and Rafinesque's big-eared bat (5). Weather during the blitz was unseasonably cold, which may have accounted for the abundance of southeastern bats. The group plans to continue this blitz annually and is working to refine protocol and provide more formal training for volunteers. Dates for the 2019 blitz are January 4 – 6. Contact the Mississippi Bat Working Group (msbats@hotmail.com) for more information.

Mississippi

Mississippi Bat Working Group cont.

Clockwise: Part of a large cluster of southeastern bats (photo by K. Morris); volunteers consulting guide to identify bat (photo by B. Rosamond); tri-colored and southeastern bats (photo by K. Morris); cold weather and icy conditions provided an additional challenge for this year's blitz. (photo by B. Rosamond)

Bat Conservation Plan

Members of the MBWG, working with state and federal biologists, continue development of a "Bat Conservation Plan." When completed, the plan will identify information gaps and hopefully be used to guide funding to fill these gaps. Appendices within the plan summarize life history information for each species within the state and provide county range maps.

Mississippi

Mississippi Bat Working Group cont.

Annual Meeting and Mist Net Event

The MBWG met for their 16th Annual Meeting at the Mississippi Museum of Natural Science in Jackson Mississippi on March 1. The morning was devoted to presentations on current research occurring in the state and updates on various monitoring activities. The afternoon agenda included a business meeting and discussion of upcoming events. Deb Waz received the Education/Outreach Award, Chazz Coleman and Katelin Cross received Research/Conservation Awards, James Austin and Kelly Morris received Service Awards, and Amber Floyd received the coveted Chester O. Martin Award.

The 15th Annual Mist Net Event was held in Chickasaw, Lee, and Pontotoc Counties in north Mississippi. Twenty-three participants representing Mississippi, Alabama, Louisiana, and Hawaii gathered at Trace State Park in Belden, Mississippi for two nights of mist netting. Unfortunately, the weather was not cooperative, shutting activity down early one night and delaying netting the second. The group netted 5 sites but only caught two bats (evening and red). Thanks to all those who made this event possible, including our event sponsors, Wildlife Abatement, Inc. and Wildlife Artist Chester Martin. An extra "thank you" goes out to Chester Martin for providing artwork for the event t -shirt.

Outreach and Education

Members of the group presented educational programs and invited talks throughout the state at schools, festivals and to various civic organizations, reaching over 1,000 individuals across the state. Additionally, the MBWG staffed booths at NatureFest (Jackson), Wildlife Outdoor Learning Festival (Noxubee National Wildlife Refuge, Louisville), and Park after Dark (Jackson). Some highlights from 2018 include:

- Development of a teacher workshop (B.A.T.S. – Bats and Teachers Seminar) through which teachers can learn about bats, experience mist netting, and earn 0.6 CEU's. Two of these workshops were held this year with a total of 25 participants.

- The Clarion Ledger (Jackson, MS) did a feature article on gating Pitts Cave. The article, entitled "To the bat cave! These bats have their own gated neighborhood" included an interview and video footage of MS non -game biologist and MBWG vice chair Kathy Shelton.

Members involved in education and outreach include: Katelin Cross, Amber Floyd, Nicole Hodges, Jackie Kerr, Chester Martin, Alison McCartney, Becky Rosamond, Kathy Shelton, and Deb Waz.

Mississippi

Mississippi Bat Working Group cont.

Bat Box Replacement at Percy Quin State Park

During late August of 2017, Mississippi Bat Working Group (MBWG) member Katelin Cross noticed seven bat boxes (3-chambered with one box per pole) behind some of the park cabins next to the lake at Percy Quin State Park just south of McComb, MS. Every single bat box was occupied with Brazilian free-tailed bats (*Tadarida brasiliensis*). Unfortunately, the wire mesh used in the boxes was separating from the wood. This allowed guano to gather at the entrance of the chambers and block access into the boxes. The MBWG began monitoring the boxes for seasonal use. When boxes were checked in February 2018, one of the poles had rotted and the box had fallen over killing several of the individuals inside.

Since the boxes were occupied year-round, the decision was made to build new boxes and put them up near the existing boxes. With assistance from member Alison McCartney, MBWG was able to acquire funds through the Bureau of Land Management to purchase the supplies to build eight 4-chambered bat boxes. Katelin, with help from Chazz Coleman, Jeremy Copley, and Nour Salam, built replacement boxes using the design in The Bat House Builder's Handbook by Merlin D. Tuttle and Donna L. Hensley. Rather than using wire mesh, the new boxes had grooves cut into the wood.

The new bat boxes were erected on November 3rd with the help of park employees, Mississippi Museum of Natural Science (MMNS) employees Scott Peyton and Jackie Henn-Kerr, MMNS volunteer David Wetzel, and Haley and Aries from Girl Scout Troop 7304. Special thanks to the Bureau of Land Management for funding this project and to the many volunteers that assisted with the construction and erection of the boxes.





Clockwise:
Fallen pole with bat box; dead Brazilian free-tailed bats in fallen box; Jackie Henn-Kerr, Aries, and David Wetzel attaching braces to bat pole; installed box; supplies purchased by Bureau of Land Management. (photos by K. Cross)

Mississippi

Mississippi Bat Working Group cont.

Other Items of Note

Darren Miller and Chester Martin attended the 25th Annual Conference of The Wildlife Society (TWS) in Cleveland, OH on 07-12 Oct 2018. Darren was inducted as President, TWS, and Chester was presented with the "Jay N. 'Ding' Darling Award for Wildlife Stewardship Through Art." Congratulations Darren and Chester!

Attendance at the annual meeting of the Mississippi Bat Working Group can earn you 5 hours towards The Wildlife Society's Certified Wildlife Biologist certification.

Upcoming Events

Culvert Blitz – throughout the state, January 4 – 6, 2019.

Annual Meeting – Mississippi Museum of Natural Science, February 12, 2019.

Mist Net Event – location and date to be determined, Fall 2019

Watch our website (msbats.org) for updated information or follow us on Facebook!

North Carolina

Lisa J. Gatens
Curator of Mammals
North Carolina Museum of Natural Sciences

2019 Bat Blitz!

The 2019 SBDN Bat Blitz will be held June 3-7 on the Albemarle Peninsula of North Carolina's northern Coastal Plain. Home base will be the Eastern 4-H Center, which offers wonderful facilities! Monday, June 3, will be arrival for most and the welcoming cookout. Netting will take place on Tuesday through Thursday nights.

We will have ample and excellent netting sites. The Albemarle Peninsula is home to three National Wildlife Refuges, two State Parks, numerous Wildlife Resources Commission game lands, and privately owned conservation lands. Though there is plenty of fresh water, most net sites will likely be on land. And, with so much water around, we expect to experience frequent encounters with bats' prey! There will be plenty of mosquitos, and other insects, so we are hoping for great capture success.

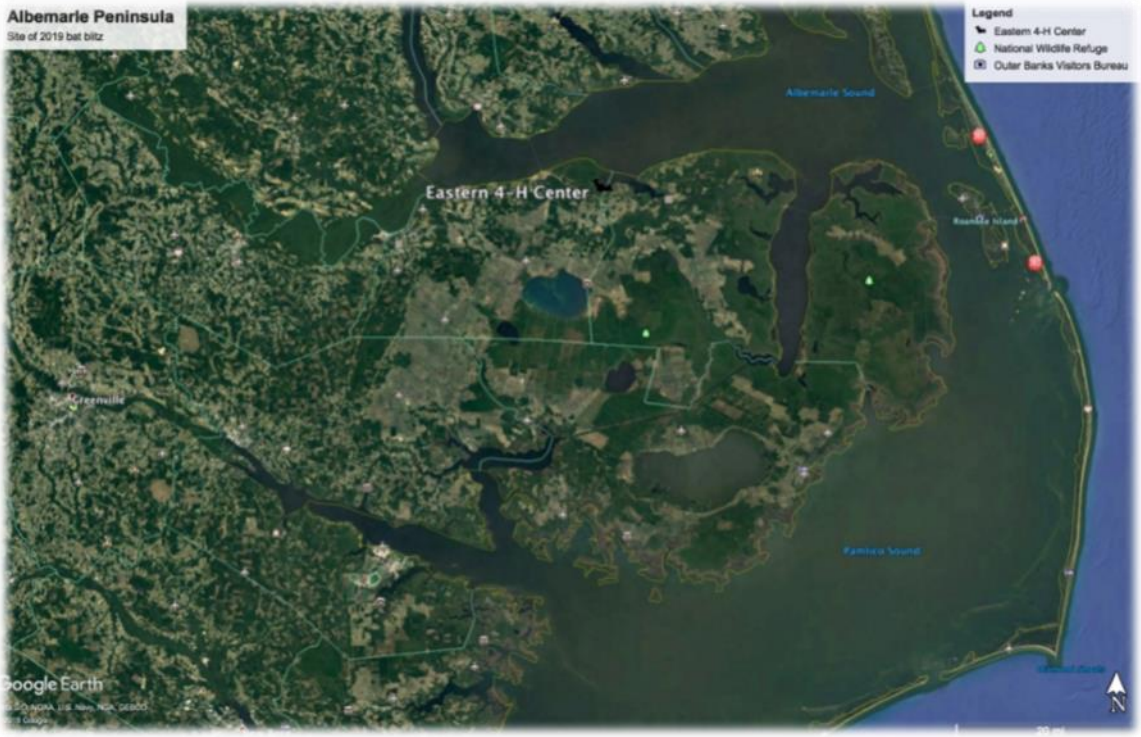


Figure 1. Albemarle Peninsula of eastern NC, and location of the 2019 bat blitz.

This area was chosen because it hosts important peripheral populations of bat species most impacted by WNS, primarily an isolated population of northern long-eared bats (MYSE). County records for MYSE have been established for all counties within the peninsula, but there is still much to learn about the distribution and population status in the area. Other species of greatest conservation concern occupy this region, including tri-colored bats (PESU), Rafinesque's big-eared bats (CORA), and southeastern myotis (MYAU). We hope to establish future monitoring sites for MYSE and all other bats in this part of the northern Coastal Plain.

2019 Bat Blitz! Cont.

The Albemarle Peninsula is home to the experimental reintroduction of the endangered red wolf. Keep an eye out for this rare and elusive canid. It is also home to a very large black bear population, which you are almost guaranteed to see. As seen in figure 1, the Eastern 4-H Center is less than an hour's drive to the Outer Banks, as well as many other recreational opportunities. Biking or hiking on any of the public lands will offer beautiful scenery, and the possibility of spotting some fantastic wildlife. There are also many places to explore via kayak or canoe.

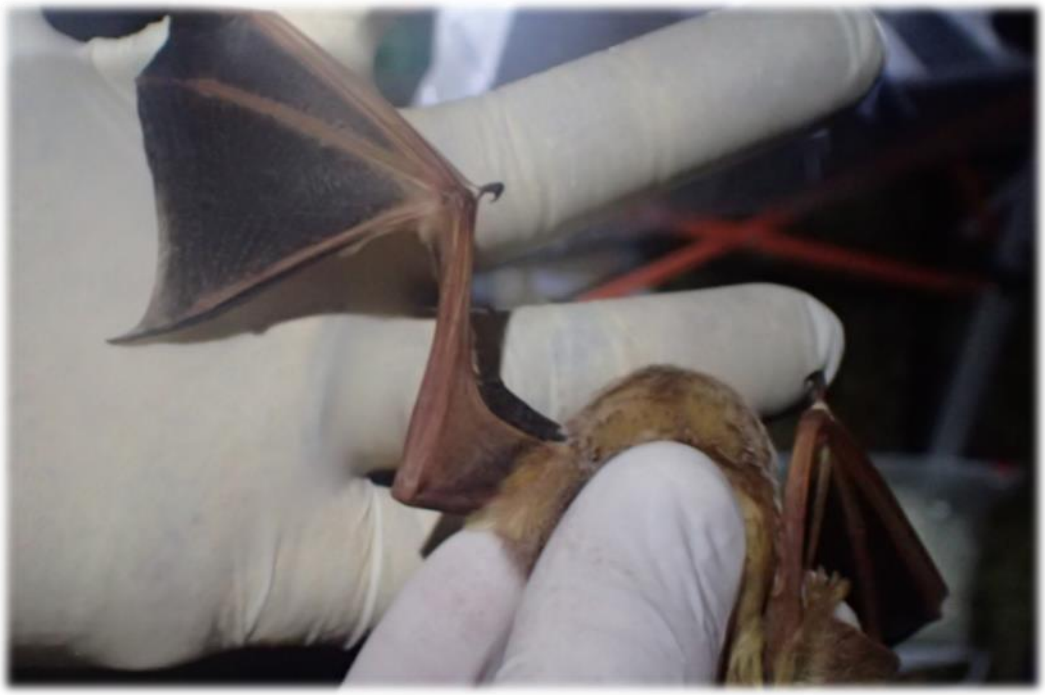
Your hosts for the 2019 blitz are Katherine Caldwell (NCWRC), Ed Corey (NCDPR), Michael Morse (USFWS), and Lisa Gatens (NCMNS). Please feel free to contact any one of us with questions or comments. To raise additional funds for this blitz, we will be selling raffle tickets for a very sweet cornhole set. The boards and bags will be available at the annual meeting in February. The winner of the raffle drawing can take the boards home then, or we can help plan transport, if necessary.

Figure 2. Custom cornhole board design. Raffle tickets will be available at SBDN annual meeting. Bags (not shown) will have beetle and moth designs.

North Carolina

Mary Frazer
Biologist/Project Manager
Three Oaks Engineering

We captured a red bat while conducting a MYSE survey in the coastal plain of NC. As you can see in the photo, it's missing a most of the plagiopatagium of its left wing from an old injury. It was still able to fly, although it was a slow-and-steady flight, compared to the zippiness of normal red bats.



Joey Weber
Research Associate
Center for Bat Research, Outreach, and Conservation
Indiana State University

The Center for Bat Research, Outreach, and Conservation at Indiana State University is in the midst of conducting a 2-year study of gray bats (*Myotis grisescens*) in western North Carolina. The project, funded by NCDOT, aims to document the distribution of gray bats within the French Broad River Basin, locate roosts, characterize roosts, document foraging ranges, and migration routes. From April–October 2018, ISU radio-tracked 62 female and 28 male gray bats to 4 known roosts and 4 new roosts in NC and 1 hibernaculum in TN. Bats roosted in bridges (n=4), buildings (n=2), a culvert (n=1), a sycamore tree (n=1), and a cave (n=1). Roosts were along or near major waterways. Next year ISU plans to radio-tag 90 more gray bats. ISU also deployed 12 acoustic monitoring stations on major waterways to help determine the bat's distribution in the basin. Defining the gray bat's distribution, roosting characteristics, and foraging ranges in NC will help managers make critical decisions regarding major infrastructure changes/maintenance and species recovery.

North Carolina

Links to photo album:
https://www.flickr.com/photos/usfwssoutheast/albums/72157693310832672/with/28022054018/https://bit.ly/2SJ6y6y

Sean Casler, Jordan Holmes, Elise Stanmyer (Indiana State University), and Sarah Batten (University of North Carolina Asheville) getting ready for a night of mist netting bats in western North Carolina.

Photo by Joy O'Keefe

Meredith Hoggatt checks a bat for wing damage

Photo by U.S. Fish and Wildlife Service Southeast Region

Oklahoma

Melynda Hickman
Wildlife Diversity Biologist
OK Department of Wildlife Conservation

ECHOLOCATION Grotto – A New Traveling Bat Exhibit in Oklahoma

What is bat education? The Merriam-Webster's dictionary describes it as "the action or process of educating or of being educated when associated with any of a widely distributed order of nocturnal usually frugivorous or insectivorous flying mammals that have wings formed from four elongated digits of the forelimb covered by a cutaneous membrane and that have adequate visual capabilities but often rely on echolocation."

The beginning of bat education can be traced from the 15th century Renaissance to "The Hanbuch der Naturgeschiche," a natural history manual written by Friedrich Blumenbach in 1779 which first made mention of the term "chiroptera" to Charles Darwin's sketches and descriptions of different bat species found in the publication "The Zoology of the H.M.S. Beagle," a record of his 1831 to 1836 travels through South America, Tahiti and Australia.

Today we have increased our knowledge from the days of Blumenbach and Darwin. Bat research and education has moved into the areas of field observations, laboratories and finally into the classrooms filled with students of all ages. Many organizations around the United States and the world are dedicated to spreading information regarding bats to anyone and everyone willing to listen.

The ECHOLOCATION GROTTO and all those associated with its development and implementation are no different. Alabaster Caverns State Park designed and built this traveling exhibit to provide just one more avenue to educating those willing to learn about bats. In the GROTTO you will find audio/video programs, slide programs, interactive games, interpretive and hands-on displays, all developed and gathered from years of research, field observations and real-life experiences associated with bats. Supervised by knowledgeable staff and self-contained, the ECHOLOCATION GROTTO can travel to wildlife venues, parks, expositions, schools; just about anywhere there are people that have an interest.

Bats are so very important to the world we live in yet are still so misunderstood by many. The ECHOLOCATION GROTTO is a pathway dedicated to the understanding and conservation of these small mammals, presented in an entertaining and informative style.

"A bat is beautifully soft and silky; I do not know any creature that is pleasanter to the touch or is more grateful for caressing, if offered in the right spirit." (Mark Twain)

Submitted by Mike Caywood, Park Manager, Alabaster Caverns State Park; Mike.Caywood@travelok.com. Photo credit: .M Caywood

Tennessee

Liz Hamrick
Terrestrial Zoologist
Biological Compliance
Tennessee Valley Authority

The Tennessee Bat Working Group held their annual meeting at the University of Tennessee Arboretum, Oak Ridge, Tennessee on November 14, 2018. Approximately 60 people attended. Those in attendance included private citizens, students and professors (University of Tennessee, Tennessee Technological University, and Middle Tennessee University), and representatives from

the Eastern Band of Cherokee Indians, federal agencies (Oak Ridge National Lab, US Fish and Wildlife Service, Tennessee Valley Authority, and the Office of Surface Mining and Reclamation), state agencies (Tennessee Wildlife Resources Agency and Tennessee Department of Transportation), and consulting firms (Copperhead Environmental Consulting, Stantec, Civil & Environmental Consultants, Inc.).

Presentations included a talk from a private landowner who had great success relocating a sizeable colony of big brown bats (and at least one Mexican free-tailed bat) from the side of his house to three different bat boxes around his property. Student presenters discussed ongoing research on summer diurnal roost selection of tri-colored bats, winter activity of gray bats, small-footed bats, Indiana bats, and tri-colored bats, population genetic structure of Rafinesque's Big-eared bats, and southeastern Myotis, aerial bat detection technology, fall swarming roost selection by Indiana bats and tri-colored bats, and the probiotic cutaneous microbiome of bats in Tennessee. Additional talks included the White nose Syndrome update for Tennessee. The most recent update from the 2018 cave surveys can be found at www.tnbwg.org. Arguably the most stunning result from this report was the fact that only two northern long-eared bats were observed statewide during the 2018 winter cave survey efforts. Also presented was a summary of multiple aerial tracking studies performed by Copperhead Consulting this past year, an update on the landscape model the Natural Conservancy is working on examining gray bat cave connections, and an introduction to the regulatory challenges biologists must navigate when trying to manage for bats on Tribal Lands.

Tennessee

Tennessee Bat Working Group Cont.

Jessica West from the Tennessee Technological University was awarded the Best Student Presentation Award for her presentation on her research of the population genetic structure of Rafinesque's big-eared bats.

Roosting tricolored bat with transmitter.
Photo credit of Dustin Thames

At the business meeting a new chairperson of the organization and two new board members were elected. Brian Carver will be moving to the role of Past Chair as the newly elected Dustin Thames (TWRA) steps in the Chair position. Daniel Istavanko (TWRA) was re-elected to be a board member and will be joined by the newly elected Scott Hollis (University of Tennessee). Existing board members to remain in place are Mallory Tate (University of Tennessee), Steve Samoray (Copperhead Consulting), and Kitty McCracken (Oak Ridge National Laboratory). Liz Hamrick (Tennessee Valley Authority) will remain as secretary.

Tennessee

Spring Migration
Shelby Cotham
Copperhead Consulting

Copperhead conducted two migration studies in Tennessee this spring. Indiana bat migration started at East Saltpeter Cave on April 11th where we put unique frequency radio-transmitters on 6 female Indiana bats (*Myotis sodalis).* All 6 female bats remained near the cave for the first 30 minutes, after which they all began moving north. Only one bat showed signs of a slightly westerly trajectory so she chosen as the targeted bat for the duration of the migration project. Although no new maternity colonies were located in Tennessee as part of this year's effort, we were able to gather information on migration routes, migration trees, and Indiana bat physiology during migration.

Above: Female Indiana bat with transmitter.

Right: Ian Burns working up a roost tree for an Indiana bat.

The second migration project studied tri-colored bats (*Perimyotis subflavus*) on and near Arnold Air Force Base, Tennessee. A total of 40 bats (28 female, 12 male) were captured from Wet Cave, including 38 tri-colored bats and 2 gray bats. Seventeen tri-colored bats were radio-tagged (15 female, 2 male). After release, all but 1 of the 17 tri-colored bats fitted with transmitters migrated away from Wet Cave. We followed four bats, one to Georgia, two to Alabama, and one that remained in Tennessee.

Sunset from the plane with antennae on strut.

Tennessee

Gray Bat Aerial Telemetry Studies

Shelby Cotham
Copperhead Consulting

Copperhead conducted two gray bat (*Myotis grisescens*) telemetry studies in Tennessee. One on Arnold Air Force Base (AAFB) and one at two caves near Cookeville, TN. Mist-net surveys were conducted from June 13th -16th 2018 at AAFB and one hundred bats of six species were captured including 38 gray bats, 24 little brown bats (*Myotis lucifugus*), 22 red bats, 14 evening bats (*Nycticeius humeralis*), 1 tri-colored bat (*Perimyotis subflavus*), and 1 hoary bat (*Lasiurus cinereus*). Using aerial telemetry, we were able to document gray bat travel corridors between nightly foraging areas and day roosts and collected foraging information on 20 gray bats. Similarly, we assisted The Tennessee Chapter of The Nature Conservancy on a project that tracked six gray bats during foraging bouts from Dud's/Haile cave and Ament Cave and found travel corridors and evidence of nightly roost switching.

Left: Male Gray bat from Arnold Air Force Base foraging project.

Above: View of the plane from a ground crew.

West Virginia

Status of Virginia Big-eared Bats in West Virginia

Craig Stihler
WV Division of Natural Resources

While White Nose Syndrome (WNS) has impacted many species of cave-dwelling bats, the Virginia big-eared bat (*Corynorhinus townsendii virginianus*) continues to do well in West Virginia. Summer emergence counts at the 11 known summer colonies tallied 9,869 individuals in June 2018. This is the highest count on record. Colony sizes ranged from 235 to 1,517 bats. The population of Virginia big-eared bats using these cave roosts has increased 54.9% since summer 2008, the summer before WNS was first observed in West Virginia in early 2009. A similar trend has been observed during hibernacula surveys. A total of 15,354 Virginia big-eared bats were counted in 13 hibernacula in early 2017. This is the highest winter count on record.

Awards and Recognition

Chester O. Martin Receives Award for Wildlife Stewardship Through Art

Mississippi Wildlife Federation member Chester O. Martin traveled to Cleveland, Ohio, in October to receive the prestigious Jay N. "Ding" Darling Award for Wildlife Stewardship through Art. The award was presented at the 2018 annual meeting of The Wildlife Society. It was created as a lasting recognition of the heritage established by "Ding" Darling to promote wildlife and habitat conservation through artwork. Mr. Darling's legacy of artwork and conservation efforts were instrumental in achieving significant national conservation measures, such as the Federal Duck Stamp Program, National Wildlife Federation, Cooperative Fish and Wildlife Research Unit Program, and today's system of National Wildlife Refuges.

Martin retired in 2008 as a Research Wildlife Biologist with the Environmental Laboratory (EL), U. S. Army Engineer Research and Development Center in Vicksburg, MS. During his professional career he served as Team Leader of the Wildlife Resources Team, EL, and directed a variety of wildlife and habitat related projects on Corps lands and military installations. He is a long-time member of The Wildlife Society and National Military Fish and Wildlife Association (NMFWA). In 2001 he founded the Mississippi Bat Working Group and is still active in bat conservation and management. In 2012 he was recognized as a Champion of Conservation by the Mississippi Wildlife Federation. In 2017 he was inducted into the NMFWA Hall of Fame.

Awards and Recognition

Although professionally a wildlife biologist, Martin has a long history of using art to compliment his work interests. While working on his M.S. at Texas A&M University, he supplemented his income by providing technical drawings for numerous manuscripts, theses, and dissertations. His most significant accomplishment during that period was the production of 85 plates of approximately 100 species for D. J. Schmidly's book The Mammals of Trans Pecos, Texas. He also provided several drawings for The Mammals of Texas by W. B. Davis, and created paintings and drawings for a variety of technical journals, brochures, and popular magazines. Two of his drawing served as illustrations for the covers of technical journals. Early studies were done primarily in pencil or pen-and-ink, but now Martin works mostly in watercolor and acrylic.

In the 1980s Chester began showing artwork at fishing festivals and other events on the Texas coast with his twin brother Victor, also a wildlife artist. He also began displaying his art at events in Mississippi and was featured as a "Mississippi Favorite Artist" for four years at the MS Medical Association Annual Conference in Biloxi. He served as staff artist for the NMFWA from 1999-2015, providing more than 50 drawings for programs and T-shirts. He has also created designs for the Mississippi Bat Working Group. Since 2009 Martin has been commissioned to do eight of the paintings presented to the first place winner of the Quiz Bowl at The Wildlife Society annual conference. These have included 12X16-in acrylic paintings of such species as the Ruffed Grouse, Common Loon, Cinnamon Teal, and Wood Duck.

Throughout his career Martin has made an effort to donate drawings and paintings to help support conservation programs and charitable organizations. He has given paintings as auction items and door prizes to the MS Chapter of The Wildlife Society, NMFWA, the Southwestern Association of Naturalists, the Southeastern bat Diversity Network, and Mississippi Bat Working Group, to name a few. He has also donated art to help support the Red Cross and other community functions and to raise money for his church, especially for youth programs. During 2012 and 2013 he was part of a Mission Trip to Honduras and taught art skills to a women's ministry, which allowed them to sell their products to supplement their income during difficult times. Although retired, Martin continues to promote wildlife and art and frequently gives presentations to conservation organizations and civic groups. He is a member of the Vicksburg Art Association.

Chester resides in Vicksburg, MS and works out of his home. His studio is small back room, which he sometimes shares with his dog.

Awards and Recognition

SBDN SERVICE AWARD

Purpose: To recognize outstanding service and contributions to the Southeastern Bat Diversity Network.

Nomination Procedure: The SBDN awards committee will call for nominations in September or October of each year through the SBDN mailing list. Nominations will be submitted to the committee by December 1. Nominations can be submitted by any SBDN member, including members of the Executive Committee and the Awards Committee. Nominations will consist of a letter that describes the nominee's service to SBDN. The committee will review the nominations and evaluate them based on significance of the contributions to SBDN. One name will be forwarded to the SBDN Executive Committee for final approval by January 1. If no worthy nominees have been submitted for consideration, no name will be forwarded to the Executive Committee.

Award Process: The awardee will be announced at the SBDN annual meeting, usually held in February. A plaque will be presented to the awardee by the previous recipient or the SBDN president. The Awards committee will be responsible for obtaining the plaque and funds will be provided by SBDN. A copy of the nomination letter and pictures of the award presentation will be deposited in the SBDN archive.

SBDN LIFETIME ACHIEVEMENT AWARD

Purpose: To recognize individuals who have made significant contributions to the conservation of southeastern bats through research, education, or management efforts. The intent of this award is to recognize more senior individuals who have amassed a variety of accomplishments throughout their careers. The award is SBDN's highest honor. The award may not be given every year.

Nomination Procedure: The SBDN awards committee will call for nominations in September or October of each year through the SBDN mailing list. Nominations can be submitted by any SBDN member, including members of the Executive Committee and the Awards Committee. Nominations will be submitted to the committee by December 1. Nominations will consist of: 1) a letter that describes the nominee's accomplishments and how they have impacted bat conservation in the southeast, and 2) the nominee's Curriculum Vitae. The committee will review the nominations and evaluate them based on the totality of the accomplishments and their impact on bat conservation and/or our understanding of bat ecology. The committee will forward one name to the SBDN Executive Committee for final approval by January 1. If no worthy nominees have been submitted for consideration, no name will be forwarded to the Executive Committee.

Award Process: The awardee will be announced at the SBDN annual meeting, usually held in February. A plaque will be presented to the awardee by the previous recipient or the SBDN president. The Awards committee will be responsible for obtaining the plaque and funds will be provided by SBDN. A copy of the nomination letter, the awardees' CV, and pictures of the award presentation will be deposited in the SBDN archive.

History of the Mammal Colloquium and SBDN Meetings

COLLOQUIUM	SBDN	YEAR	LOCATION
28th	23rd	2018	Roanoke, VA
27th	22nd	2017	Asheville, NC
26th	21st	2016	Guntersville, AL
25th	20th	2015	St. Louis, MO
24th	19th	2014	Nacogdoches, TX
23rd	18th	2013	Fall Creek Falls, TN
22nd	17th	2012	Louisville, MS
21st	16th	2011	Louisville, KY
20th	15th	2010	Asheville, NC
19th	14th	2009	Jonesboro, AR
18th	13th	2008	Blacksburg, VA
17th	12th	2007	Destin, FL
16th	11th	2006	Chattanooga, TN
15th	10th	2005	Paris Landing, TN
14th	9th	2004	Helen, GA
13th	8th	2003	Mississippi State, MS
12th	7th	2002	Clemson, SC
11th	6th	2001	Memphis, TN
10th	5th	2000	Guntersville, AL
9th	4th	1999	Wytheville, VA
8th	3rd	1998	Hot Springs, AR
7th	2nd	1997	Black Mountain, NC
6th	1st	1996	Somerset, KY
5th		1995	Cookeville, TN
4th		1994	Athens, GA
3rd		1993	Mountain View, AR
2nd		1992	Guntersville, AL
1st		1991	Memphis, TN

Upcoming Events

24th Annual Meeting of the Southeastern Bat Diversity Network and 29th Annual Colloquium on the Conservation of Mammals in the Southeastern U.S.

February 21st -22nd , 2019

LEXINGTON HOTEL AND CONFERENCE CENTER
1515 Prudential Drive, Jacksonville, FL

Centennial Celebration and 99th annual meeting of the American Society of Mammalogists.
June 28th – July 2nd, 2019
At the birthplace of ASM, Washington, DC.

Joint Conference of the Wildlife Society and the American Fisheries Society
RENO, NEVADA
September 29 – October 3, 2019

Mississippi Bat Working Group
February 12, 2019
Mississippi Museum of Natural Science, MS

NASBR

North American Society for Bat Research

49th Annual Meeting of the North American Symposium on Bat Research

Grand Valley State University

October 23 - 26 2019

Radisson Plaza Hotel, Kalamazoo, MI

Editors Closing Comments

WOW!! Everybody really came through this year with some really great news from around the region. Which leads to another great Newsletter. None of this is possible without all of you!

Thank You! Thank You! Thank You!

It is my wish that everybody had a truly Merry Christmas, and will have a prosperous and productive New Year

As Always:

Be safe out there and take good notes!

Try to have a little fun along the way!