GEORGIA
WHITE-NOSE SYNDROME
MONITORING REPORT

2024

Tricolored bat with WNS

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2024 White-nose Syndrome Season Summary

GEORGIA DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION

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**NOTE: Photos included were taken by DNR unless otherwise noted.*

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Bat Conservation Status in Georgia

Common Name	Scientific Name	Global Rank	State Rank	Federal Protection Status	State Protection Status
Rafinesque's Big-eared Bat	*Corynorhinus rafinesquii*	G3G4	S3		Rare
Big Brown Bat	*Eptesicus fuscus*	G5	S5		
Eastern Red Bat	*Lasiurus borealis*	G3G4	S5		
Hoary Bat	*Lasiurus cinereus*	G3G4	S4		
Northern Yellow Bat	*Lasiurus intermedius*	G5	S3		Species of Concern
Silver-haired Bat	*Lasionycteris noctivagans*	G3G4	S5		
Seminole Bat	*Lasiurus seminolus*	G5	S5		
Southeastern Bat	*Myotis austroriparius*	G4	S3		Species of Concern
Gray Bat	*Myotis grisescens*	G3G4	S1	Endangered	Endangered
Eastern Small-footed Bat	*Myotis leibii*	G4	S2		Species of Concern
Little Brown Bat	*Myotis lucifugus*	G3G4	S1		Species of Concern
Northern Long-eared Bat	*Myotis septentrionalis*	G2G3	S1	Endangered	Endangered
Indiana Bat	*Myotis sodalis*	G2	S1	Endangered	Endangered
Evening Bat	*Nycticeius humeralis*	G5	S5		
Tricolored Bat	*Perimyotis subflavus*	G3G4	S2	Proposed Endangered	Species of Concern
Brazilian Free-tailed Bat	*Tadarida brasiliensis*	G5	S4		

Table 1. Conservation status of bats in Georgia including species name, NatureServe global (G) and state (S) ranks, and species federal and state protection statuses.

White-nose syndrome has plagued bats across North America since 2006. This disease, fatal to bats and caused by the introduced fungus *Pseudogymnoascus destructans (Pd)*, was first documented in the U.S. in New York and has since spread through the nation and Canada. In 2013, white-nose syndrome, commonly called WNS, was confirmed in Georgia. The next year, bat numbers at hibernacula surveyed in the state decreased 36% from their peak.

Georgia DNR biologists have continued to survey hibernacula for imperiled and other bat species, noting drastic declines at most sites. In many cases, those declines have leveled off. Overall, bat counts at caves surveyed have been relatively stable in recent years. Site totals in 2024 were up slightly from the previous surveys in 2022. But the damage suffered has been stark: The numbers at hibernacula surveyed this year were 87% lower than their highest counts.

DNR conducts bat counts every other year at a list of hibernacula monitored long-term. In between, caves targeted for research projects are checked. Also, each year staff survey a Rabun County tunnel that is part of extensive studies, plus caves newly reported as possible WNS or significant bat population sites. 2024 was an "on" year for surveys. Checks included 10 routinely monitored sites (eight in north Georgia and one each in middle and south Georgia), one rarely visited cave in north Georgia, and hibernaculum in Catoosa and DeKalb counties visited for the first time.

Tricolored bats (*Perimyotis subflavus*) have always been the most abundant bat in caves in north Georgia, though low numbers of myotis bats were often observed before the arrival of WNS. Since 2016, only one Indiana bat (*Myotis sodalis*) and no other myotis bats have been observed during these north Georgia winter surveys except for gray bats (*Myotis grisescens*), which seem to be resistant to WNS. Data from summer mist-netting in Georgia also show declines for tricolored bats and myotis bats when compared to data from previous summer mist-net surveys. Survey efforts continued in summer 2023, with biologists conducting mist netting at long-term monitoring sites.

This season, DNR also surveyed 22 culverts across the state. The following are results and notes from the 2023/2024 WNS survey season.

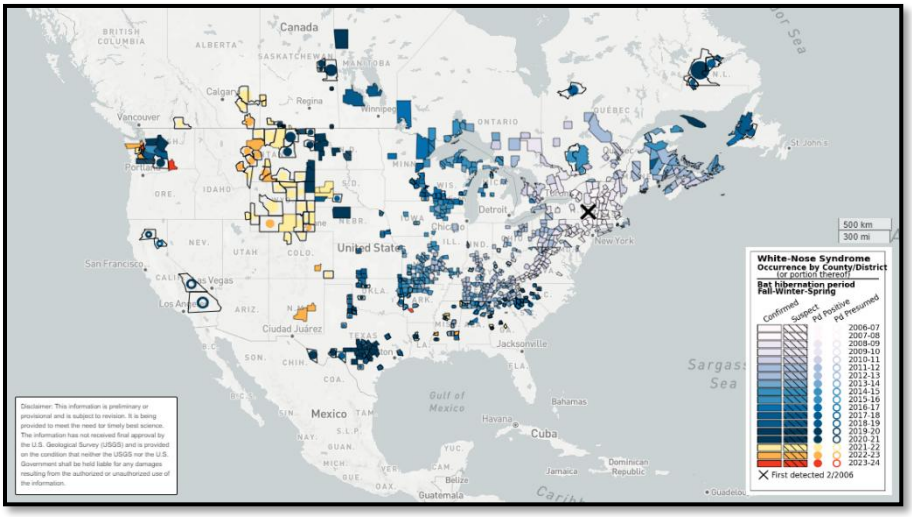

Figure 1. Distribution of WNS in North America as of April 22, 2024

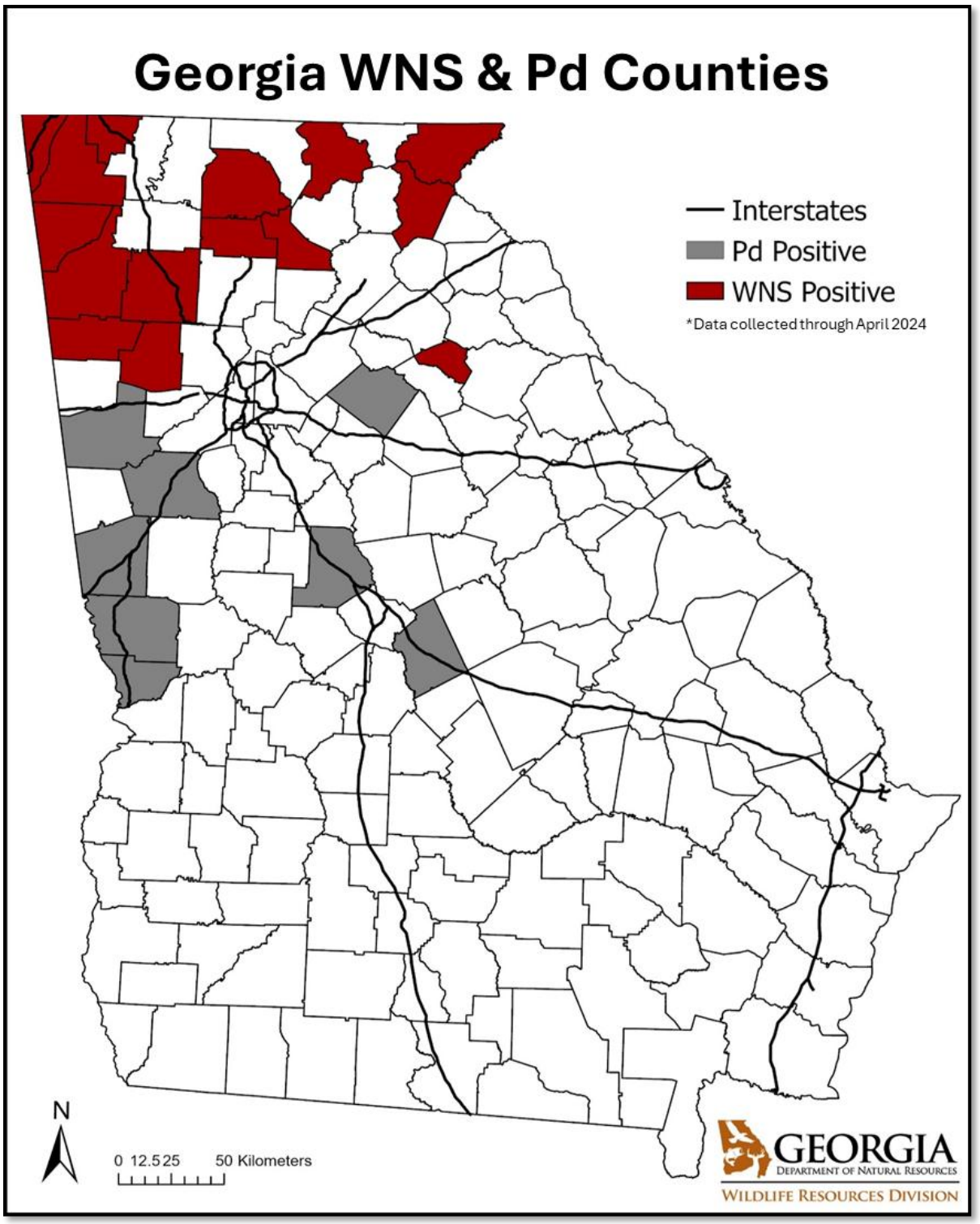

Figure 2. Distribution of WNS positive and Pd positive counties in Georgia as of spring 2024

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Cave Surveys

Survey Date: Feb. 20, 2024
Location: Black Diamond Tunnel
County: Rabun
WNS Positive: 2014
Percent Population Decline from Peak: 87%

Surveyors: Emily Ferrall, Emma Downing and Ashley Hammer (DNR)

Bats Observed (Figure 3)
664 tricolored bats (*Perimyotis subflavus*), 1 big brown bat (*Eptesicus fuscus*)

Notes
Bat numbers have been steadily increasing at this site for the past few seasons. This could be due in part to a prior treatment trial being completed by Kennesaw State University. Bat numbers went down slightly this season after the trial ended last year. About 40% of bats were observed with visible signs of white-nose syndrome, which is an increase in observations from recent years when the trial was being done. Not all bats at the site were available for visual inspections.

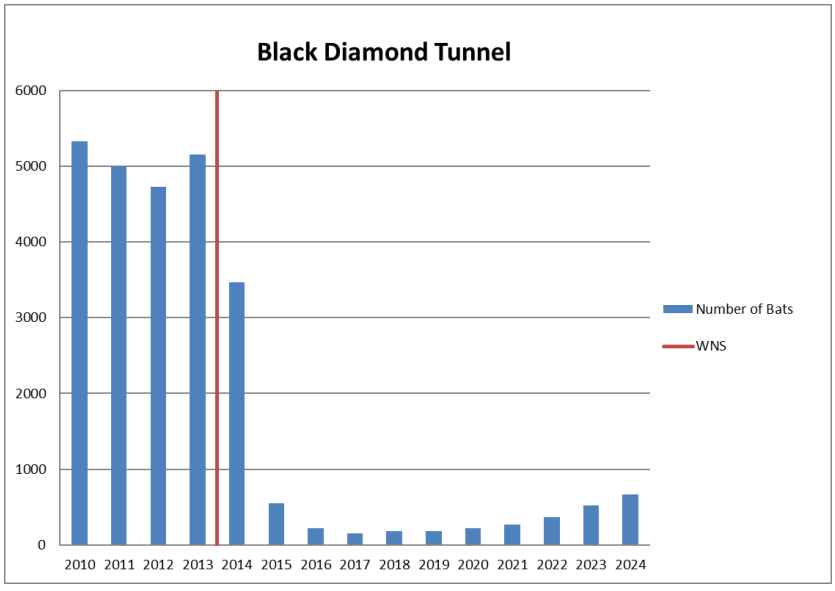


Figure 3. Bat counts at Black Diamond Tunnel

DNR employee outside the tunnel.

Survey Date: Jan. 11, 2024
Location: DeKalb County Cave #1
County: DeKalb
WNS Positive: unknown
Percent Population Decline from Peak: N/A

Surveyors: Emily Ferrall, Trina Morris and Emma Downing (DNR), Alan Cressler and Robby Astrove (DNR volunteers)

Bats Observed
4 tricolored bats (*Perimyotis subflavus*)

Notes
DNR surveyed DeKalb County Cave #1 for the first time in 2024. A recent large rain event may have reduced the number of bats during this survey. The cave is small and narrow. Few bats were observed in the cave and none had visible signs of WNS.

A tricolored bat covered in dew and roosting on a cave ceiling.

Survey Date: Feb. 5, 2024
Location: Bleckley County Cave #1
County: Bleckley
WNS Positive: N/A
Percent Population Decline from Peak: N/A

Surveyors: Emily Ferrall, Emma Downing and Ashley Hammer (DNR)

Bats Observed
15 tricolored bats (*Perimyotis subflavus*)

Notes
This season marked the sixth survey completed at the site and marks the second-highest population count. The cave is partially collapsed and only a very small area in the twilight zone is accessible. No signs of white-nose syndrome were observed, and this cave has been negative for *Pd* when tested in prior years.

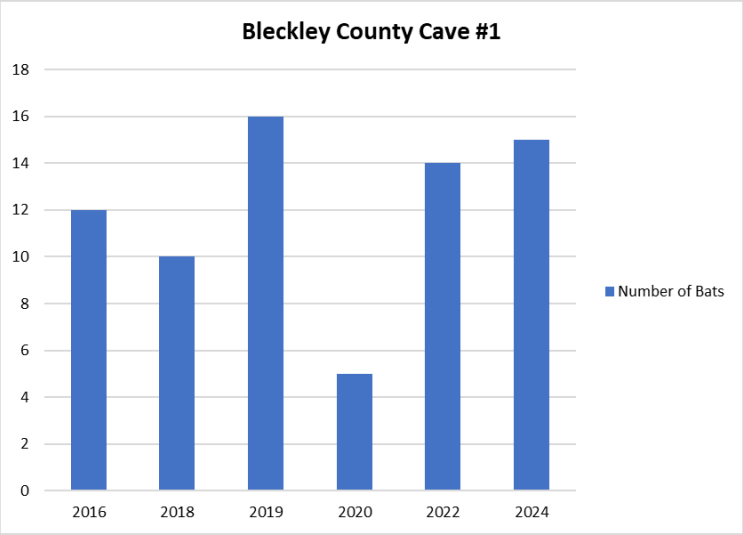
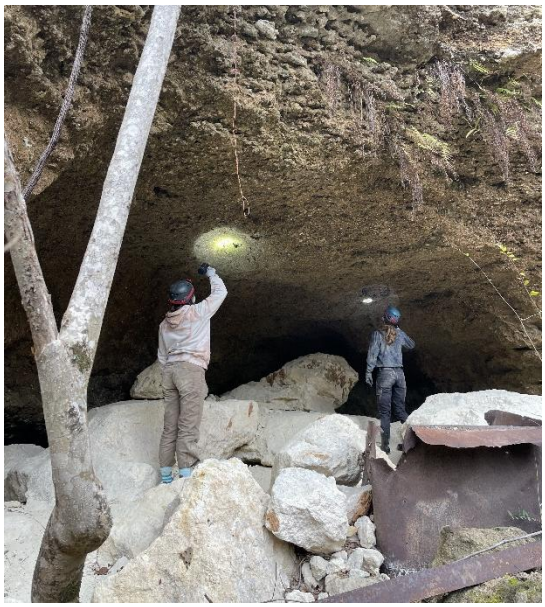


Figure 4. Bat counts at Bleckley County Cave #1



DNR staff looking for bats at a cave entrance.

Survey Date: Feb. 6, 2024
Location: Randolph County Cave #1
County: Randolph
WNS Positive: N/A
Percent Population Decline from Peak: N/A

Surveyors: Emily Ferrall, Emma Downing and Ashley Hammer (DNR), and Wayne Anthony (DNR volunteer)

Bats Observed
195 tricolored bats (*Perimyotis subflavus*)

Notes
DNR staff visited this cave for the first time in 2017, documenting 234 healthy bats. Since then, bat numbers at Randolph County Cave #1 have fluctuated dramatically. Totals this season were about half of what they were when the cave was last surveyed in 2022. No signs of white-nose syndrome were observed and swabs sent to the National Wildlife Health Center for analysis tested negative for *Pd*.

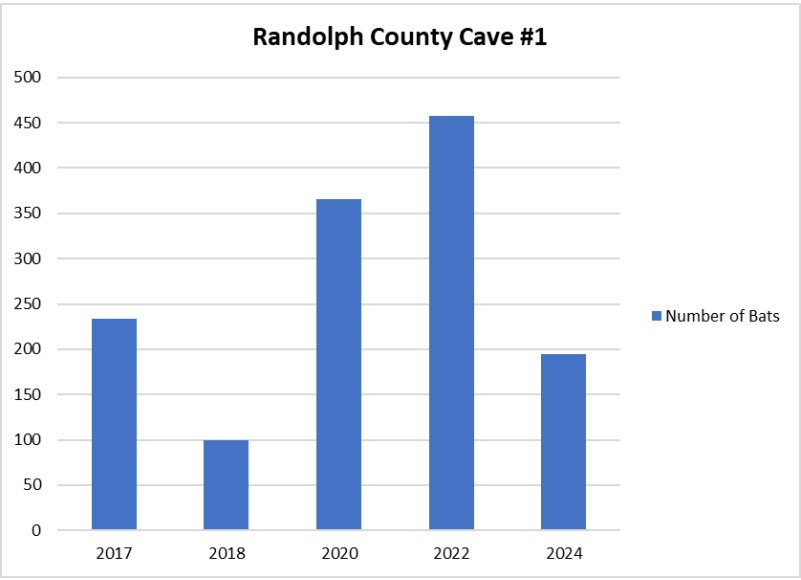


Figure 5. Bat counts at Randolph County Cave #1

DNR staff swab a bat for Pd.

Survey Date: Feb. 24, 2024
Location: Walker County Cave #1
County: Walker
WNS Positive: 2014
Percent Population Decline from Peak: 77%

Surveyors: Trina Morris, Emma Downing, Ashley Hammer and Erika Noriega Torres (DNR), and Kevin Townsend (DNR volunteer)

Bats Observed
322 tricolored bats (*Perimyotis subflavus*)
25 gray bats (*Myotis grisescens)*
2 big brown bats (*Eptesicus fuscus*)

Notes
This season saw a slight decrease in tricolored and gray bat counts from 2022. Gray bat numbers are always low in winter but are appearing to remain steady at this and other sites in Georgia. About 2% of tricolored bats had visible signs of WNS, but several could not be visually inspected.

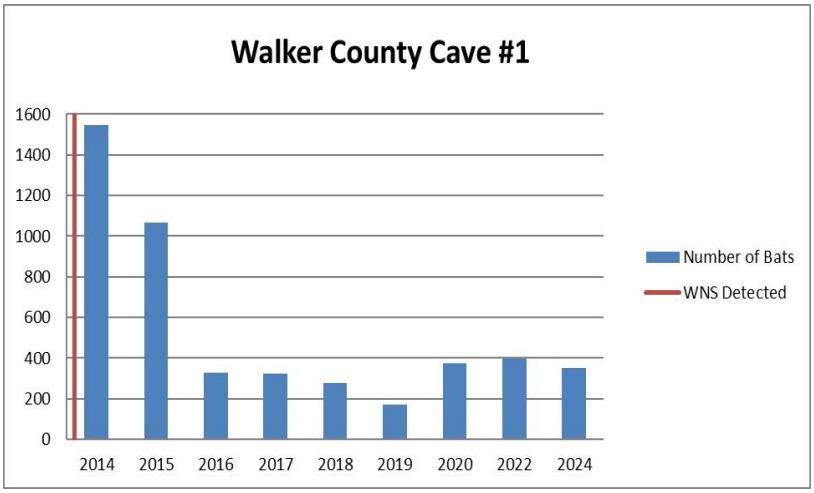


Figure 6. Bat counts at Walker County Cave #1

A tricolored bat seen during a cave survey.

Survey Date: Feb. 27, 2024
Location: Floyd County Cave #1
County: Floyd
WNS Positive: 2015
Percent Population Decline from Peak: 67%

Surveyors: Emily Ferrall, Emma Downing and Ashley Hammer (DNR)

Bats Observed
70 tricolored bats (*Perimyotis subflavus*)
2 big brown bats (*Eptesicus fuscus*)

Notes
Totals at this cave were up slightly from the 2022 survey. No bats were observed with visible signs of WNS this year, but not all bats could be inspected.

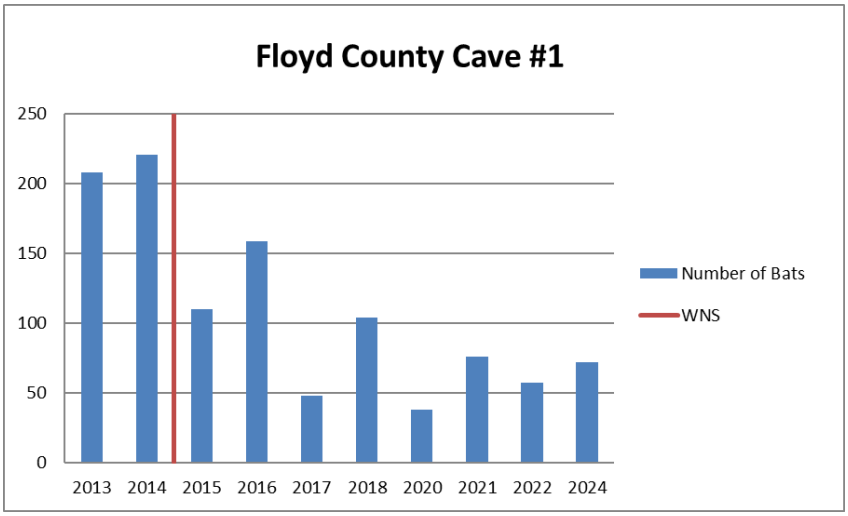


Figure 7. Bat counts at Floyd County Cave #1

Searching for bats during a cave survey.

Survey Date: Feb. 28, 2024
Location: Dade County Cave #2
County: Dade
WNS Positive: 2014
Percent Population Decline from Peak: 86%

Surveyors: Emily Ferrall, Emma Downing, Ashley Hammer and Kaitlyn Roberts (DNR)

Bats Observed
30 tricolored bats (*Perimyotis subflavus*)

Notes
Overall counts at this site have steadily declined since surveys began. After an increase in numbers in 2022, numbers dropped again in 2024. Around 17% of bats had visible signs of WNS.

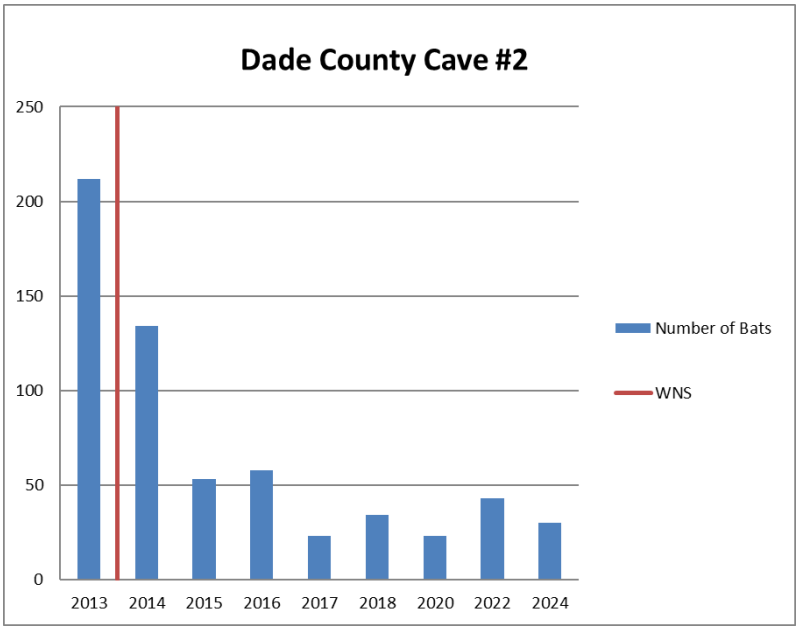


Figure 8. Bat counts at Dade County Cave #2

DNR employees take a break after a cave survey.

Survey Date: Feb. 29, 2024
Location: Polk County Cave #1
County: Polk
WNS Positive: 2015
Percent Population Decline from Peak: 91%

Surveyors: Emily Ferrall, Emma Downing, Ashley Hammer and Kaitlyn Roberts (DNR), and Masonand Camilla Roundtree (landowners)

Bats Observed
85 tricolored bats (*Perimyotis subflavus*)

Notes
In 2014, a change in temperatures at this cave resulted in a major decline in bat numbers. It is not believed this initial decline was caused by white-nose syndrome, although *Pd* fungus was identified from surface swabs at the cave that year and in 2015 researchers began to see visible signs of WNS. The site's bat numbers in 2024 increased slightly from the previous survey in 2022, but counts have remained low since the temperatures in the cave changed and WNS was discovered there.

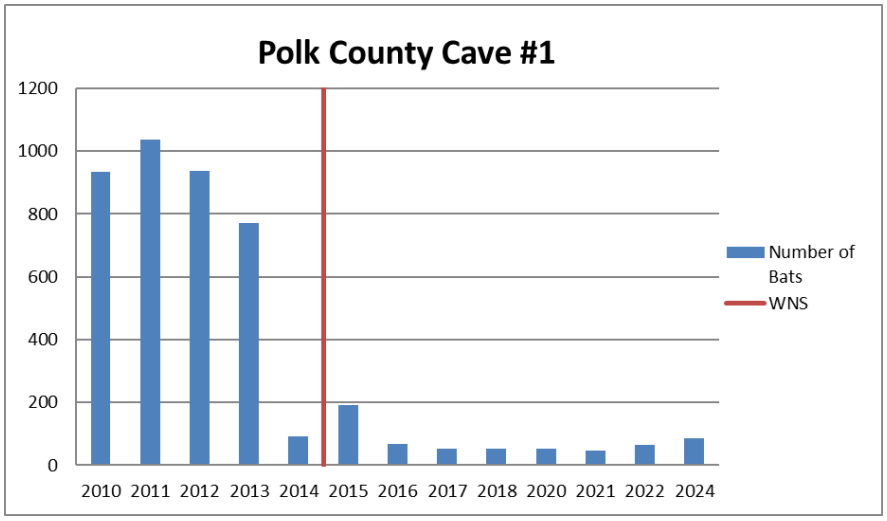


Figure 9. Bat counts at Polk County Cave #1

A DNR employee surveys a cave with the help of a ladder, given the site's complexity.

Survey Date: March 5, 2024
Location: Walker County Cave #3
County: Walker
WNS Positive: 2013
Percent Population Decline from Peak: 90%

Surveyors: Emily Ferrall, Emma Downing, Ashley Hammer and Trina Morris (GA DNR), and Allen Padgett and Lester Reese (DNR volunteers)

Bats Observed
199 tricolored bats (*Perimyotis subflavus*)

Notes
Bat numbers have increased over the past couple of years at this cave. However, about 41% of the bats observed this season had visible signs of WNS.

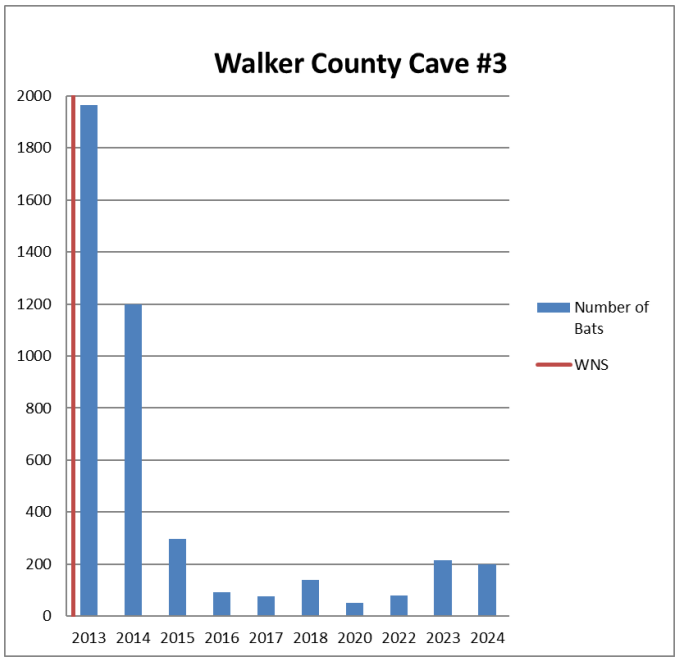


Figure 10. Bat counts at Walker County Cave #3

A tricolored bat with WNS.

Survey Date: March 6, 2024
Location: Dade County Cave #1
County: Dade
WNS Positive: 2013
Percent Population Decline from Peak: 89%

Surveyors: Emily Ferrall, Emma Downing, Ashley Hammer Trina Morris (DNR), and John Shelnutt, Brady Forrest and Obudiah Brooks (Georgia State Parks & Historic Sites)

Bats Observed
155 tricolored bats (*Perimyotis subflavus*)
36 gray bats (*Myotis grisescens)*
2 big brown bats (*Eptesicus fuscus*)

Notes
This is one of the first sites in Georgia confirmed positive for white-nose syndrome. The number of tricolored bats increased slightly in 2018 and have continued to rise through 2024. The number of gray bats, federally listed as endangered, remained stable this season. Some bats were seen with visible signs of WNS during the survey.

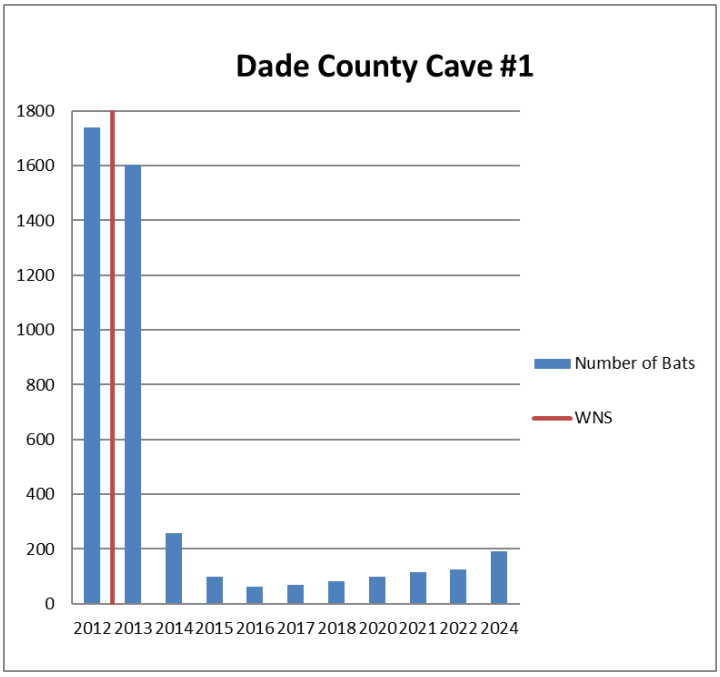


Figure 11. Bat counts at Dade County Cave #1

Surveying sites with high water is challenging.

Survey Date: March 7, 2024
Location: Walker County Cave #2
County: Walker
WNS Positive: 2014
Percent Population Decline from Peak: 87%

Surveyors: Emily Ferrall, Emma Downing, Ashley Hammer and Trina Morris (DNR), and Lester Reese (DNR volunteer)

Bats Observed
165 tricolored bats (*Perimyotis subflavus*)

Notes
Counts increased this year, reaching the second-highest total since WNS was confirmed in the cave in 2014. However, about 46% of bats checked for the disease had signs of WNS.

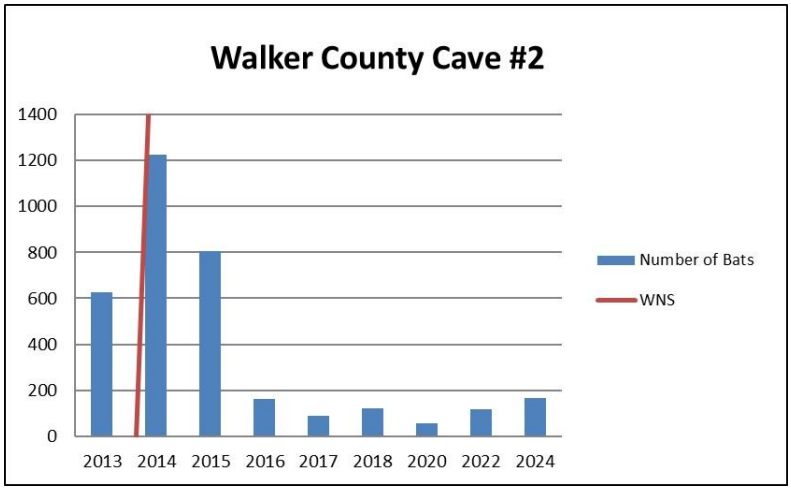


Figure 12. Bat counts at Walker County Cave #2

A DNR employee navigates a low passage in high water during a cave survey.

Survey Date: March 19, 2024
Location: Catoosa County Cave #1
County: Catoosa
WNS Positive: Unknown
Percent Population Decline from Peak: N/A

Surveyors: Emily Ferrall, Trina Morris (DNR) and Laci Pattavina (USFWS)

Bats Observed
25 tricolored bats (*Perimyotis subflavus*)
2 gray bats (*Myotis grisescens)*

Notes
DNR surveyed Catoosa County Cave #1 for the first time in 2024. The cave is a small one, but both tricolored and gray bats were observed. Few bats had visible signs of WNS.

Two gray bats seen during a cave survey.

Survey Date: Feb. 27, 2024
Location: Chattooga County Cave #1
County: Chattooga
WNS Positive: unknown
Percent Population Decline from Peak: N/A

Surveyors: Emily Ferrall, Ashley Hammer, and Emma Downing (DNR)

Bats Observed
20 tricolored bats (*Perimyotis subflavus*)

Notes
This cave is small and shallow. DNR does not regularly survey it but made a visit this winter to check on the colony and all bats observed appeared healthy with no visible signs of WNS.

DNR employees standing in water during a cave survey.

A note on survey outlooks:

Although bat numbers are low, the counts at north Georgia caves have remained relatively steady for the past few years. DNR will continue to conduct most cave surveys every other year and only visit sites that have active projects yearly. These projects consist of research studies and WNS disease treatment trials and monitoring. Culvert and bridge structures are also known winter roost sites and are especially important in areas of the state that do not have many caves. Understanding how bats use transportation structures seasonally is critical for considering future conservation measures for WNS-affected bat species in Georgia. Future survey efforts and monitoring for WNS will include natural cave systems as well as human-made hibernacula such as transportation structures.

Snapshots of winter bat surveys and tricolored bats hibernating.

Culvert Surveys

Although bats regularly use transportation structures as roosts, until 2018 no comprehensive surveys had been done in Georgia. Since then, DNR has been working to identify bridge and culvert structures that are important roost sites for bats. In collaboration with the Georgia Department of Transportation (DOT), DNR coordinates bridge and culvert surveys across the state each year.

There is concern that transportation structures may act as transmission corridors for WNS. Other Southeastern states have found large numbers of bats using culverts during the winter, and *Pd* has been detected in culverts during winter surveys. DNR surveyed 22 culverts during the winter of 2023-2024. Most site surveyed in previous years were either part of a graduate research project by the University of Georgia or for *Pd* monitoring in areas that had tested negative for the fungus.

DNR is continuing to monitor culvert sites with significant populations of bats annually and will survey new areas as staff can. No new WNS or *Pd* positive counties were identified this year, but DNR plans to continue sampling on the leading edge of WNS detections in future winters.

Research Collaboration

Experimental disease treatment efforts to combat white-nose syndrome concluded at Black Diamond Tunnel in January 2023, which marked the seventh consecutive year in which animal-safe, chemical compounds were evaluated for combating the fungal pathogen *Pseudogymnoascus destructans* (*Pd*). This cooperative effort between DNR, Kennesaw State University, the U.S. Fish and Wildlife Service, and the tunnel's landowner, represented one of the longest-running disease treatment efforts targeting WNS in the nation. Grant funding for the treatments concluded in 2023. The winter of 2023-2024 was the first time in seven years a treatment had not been used at the site.

Once home to over 5,000 tricolored bats, Black Diamond Tunnel was one of the species' largest, documented roosts until WNS decimated the colony, leaving a mere 152 surviving tricolored bats in 2017. The winter of 2023-2024, the first in recent history with no treatments at Black Diamond Tunnel, represented the site's highest count of tricolored bats since 2017, with 664 bats roosting in the tunnel. Despite the increase in counts, visible WNS growth on bats observed was more prevalent than in recent years and *Pd* swabs taken suggest potentially more severe infection rates than during seasons when treatment was ongoing. DNR will monitor the site in winter 2024-2025 to track the condition of the bats at the site and continue monitoring post-treatment impacts.

Learn more about WNS and Georgia DNR's response, monitoring efforts and related research at georgiawildlife.com/WNS. The website features an interactive version of this annual report.