

**CUYAHOGA VALLEY TOWPATH TRAIL CENSUS MONTHLY NEWSLETTER - AUGUST 2023**  
(CVTTC)

**HISTORY & FACTS of the AUGUST CENSUS**

AUGUST	13-YEAR TOTALS of SPECIES / INDIVIDUALS							
2010	2011	2012	2013	2014	2015	2016	2017	2018
60 / 612	52 / 697	55 / 1,445	60 / 1,736	62 / 1,109	63 / 946	64 / 796	66 / 574	68 / 662
2019	2020	2021	2022					
65 / 584	56 / 507	60 / 577	58 / 546					

Most Species seen in August : 68 on 08/03/2018.

Most Individual Birds seen in August : 1,736 on 08/03/2013.

Fewest Species seen in August : 52 on 08/06/2011.

Fewest Individual Birds seen in August : 507 on 08/07/2020.

Species Average in August : 60.7 Species.

Total Individuals Average in August : 830.0 Total Birds.

Lowest Temperature on August Census : 52-degrees F on 08/09/2014.

Highest Temperature on August Census : 92-degrees F on 08/06/2011 & 08/05/2016.

Longest Time Afield on August Census : 10 Hours on 08/02/2019 & 08/08-09/21.\*

Shortest Time Afield on August Census : 5 Hours & 30 Minutes on 08/06/2011.

\* = August 2021 Census was done over two days due to inclement weather prohibiting completion of Census Route in one day.

**LAST AUGUST'S FIELD REPORT**

08/06/22	<b>TOTAL SPECIES:</b>	58	<b>START / END TIME:</b>	5:55am - 3:05pm			
	<b>TOTAL BIRDS:</b>	546	<b>TIME AFIELD:</b>	10:10	<b>FT. MI.:</b>	13.85	
<b>ROUTE:</b>	Merriman Valley north to Red Lock (reverse of normal route) with stops at Szalay's Sweet Corn Farm & Market and Trail Mix in Boston.					<b>TEMP.:</b>	71F ~ 86F
<b>OBSERVERS:</b>	John Henry and Douglas W. Vogus.						
<b>CONDITIONS:</b>	Cloudy and humid early, turning mostly sunny, hot, and very humid.						
<b>TRAIL CONDITIONS:</b>	Very good - but dry and dusty.						
<b>RIVER CONDITIONS:</b>	Very low, lowest to date, with many exposed rockbars and sandbars, larger than usual with river being very clear. Most small feeder creeks either dry or just left with small pools of congregated fishes.						

Well, Travelers... I knew this day would come, but we have reached a month without anymore high species' counts for birds. The dog days of August in Ohio, which pretty much means, "what species are here - are here," the young birds have left their nests and dispersed and many birds haven't started to migrate. Not to worry. No birds - no problem! Let's move on to the mammals!

**FIVE YEARS AGO on the TOWPATH TRAIL**

On 08/03/2018 we set a census high with 6 Little Brown Myotis, commonly known as the "Little Brown Bat." August is a perfect time to observe them if we get to the start of the trail just before dawn and they are still out and actively feeding, at either Red Lock Trailhead or over Merriman Valley.

## AUGUST 2023's MAMMAL SPECIES PROFILE

### LITTLE BROWN MYOTIS (*Myotis lucifugus*)

**DESCRIPTION:** *The fur on a Little Brown Myotis is a sleek, glossy brown, ranging from dark brown to reddish brown on the back with slightly paler, grayish underparts. The wing membranes are dark brown. The muzzle is furred, and the ears are relatively short. Hairs on the toes extend beyond the claws, unlike the endangered Indiana Bat.*

**LENGTH:** 3 & 1/8" to 3 & 5/8"    **WING:** 8.7" to 10.6"    **WEIGHT:** 0.2 oz. to 0.5 oz.

**VOICE:** *Besides echolocation "clicks", this species produces warning "honks" when on a collision course with other bats during feeding or near roosts.*

**HABITS:** *Leaves daytime retreat at dusk, returns to roosting site just before dawn. Colonial. Feeds on insects on the wing near water or forests; flight erratic. In the North, most migrate south in the fall and go into hibernation in a cave or other suitable retreat. Although they become torpid, they do not go into a deep sleep. They wake an average of once every two weeks during hibernation and may fly about outdoors on warm winter nights, but without feeding. They store about 2 grams of fat as winter sustenance, using nearly three-quarters of it during winter awakenings and emergence. The remainder must sustain them through the winter.*

*It is thought that little brown bats prefer to feed on small-bodied aquatic insects (caddisflies and mayflies), midges, moths (including cutworm and corn borer pests), leaf hoppers and plant hoppers. They eat while flying, using their wingtips to "bounce" prey into their uropatagium (wing membrane) and then grab it with their mouth. Their estimated capture rate is one insect every seven seconds!*

**HABITAT:** *Areas along streams, rivers and lakes. In summer, forms nursery colonies, usually in buildings or other structures. In winter, hibernates in caves and mines in the East.*

**BREEDING:** *Mates in fall and sometimes again in winter or spring. Sperm remains in female's reproductive tract until spring, when eggs are fertilized. One pup, born late May to early July, usually in a building, occasionally in a hollow tree. Gestation period is about 80 days. Nursery colonies begin forming in April or May and disperse from late July through October. They may number in the thousands (one observed maternity colony had 6,700 individuals, others have had 4,000). Young are born naked; eyes to open in 2 to 3 days. The first two to three days after the young are born, their mothers suckle them constantly, except while foraging. Until they are ready to fly on their own, at about four weeks, the young remain in the roost while the mother hunts. Bats usually do not carry their young in flight. However, if disturbed, the mother may take flight with the young, carrying it crosswise, with the pup's mouth grasping one teat and its hindlegs tucked under the opposite armpit.*

**RANGE:** *Much of North America from middle Alaska south throughout most of Canada and United States except southern California and much of southeast and south-central U.S.*

**STATUS:** *Once thought to be the most common species in Ohio, their population size has declined dramatically due to habitat loss and White-nose Syndrome, a disease that directly affects bats' abilities to hibernate.*

**DID YOU KNOW?:** *White-nose Syndrome (WNS) has directly affected the Little Brown Myotis population right here in the Cuyahoga Valley National Park? The following excerpts are from an article written by Kathy Johnson for the park's "Conservancy" magazine.*

**THE STORY OF ICE BOX CAVE** - *Ice Box Cave, located in the Ritchie Ledges and aptly named for its cooler temperatures, has long been a favorite spot for park visitors to cool off on a hot summer day. When it closed to the public seven (now eleven) years ago there was a lot of confusion as to why. A sign posted outside the cave states the stark reality - bats are dying.*

*Bats get a bad rap as disease-carrying, blood-sucking creatures that attack humans when, in fact, bats are gentle mammals that are more threatened by humans than we are by them. With more than seven species of bats making their home in CVNP, recent efforts to help them survive and thrive have been instituted in areas where bats live, breed and hibernate.*

**WHITE NOSE SYNDROME** - *According to Ryan Trimbath, a biological science technician in CVNP, "In 2012 Summit County had its first confirmed case of White-nosed Syndrome (WNS), a disease of cave hibernating bats caused by a fungus," he said. "The fungus grows on the skin of the bats while they are hibernating, mainly on their wing membranes. Due to this we have seen a drastic decline in the number of cave hibernating bats in this area."*

*WNS, which was originally discovered in New York state in 2007, has spread to 36 additional states and five Canadian provinces and has had a devastating effect on this population of bats - killing millions of bats and wiping them out completely in some regions.*

*Meg Plona, a biologist who works in CVNP's resource management division, says WNS is a cold weather loving fungus characterized by a visible white growth on the bat's muzzle and wing tissue. "The fungus makes them itchy; kind of like poison ivy does in humans. It also causes dehydration," Plona said. "When bats are hibernating, their body systems slow down because they are storing energy. Any bit of movement or flying uses up energy stores and can have devastating effects." Hibernation, by design, is meant to keep the bats in a state of torpor (reducing the bat's temperature, heart and metabolic rate to help it survive the long winter). "Infected bats will display abnormal behaviors during their hibernation period which can lead them to wake up early and leave their roost to look for water," said Trimbath. "With little energy and no food supply in winter months, these confused bats may not make it back to their hibernation site and/or die of starvation in the process."*

*Ice Box Cave, a popular hibernation spot for little brown bats - one of the species most affected by WNS - was closed in an effort to reduce the spread of WNS and to keep people from inadvertently disturbing these bats during hibernation. "Anything that increases a bat's stress contributes to its chances of not surviving hibernation season," Trimbath said. "While WNS is mainly spread from bat-to-bat, people can also transport the fungal spores on their shoes or clothes from contaminated sites to new sites. WNS poses no threat to the health of humans."*

**DID YOU KNOW?:** Caves are included in the Cave Protection Act portion of the Ohio Revised Code 1517? This cave protection act ensures that cave life and habitat is conserved, including bats hibernating within them.

**DID YOU KNOW?:** The Little Brown Myotis's nitrate-rich guano was sold as fertilizer in the first half of the twentieth century?

**DID YOU KNOW?:** Mammals in Ohio, unlike birds, are permanent year-round residents? The only mammal species this does not apply to are bats (order Chiroptera), whose numbers can fluctuate, due to cold weather sending some species south or resident bats that go into hibernation. In winter, the Little Brown Myotis moves to winter roosts, called hibernacula, where they hibernate.

**History of the Little Brown Myotis on the Cuyahoga Valley Towpath Trail Census 2010 ~ present.**

	2010	2011	2012	2013	2014	2015	2016	2017
JAN.								
FEB.								
MAR.								
APR.								
MAY								
JUN.								
JUL.			<b>1</b>	<b>1</b>				
AUG.	<b>3</b>					<b>5</b>	<b>1</b>	<b>2</b>
SEP.								
OCT.								
NOV.								
DEC.								

	2018	2019	2020	2021	2022	2023
JAN.						
FEB.						
MAR.						
APR.						
MAY						
JUN.						
JUL.				<b>1</b>	<b>1</b>	
AUG.	<b>6*</b>	<b>1</b>		<b>1</b>	<b>1</b>	
SEP.				<b>3</b>		
OCT.						
NOV.						
DEC.						

**DID YOU KNOW?:**

One banded Little Brown Myotis was known to have lived more than 20 years?

**\*** = HIGHEST COUNT TOTAL ON CENSUS.  
**BOLD #** = HIGHEST COUNT FOR THAT YEAR.

**DID YOU KNOW?:**

Scientists have known since 2004 that wind farms kill bats, just as they kill birds, even though the flying mammals should be able to avoid them? Many biologists thought that the bats, like their avian counterparts, might be falling victim to the fast-spinning turbine blades. But an examination of 188 Hoary and Silver-haired Bats killed at a wind farm in southwestern Alberta in Canada between July and September in 2007 showed that nearly half showed no external injuries - as would be expected if the giant blades had smashed the animals to the ground. Instead, 90 percent of the 75 bats the researchers ultimately dissected had been killed by burst blood vessels in their lungs, according to results presented in "Current Biology" - suggesting that the air pressure difference created by the spinning windmills had terminated them, not contact with the blades. "As turbine height increases, bat deaths increase exponentially," says ecologist Erin Baerwald of the University of Calgary in Alberta, who led research into the deaths as part of her master's project. "What we found is a lot of internal hemorrhaging."

As the wind moves through a wind turbines blades, pressure drops behind them by five to 10 kilopascals (a pascal is a unit of pressure), and any bat unlucky enough to blunder into such an undetectable low pressure zone would find its lungs and blood vessels rapidly expanding and, quickly bursting under the new conditions. The Summerview Wind Farm, which Baerwald studied, kills hundreds of bats every year, particularly during the fall migration period that has just begun. But bats that find their way via sonar should have no trouble detecting fast-moving objects like the 200-foot-long blades on the 300-foot-tall turbines that spin as quickly as 160 miles per hour. And before the installation of these new, taller turbines bat kills had been practically nonexistent.

Pressure drops as low as 4.4 kilopascals kill common lab rats and all the bats autopsied showed internal damage and bleeding consistent with this type of death, known as barotrauma. "If bats have a lungful of air as they fly through the air-pressure change, there's nowhere for the air to go," Baerwald explains. "The small blood vessels around the lungs burst and fill the lungs with fluid and blood." This may also explain why, although some birds are killed by wind farms, the majority of the casualties are bats. Birds' lungs are much more rigid and their capillaries are stronger, making them capable of withstanding extreme pressure changes, according to Baerwald. Those birds that are killed typically show damage from being struck by the actual turbine blade. "This offers an explanation of why bats, once they come across these turbines, are so likely to end up dead," says research biologist Paul Cryan of the U.S. Geological Survey, who has studied the issue but was not involved in the study. But "we don't have a satisfying explanation for why we're seeing such large numbers of bats. It seems they're being attracted to turbines."

Wind farm owners are well aware of the problem - and the potential hit to their environmental credibility. The corporation that owns Summerview, TransAlta Wind, along with ENMAX, Suncor Energy, Alberta Wind Energy and even Shell Canada teamed up with Austin, Texas-based Bat Conservation International to fund this study led by Baerwald. (TransAlta did not return calls for comment.) It's unclear what measures, if any, can be taken to eliminate this pressure problem other than stopping turbines from spinning during times of lighter winds at night when bats tend to be most active. Of course, that would also curtail their electricity production: An experiment in August 2007 that stopped 19 of Summerview's turbines when winds fell below 18 feet per second cost TransAlta at least \$50,000 in lost electricity production.

*In the future, bat conservationists suggest wind farms should be built away from known bat migration flight paths. The problem is: bat migrations are poorly understood at best. "We don't even know if they use migratory routes," Baerwald says, though she plans on looking for them in September. "We don't have a clear idea of what a bad site for wind turbines is in terms of bat fatalities," Cryan adds. "We're not to the point yet where we can suggest solutions." The full impact of these bat-killing pressure zones extends far beyond the wind farm, however. Such migrating bats travel from Canada as far as Mexico, eating thousands of insects en route, including crop pests such as moths and beetles. "They are one of the only things that fly around at night and eat bugs," Baerwald notes. "Bats killed in Canada could have a detrimental impact in America or Mexico. It's not local. It's an ecosystem-wide issue."*

*by David Biello*

### **WHY BATS ARE INSANELY ATTRACTED TO WIND TURBINES?**

*Recent studies have reported large numbers of bats being killed at wind farms in many parts of North America and Europe. Project monitoring has also discovered significant bat mortality at the Mexico La Venta II wind farm. Bat kills at wind farms were first discovered in Australia. Small numbers of bats were first recorded in the United States at wind power projects in California during bird monitoring. Some time ago, an estimated 1,400 - 4,000 bats were recorded as killed during 2008 at the Mountaineer Wind Energy Center in West Virginia. High bat mortality at that site has continued since then. The frequency and number of bat kills at wind turbines are much greater than for any other type of human-built structure.*

*Many species of bats appear to be significantly attracted to wind turbines for reasons that are still poorly understood. Here we're going to try to summarize the more plausible scientific hypotheses that have been advanced to date. By contrast, birds are not normally attracted to wind turbines, and simply collide with them by accident. The Eastern Red Bat (*Lasiurus borealis*) is typical of the migratory, tree-roosting bat species that are frequent casualties at some wind farms in North America.*

### **9 HYPOTHESES FOR BAT ATTRACTION TO WIND FARMS**

*Various scientific hypotheses have been proposed as to why bats are seemingly attracted and/or fail to detect wind turbines. The more plausible hypotheses include the following:*

**1.) Auditory Attraction:** *Bats may be attracted to the audible "swishing" sound produced by wind turbines. Museum collectors seeking bat specimens have used long poles that were swung back and forth to attract bats and then knock them to the ground for collection. It is not known if these bats were attracted to the audible "swishing" sound, the movement of the poles, or both factors.*

**2.) Electromagnetic Field Disorientation:** *Wind turbines produce complex electromagnetic fields which may cause bats in the general vicinity to become disoriented and continue flying close to the turbines.*

**3.) Insect Attraction:** *As flying insects may be attracted to wind turbines, perhaps due to their prominence in the landscape, white color, lighting sources, or heat emitted from the nacelles, bats would be attracted to concentrations of prey.*

**4.) Heat Attraction:** Bats may be attracted to the heat produced by the nacelles of wind turbines because they are seeking warm roosting sites.

**5.) Roost Attraction:** Wind turbines may attract bats because they are perceived as potential roosting sites.

**6.) Lek Mating:** Migratory tree bats may be attracted to wind turbines because they are the highest structures in the landscape along migratory routes, possibly serving as rendezvous points for mating.

**7.) Linear Corridor:** Wind farms constructed along forested ridge-tops create clearings with linear landscapes that may be attractive to bats.

**8.) Forest Edge-Effect:** The clearings around wind turbines and access roads located within forested areas create forest edges. At forest edges, insect activity might well be higher, along with the ability of bats to capture insects in flight. Resident bats as well as migrant bats making stopovers may be similarly attracted to these areas to feed, thus increasing their exposure to turbines and thus mortality from collision or barotrauma.

**9.) Thermal Inversion:** Thermal inversions create dense fog in cool valleys, thus concentrating both bats and their insect prey on ridge-tops.

In North America, migratory bat species have been found dead at wind farms much more frequently than the resident (non-migratory) species, even in areas where the resident are more common throughout the summer. Eleven of the 45 species of bats that occur in North America north of Mexico have been found dead at wind farms, but most studies report that the mortality rate is heavily skewed towards migratory, tree-roosting species such as Hoary Bat (*Lasiurus cinereus*), Eastern Red Bat (*Lasiurus borealis*), and Silver-haired Bat (*Lasionycteris noctivagans*). While these three species are not listed as threatened or endangered under the U.S. Endangered Species Act, they are classified as of Special Management Concern at the provincial level in Canada. Although the globally endangered Indiana Bat (*Myotis sodalishas*) has not yet been found dead at wind farms, potential new wind farms within this species' remaining strongholds could possibly threaten it.

In Europe, 19 of the 38 species of bats found within the European Union have been reported killed by wind turbines. Although migratory species are among the most numerous casualties, resident bats are also killed in substantial numbers, particularly in forested areas. Turbine-related bat mortality has been found in every European country in which bat monitoring has been done, except for Poland where no dead bats were found during monitoring at two sites. The highest numbers of bat fatalities have been found in Germany and France, which is almost certainly due to the more extensive monitoring carried out in those countries.

Bats are worth billions to the agriculture industry due to their natural control of pests. Unfortunately, wind power poses a risk to bats due to their potential for them being struck by spinning turbine blades. EPRI is working with We Energies to demonstrate a specialized technology that uses ultrasonic microphones to detect the presence of bats. If the microphones

*pick up the high-pitched squeaks and clicks bats make, the turbines will automatically shut down and re-start when the bats are out of range. The project is focused on reducing bat mortality at wind farms while avoiding long-term curtailments and maximizing electricity production.*

*In Latin America, 19 bat species were represented among the 123 individual bats found dead under wind turbines in 2007-2008 at the La Venta II project in southern Mexico. In 2009, twenty different bat species were involved (INECOL 2009). Thirteen of these species were insectivores, while two feed mainly on nectar, and two on fruit. The most commonly killed species, Davy's Naked-backed Bat (*Pteronotus davyi*), is thought to be resident in the area, although some other frequently killed species at La Venta II are considered to be migratory. Interestingly, despite the enormous concentrations of migratory birds that pass over or through the La Venta wind farm (over 1 million per year), monitoring data from INECOL show a larger number of bats are being killed there than birds.*

*Roberto G. Aiello  
George C. Ledec  
Keenan W. Rapp*

**DID YOU KNOW?:** *Bats inhabit most of the temperate and tropical regions of the world, except for a few remote islands? Bats are exceeded only by rodents as the most numerous mammals, both in number of species and number of individuals. Chiroptera is the second-largest order, with 17 families and 295 species worldwide. Four families with 46 known species occur in North America north of Mexico.*

**DID YOU KNOW?:** *The only mammals that can truly fly, bats probably evolved from primitive shrew-like creatures that lived in trees and whose forelimbs eventually evolved to become wings (the order name Chiroptera means "flying hand").*



*Cards stacked against them - an undeserved bad reputation, White-nose Syndrome (WNS) and now (WFS?), what I'll call "Wind Farm Syndrome," the highly beneficial Little Brown Myotis needs all the help it can get!*

*(photo by: Jason Corbett)*





*The closed Ice Box Cave entrance at the Ritchie (Kendall) Ledges, all for the betterment of the Little Brown Myotis.*

*(photo by: Michelle Vogus)*



*Say goodbye to the skyline - the cost of energy comes in many forms. Visible for miles, a permanent scar on the land, and trouble for both birds and bats, the Black Rock Wind Farm in West Virginia is quite the gauntlet to run (fly).*

*(photo by: West Virginia Economic Development)*

