Indiana Bat (*Myotis sodalis*): 2024 Population Status Update

- 2024 Range-wide Population: 631,786 Indiana bats within 194 hibernacula in 15 states
- % Change in Range-wide Population since 2007 (i.e., since arrival of WNS in NY): -2.8%
- States with Largest Net Change of Indiana Bats from 2007 to 2024:

GAINS			LOSSES		
1. Missouri:	39,093	(+20%)	1. New York:	-37,977	(-72%)
2. Illinois:	30,118	(+57%)	2. Kentucky:	-21,387	(-30%)
3. Arkansas:	5,529	(+304%)	3. West Virginia:	-14,556	(-99%)
4. Virginia:	44	(+6%)	4. Ohio:	-6,906	(-90%)
			5. Tennessee:	-6,588	(-74%)
			6. Indiana:	-3,411	(-1.4%)
			7. Pennsylvania:	-1,036	(-99.8%)
			8. New Jersey:	-617	(-94%)

- 3 Most Populous States in 2024: Missouri (237,733), Indiana (234,657) and Illinois (83,304)
- Number of Hibernacula classified by Current Population Status:
  - "Extant" (≥1 *M. sodalis* documented within past 10 yrs.): 327
  - "Historic" (surveys conducted within past 10 yrs., but no *M. sodalis* observed): 132
  - "Uncertain" (old records exist, but site hasn't been surveyed within past 10 yrs.): 113
- Total Number of Hibernacula with 1 or more *M. sodalis* ever recorded: 572
- States with most Hibernacula: KY (127), MO (98), TN (63), AR (44), WV (40), and IN (39)

TABLE 1. Top 10 Largest Indiana Bat Hibernacula (out of 194) in 2024.

Hibernaculum Name	State	2024 Pop. Size	% of 2024 Pop.	% Change from 2022.
1. Sodalis Nature Preserve	MO	222,129	35	+9
2. Wyandotte	IN	103,206	16	+19
3. Jug Hole	IN	99,695	16	+7
4. Magazine Mine	IL	80,530	13	+17
5. Bat (Carter Caves)	KY	18,237	3	-12
6. Barton Hill Mine	NY	14,520	2	+23
7. Saltpeter (Carter Caves)	KY	12,117	2	+12
8. Ray's	IN	10,898	2	-30
9. Cave Mountain	AR	7,066	1	+60
10. Cave Hollow	KY	6,825	1	+18
All Others Combined (n=184)	Multiple	56,563	9	-7
Totals		631,786	100	

TABLE 2. Percentage of 2024 Range-wide Population by Hibernaculum Priority Number.

Priority Number	# of Sites	2024 Population Size	% of 2024 Range-wide Pop.
P1A	9	566,062	89.6
P1B	18	6,610	1.0
P2A	31	51,617	8.2
P2B	30	1,218	0.2
P3	173	5,955	0.9
P4	311	324	0.2
Totals	572	631,786	100

P1A = recorded pop. ≥10,000 bats with ≥5,000 over past 10 yrs.; P1B = recorded pop. ≥10,000 bats with <5,000 over past 10 yrs.; P2A = recorded pop. ≥1,000 bats with ≥500 over past 10 yrs.; P2B = recorded pop. ≥1,000 bats with <500 over past 10 yrs.; P3 = recorded pop. ≥50 bats; P4 = recorded pop. <50 bats.

TABLE 3. 2024 Population Estimates for the Indiana Bat (*Myotis sodalis*) by USFWS Region

Estimates are primarily based on winter surveys conducted in January and February of 2024 at known Priority 1 & 2 hibernacula throughout the species' range. Additional data from Priority 3 and 4 hibernacula were included when available.

USFWS Region	State	2015	2017	2019	2022	2024	% Change from 2022	% of 2024 Total
Region 2	**Oklahoma**	**5**	**8**	**8**	**8**	**0**	**-100.0%**	**0.0%**
Region 3	Missouri	201,615	217,884	197,160	218,007	237,733	9.0%	37.6%
	Indiana	185,720	180,611	184,847	219,459	234,657	6.9%	37.1%
	Illinois	69,924	81,143	78,426	73,994	83,304	12.6%	13.2%
	Ohio	4,809	2,890	2,890	1,445	723	-50.0%	0.1%
	Michigan	20	20	20	20	20	0.0%	0.0%
	Total	**462,088**	**482,548**	**463,343**	**512,925**	**556,437**	**8.5%**	**88.1%**
Region 4	Kentucky	64,599	58,057	55,953	49,498	49,779	0.6%	7.9%
	Arkansas	1,398	1,722	2,749	4,989	7,350	47.3%	1.2%
	Tennessee	4,952	2,567	2,397	2,142	2,318	8.2%	0.4%
	Alabama	89	85	90	101	84	-16.8%	0.0%
	Georgia	0	1	0	0	0	-	-
	Total	**71,038**	**62,432**	**61,189**	**56,730**	**59,531**	**4.9%**	**9.4%**
Region 5	New York	15,564	12,693	13,412	12,472	14,802	18.7%	2.3%
	Virginia	601	495	648	806	767	-4.8%	0.1%
	West Virginia	2,373	1,076	620	181	189	4.4%	0.0%
	Vermont	53	19	19	17	16	-5.9%	0.0%
	Pennsylvania	24	23	11	4	2	-50.0%	0.0%
	New Jersey	193	118	79	42	42	0.0%	0.0%
	Total	**18,808**	**14,424**	**14,789**	**13,522**	**15,818**	**17.0%**	**2.5%**
Range-wide Total:		**551,939**	**559,412**	**539,329**	**583,185**	**631,786**	**8.3%**	**100.0%**
	2-yr. Net Change:		**7,473**	**-20,083**	**43,856**	**48,601**		
	2-yr. % Change:		1.4%	-3.6%	8.1%	8.3%		

NOTE: *The USFWS considers these population estimates to be the best available data for this species. However, we also recognize that some of these data contain an undeterminable, but potentially significant and varible degree of error from one year to the next. Bat population estimation error is attributable to multiple factors including variable detectability of bats roosting within different hibernacula settings, some unknown number of bats using unknown/undocumented winter roost sites, and biologists using somewhat different survey techniques in different states. Bat biologists began widely using digital photography as a primary winter survey technique in 2007 and 2009 because it improves overall accuracy and reduces surveyor-associated error over traditional techniques. The USFWS has increased confidence in the accuracy of the population estimates subsequent to the use of digital photography. The USFWS asks data users to be cognizant of the limitations of these population data and to take proper precautions when interpreting and presenting population trends through time.*

Compiled by Andy King (andrew_king@fws.gov), U.S. Fish and Wildlife Service, Indiana Ecological Services Field Office from data gathered from bat biologists throughout the species' range.

For additional information regarding the Indiana bat… https://www.fws.gov/species/indiana-bat-myotis-sodalis

TABLE 4. 2024 Population Estimates for the Indiana Bat (*Myotis sodalis*) by Recovery Unit

Estimates are primarily based on winter surveys conducted in January and February of 2024 at known Priority 1 & 2 hibernacula throughout the species' range. Additional data from Priority 3 and 4 hibernacula were included when available.

IBat Recovery Unit	State	2015	2017	2019	2022	2024	% Change from 2022	% of 2024 Total
Ozark-Central	Missouri	201,615	217,884	197,160	218,007	237,733	9.0%	37.6%
	Illinois	69,924	81,143	78,426	73,994	83,304	12.6%	13.2%
	Arkansas	1,398	1,722	2,749	4,989	7,350	47.3%	1.2%
	Oklahoma	5	8	8	8	0	-100.0%	0.0%
	Total	**272,942**	**300,757**	**278,343**	**296,998**	**328,387**	**10.6%**	**52.0%**
Midwest	Indiana	185,720	180,611	184,847	219,459	234,657	6.9%	37.1%
	Kentucky	64,599	58,057	55,953	49,498	49,779	0.6%	7.9%
	Ohio	4,809	2,890	2,890	1,445	723	-50.0%	0.1%
	Tennessee	2,401	1,587	1,562	1,543	1,708	10.7%	0.3%
	Alabama	89	85	90	101	84	-16.8%	0.0%
	SW Virginia	137	70	119	128	121	-5.5%	0.0%
	Michigan	20	20	20	20	20	0.0%	0.0%
	Georgia	0	1	0	0	0	-	-
	Total	**257,775**	**243,321**	**245,481**	**272,194**	**287,092**	**5.5%**	**45.4%**
Appalachia	Virginia	464	425	529	678	646	-4.7%	0.1%
	E. Tennessee	2,551	980	835	599	610	1.8%	0.1%
	W. Virginia	2,373	1,076	620	181	189	4.4%	0.0%
	Pennsylvania	24	23	11	4	2	-50.0%	0.0%
	Total	**5,412**	**2,504**	**1,995**	**1,462**	**1,447**	**-1.0%**	**0.2%**
Northeast	New York	15,564	12,693	13,412	12,472	14,802	18.7%	2.3%
	Vermont	53	19	19	17	16	-5.9%	0.0%
	New Jersey	193	118	79	42	42	0.0%	0.0%
	Total	**15,810**	**12,830**	**13,510**	**12,531**	**14,860**	**18.6%**	**2.4%**
Range-wide Total:		**551,939**	**559,412**	**539,329**	**583,185**	**631,786**	**8.3%**	**100.0%**
	2-yr. Net Change:		**7,473**	**-20,083**	**43,856**	**48,601**		
	2-yr. % Change:		1.4%	-3.6%	8.1%	8.3%		

NOTE: *The USFWS considers these population estimates to be the best available data for this species. However, we also recognize that some of these data contain an undeterminable, but potentially significant and varible degree of error from one year to the next. Bat population estimation error is attributable to multiple factors including variable detectability of bats roosting within different hibernacula settings, some unknown number of bats using unknown/undocumented winter roost sites, and biologists using somewhat different survey techniques in different states. Bat biologists began widely using digital photography as a primary winter survey technique in 2007 and 2009 because it improves overall accuracy and reduces surveyor-associated error over traditional techniques. The USFWS has increased confidence in the accuracy of the population estimates subsequent to the use of digital photography. The USFWS asks data users to be cognizant of the limitations of these population data and to take proper precautions when interpreting and presenting population trends through time.*

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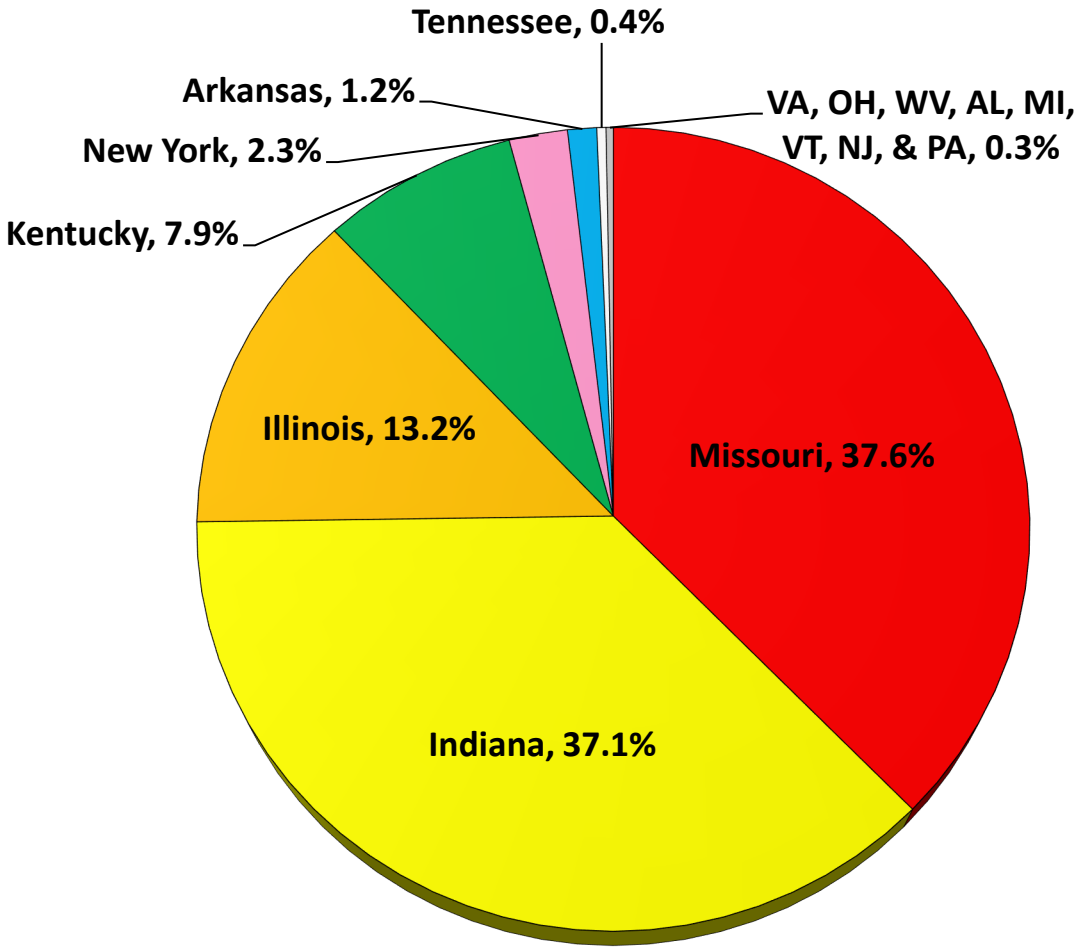

FIGURE 1. Percentage of the 2024 Indiana bat range-wide population (approx. 631,786 bats) hibernating within each state.

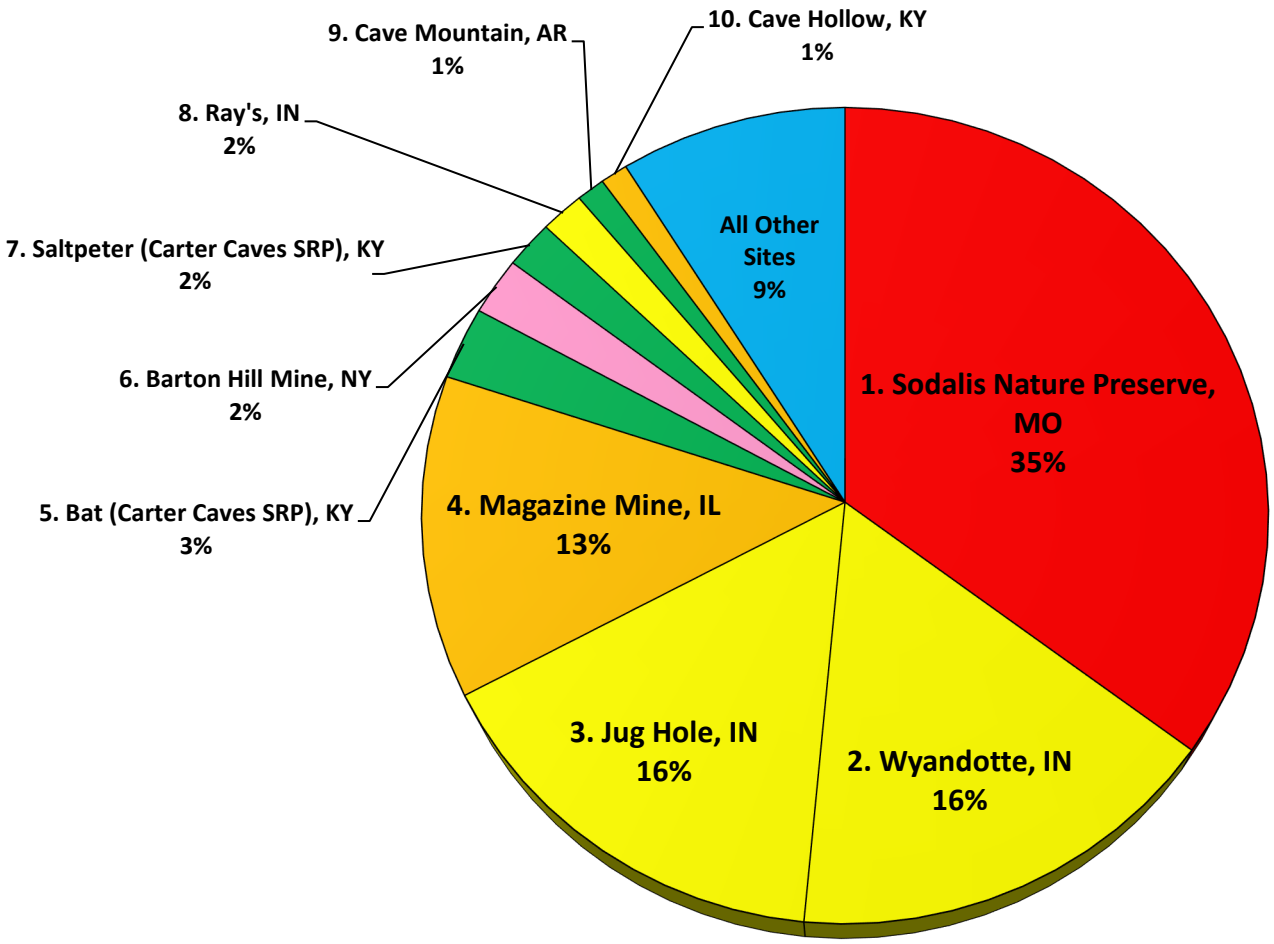

FIGURE 2. Percentage of the 2024 Indiana bat range-wide population (approx. 631,786 bats) hibernating within the ten largest hibernacula (color-coded by state).

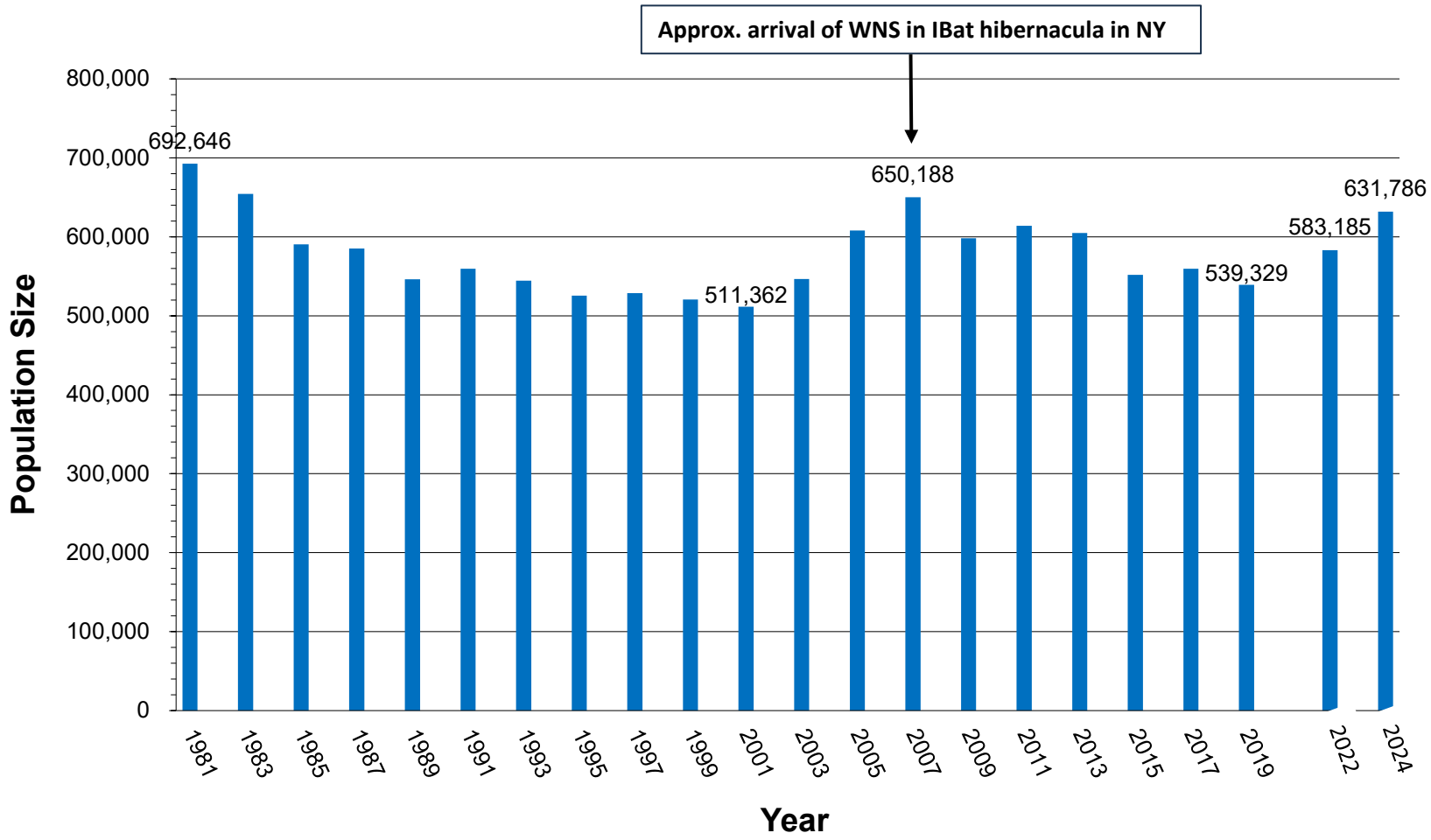

FIGURE 3. Range-wide Indiana bat population estimates from 1981 to 2024.

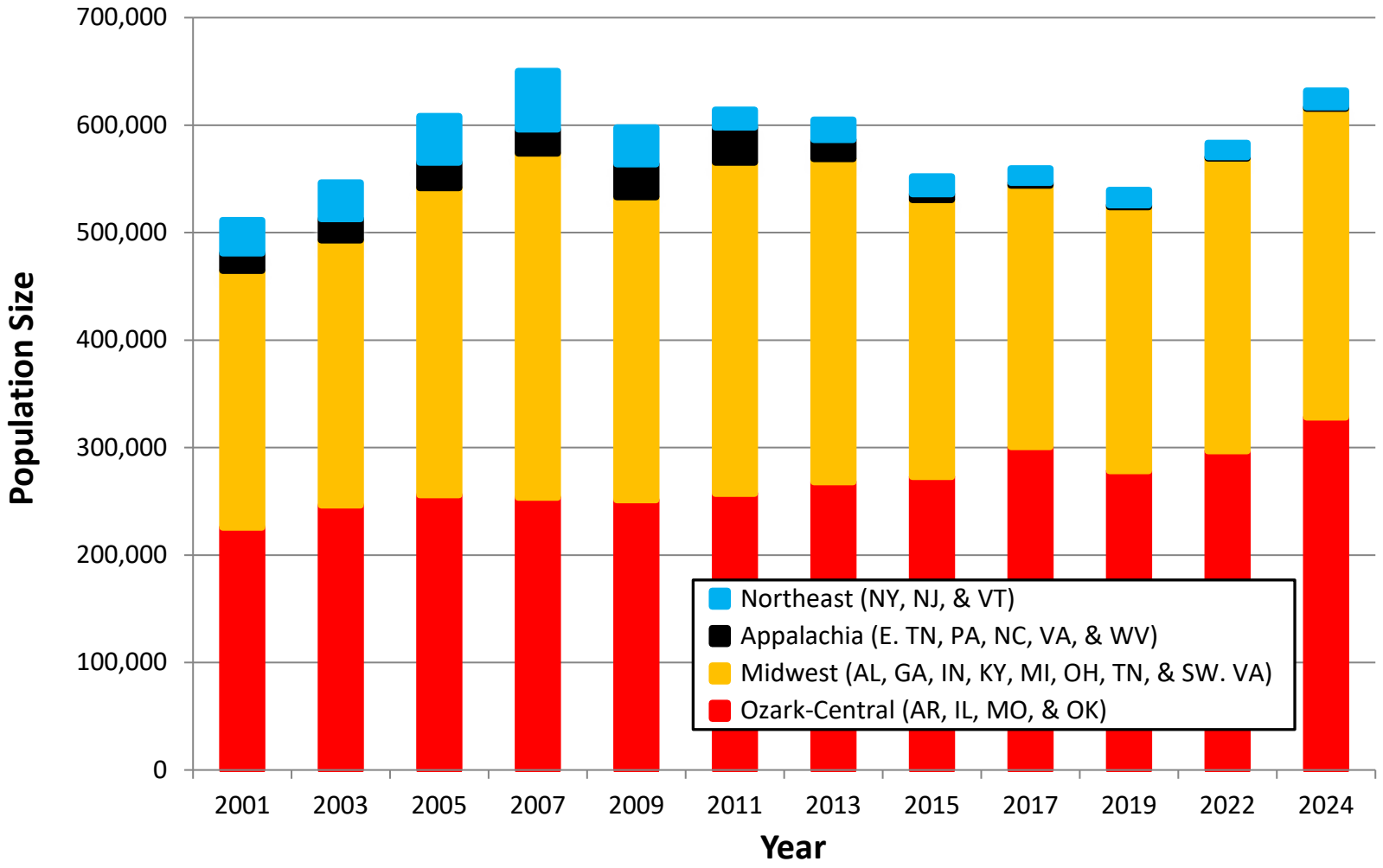

FIGURE 4. Indiana bat population estimates by recovery unit from 2001 to 2024.

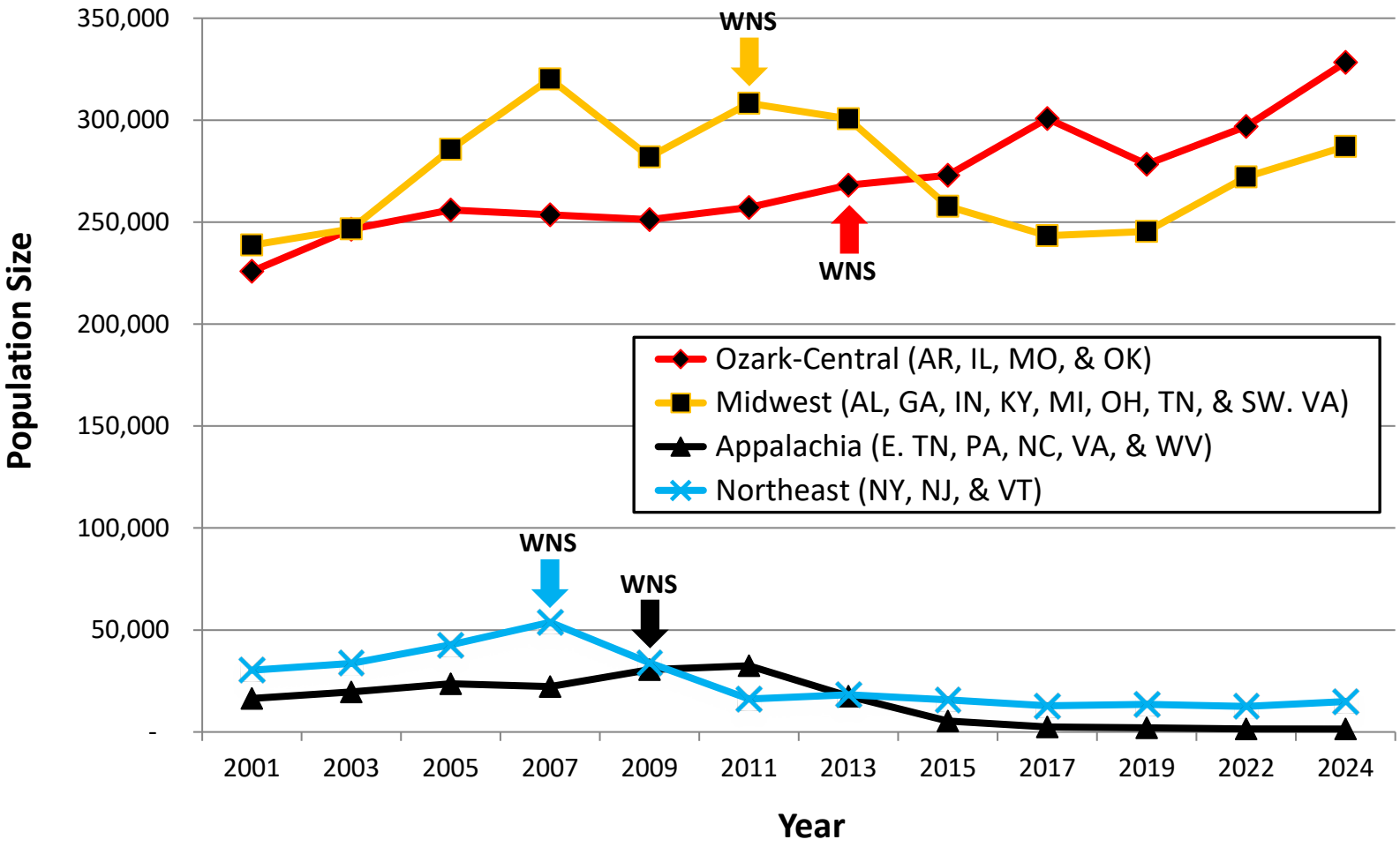

FIGURE 5. Indiana bat population estimates by recovery unit from 2001 to 2024.
(color-coded arrows depict approx. time of arrival of white-nose syndrome within multiple MYSO sites in each RU).

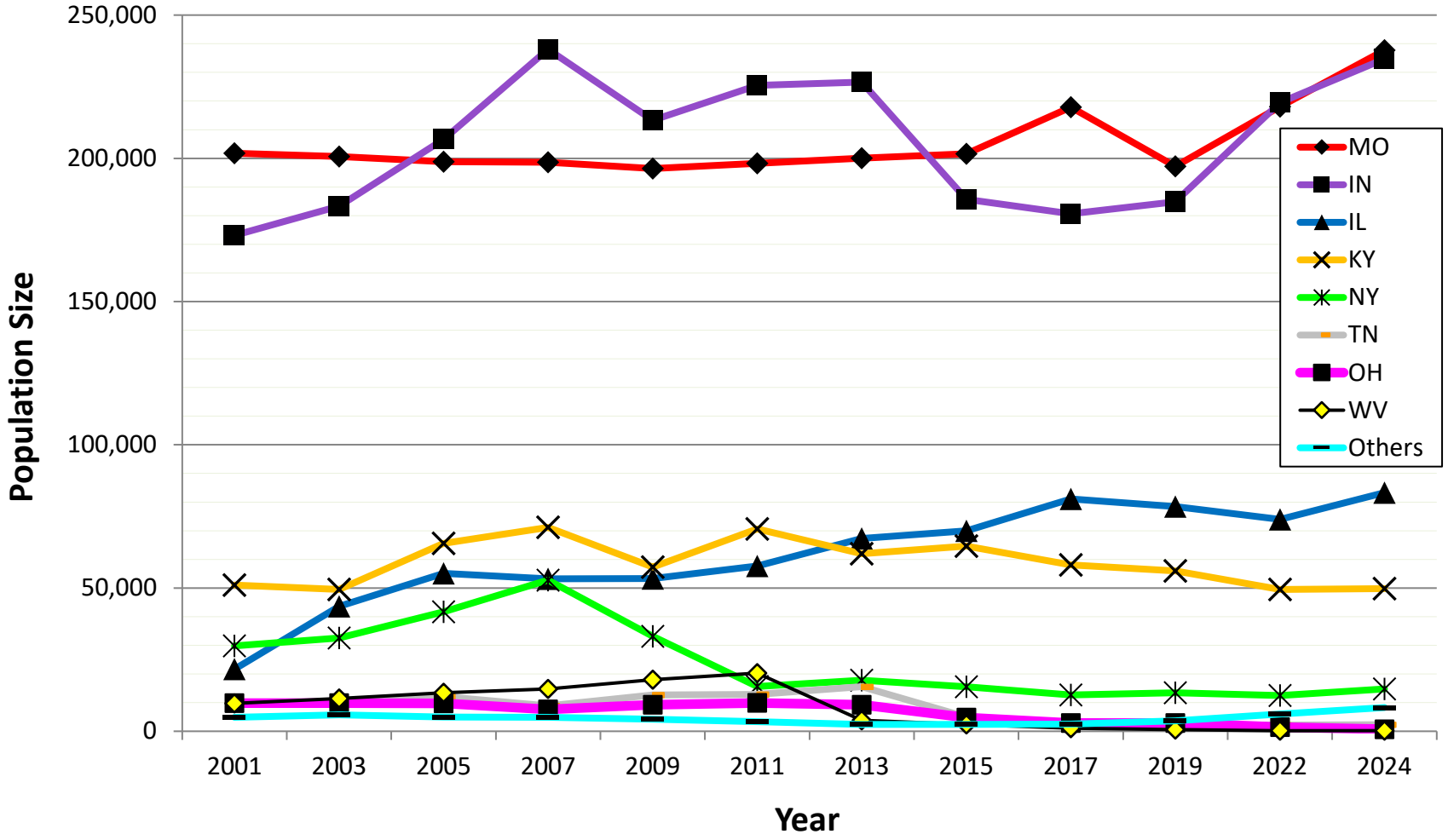

FIGURE 6. Indiana bat population estimates by state from 2001 to 2024.

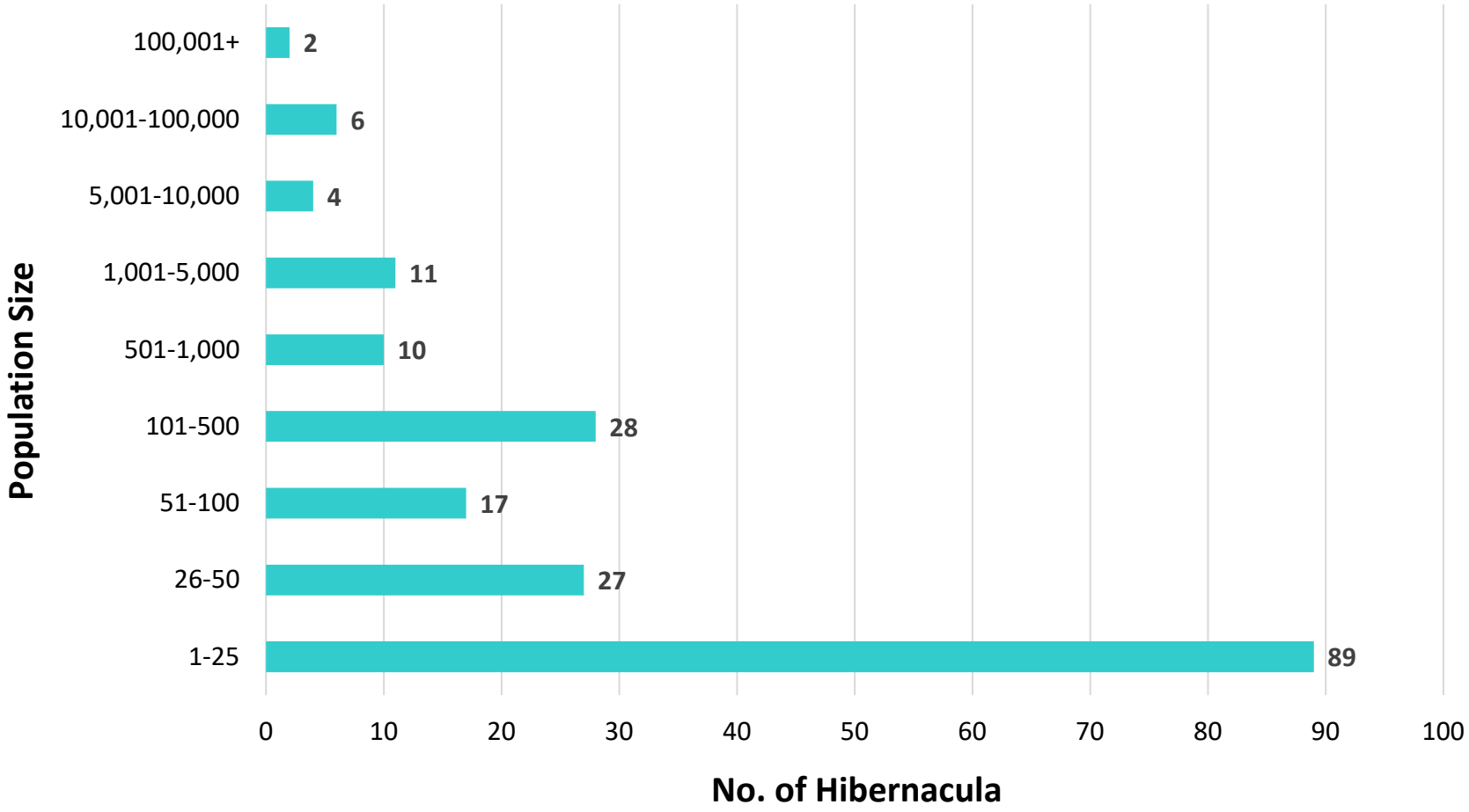

FIGURE 7. Indiana bat population distribution among hibernacula (caves and mines) with one or more bats (n=194) in 2024.