

THE MAMMALS OF NORTH CAROLINA

Third Approximation

Harry LeGrand (Species Accounts)
Lisa Gatens (Records Review Editor)
Ed Corey (Records Review Editor)
Tom Howard (Website Administrator)

April 2022

This material is the Third Approximation account of the species of mammals of North Carolina; the previous (Second) Approximation was prepared in 2017. It is not considered to be a "publication". It is intended to be a guide or "handbook" for mammal enthusiasts, as there is no recent published book on the county distribution of mammals in North Carolina. Much of the distribution information is based on data gathered at the N.C. Museum of Natural Sciences and published as "A Distributional Survey of North Carolina Mammals", by Lee, Funderburg, and Clark, in 1982 (see Suggested References). Since then, the other major publication on mammals in North Carolina was "Mammals of the Carolinas, Virginia, and Maryland", by Webster, Parnell, and Biggs (1985).

As can be seen from the dates of the above publications, there has been a scarcity of information on the distribution and abundance of the mammals in the state over the last 37 years. There have been a number of field guides and reference books published in the several decades – e.g., Whitaker and Hamilton 1998; Bowers et al., 2004; Reid 2006; Kays and Wilson 2009 -- with range maps, but these are for the entire mammal fauna over the eastern half of the continent or the entire continent, and the range maps are small and with generalized shaded colors.

Note that this website and this Third Approximation are not intended to be a compilation of all records for mammal species in the state. For example, there are thousands upon thousands of records in various museum and university specimen collections and on various game species websites or databases, as well as photos and videos on more recent websites such as iNaturalist and eMammal. The intended purpose of the records is to show the range of a species in the state, at the county level only. The website shows the level of confirmation (such as specimen, photo, sight record) for the county. It is our goal to obtain the highest levels of confirmation (specimen in a museum or a published photo) in a county; for many mammal species, sight identification can be difficult, as many species of mice or shrews, for example, are easily confused to the naked eye, and the majority of the species are active only at night or twilight. Nonetheless, sight reports are useful for delineating the ranges of many species, at least for easily identified ones. Even so, each report of a species entered on the Mammals of North Carolina website – through the website's Enter Record portal as well as from other website databases – is reviewed for likelihood of correct identification; we hope that nearly all such reports will be accepted by the authors and editors of this website.

Unlike on the website, which uses color combinations for county records, the Third Approximation and the individual species PDF pages have range maps only with black symbols in a county. Symbols are a solid black dot for a terrestrial species that is still extant in the state, and "x" for a species that is considered to be extirpated from the state. For species of the oceans and sounds, the dot symbol is replaced by a black square just off the county's coastline (for a stranding or record from the immediate coast), or a black rectangle for a region of the open ocean. A square is also used for such an aquatic species in a sound or other "inland" setting.

The common and scientific names follow those on the website of "Mammal Species of the World: Third edition" by Wilson and Reeder; this list has been followed by Kays and Wilson (2009). The ordering of species in this approximation follows the sequence of mammals of North America found on the Wikipedia website. Information about the life history of the state's 124 species of mammals (plus four others reported in the literature without documentation) are based in part on the field experience of the senior author (LeGrand), and in part on three excellent and recent field guides – Bowers et al. (2004), Reid (2006), and Kays and Wilson (2009); this information is given under several headings on each species account.

One purpose of this document is to encourage the reporting of sightings or other records of rare species to the Natural Heritage Program. This Program keeps computerized records on these rare species, in hopes of arranging protection for them. Rare species are noted by the "NC Status" and "US Status" lines beneath each species' range; see Page v of this document for rarity codes.

There has never been a statewide mammal organization or club in the state, with a journal for publication of noteworthy records, photos, and various studies. Instead, mammal enthusiasts have tended to be specialists in certain families or other mammal groups, instead of being "generalists" across all taxa as are most bird enthusiasts. Thus, there

has been a group of biologists and researchers conducting bat research through mist-netting and cave surveys; another group that studies whales, dolphins, and seals, both offshore and through strandings; another group that conducts trapping studies on small mammals such as shrews, moles, and small rodents; another group gathering mammal data with mounted wildlife cameras (“critter cams”); and another group, such as hunters and trappers, that are concerned mainly with game species such as carnivores, deer, and squirrels. It is hoped that the website and this publication can help to bring these groups of enthusiasts together.

Much still remains to be learned about the distributions and life histories of the mammal species in the state. This is especially prevalent for small species such as mice and shrews, for which there are few researchers in the state, and for which the average citizen would not be able to observe or identify for certain and thus supply the website with records. Thankfully, there is not an obvious geographical bias in the range maps for most species; for some animal groups, there is a tendency for more records from the more heavily populated counties, or counties along the coast. Even so, the mountains, the eastern Piedmont, the Sandhills, and the coastal counties tend to be more heavily studied than are counties in much of the central and western Piedmont, and the inner and central Coastal Plain. From the list in Appendix B, it is easy to pick out the counties that have had little mammal field work or observations.

• SUGGESTED REFERENCES •

Bowers, N., R. Bowers, and K. Kaufman. 2004. *Kaufman Focus Guides: Mammals of North America*. Houghton Mifflin Co., New York, NY.

Kays, R.W., and D.E. Wilson. 2009. *Princeton Field Guides: Mammals of North America, Second edition*. Princeton University Press, Princeton, NJ.

Lee, D.S., J.B. Funderburg, Jr., and M.K. Clark. 1982. *A Distributional Survey of North Carolina Mammals*. Occasional Papers of the North Carolina Biological Survey: 1982-10.

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Reid, F.A. 2006. *Peterson Field Guides: A Field Guide to Mammals of North America north of Mexico*. Fourth edition. Houghton Mifflin Company, New York.

Webster, W.D., P.D. Goley, J. Pustis, and J.A. Gouveia. 1995. *Seasonality in Cetacean Strandings along the Coast of North Carolina*. *Brimleyana* 23:41-51.

Webster, W.D., J.F. Parnell, and W.C. Biggs, Jr. 1985. *Mammals of the Carolinas, Virginia, and Maryland*. University of North Carolina Press, Chapel Hill.

Whitaker, J.O., Jr., and W.J. Hamilton, Jr. 1998. Comstock Books: *Mammals of the Eastern United States*. Comstock Publishing Associates, Ithaca, NY.

Wilson, D.E., and D.M. Reeder (editors). 2005. *Mammal Species of the World. A Taxonomic and Geographic Reference, 3rd Edition*. Johns Hopkins University Press, Baltimore, MD.

• WEBSITES AND DATABASES •

eMammal. This website is “a data management system and archive for camera trap research projects”. Gleaning North Carolina records from this website can be somewhat tedious, though there are several NC projects linked to this website, such as North Carolina’s Candid Critters.

[Map of Projects | eMammal \(si.edu\)](#)

iNaturalist. This website contains over 90,000,000 observations (as of March 2022) – all documented with photos submitted by the public – of plants and animals around the world. The site contains records for most mammal species in North Carolina.

[A Community for Naturalists · iNaturalist](#)

North Carolina Museum of Natural Sciences -- online collections database. Detailed data for each specimen in the museum’s collections, arranged by major taxa, such as Mammalogy.

[Mammalogy Collection \(naturalsciences.org\)](#)

Smithsonian Institution National Museum of Natural History – online collections database. Detailed data for each specimen in the museum’s collections, arranged by major taxa. The mammal collections now specialize in marine species – the cetaceans and seals; few specimens of terrestrial mammals have been added in recent decades.

Smithsonian Collections

Wikipedia: List of Mammals of North America. A listing of the species of mammals of North America, by family, with IUCN conservation statuses, and Endangered Species Act status, updated frequently on the Wikipedia website. Each species has an active link to a full species account on Wikipedia.

List of mammals of North America - Wikipedia

• **ORGANIZATIONS** •

American Society of Mammalogists

This is the primary organization in the country for people interested in mammals. The organization publishes 6 issues a year of the *Journal of Mammalogy*, one of the premier natural history publications, as it contains scientific articles/papers on mammals around the world.

American Society of Mammalogists (mammalsociety.org)

• **ACKNOWLEDGMENTS** •

A number of people have contributed several dozen or more records to this compilation, either directly through data entry into the website, or through data entry done by the authors. A few people are hereby acknowledged for other contributions to the website, such as review of records or species ranks. The authors wish to thank: Brian Bockhahn, Mary Kay Clark, Tony DeSantis, Mary Frazer, John Funderburg, Paul Hart, Scott Hartley, Benjamin Hess, Derek Hudgins, Gary Jordan, Joshua Laerm, Seth Lambiase, David Lee, Donald Linzey, Dwayne Martin, Randy Newman, Joy O’Keefe, Colleen Olfenbuttel, Tom Padgett, Brian Patteson, Thomas Quay, Robert Rose, Heather Wallace, David Webster, Floyd Williams, and John Wooding.

TABLE OF CONTENTS

Species	Page	Rank	Status
Didelphidae - Opossum - [1 species in NC]		State	Global
Virginia Opossum -- <i>Didelphis virginiana</i> _____	1	S5	G5
Dasypodidae - Armadillos - [1 species in NC]			
Nine-banded Armadillo -- <i>Dasypus novemcinctus</i> _____	2	S3	G5
Castoridae - Beavers - [1 species in NC]			
American Beaver -- <i>Castor canadensis</i> _____	3	S5	G5
Dipodidae - Jumping Mice - [2 species in NC]			
Woodland Jumping Mouse -- <i>Napaeozapus insignis</i> _____	4	S4	G5
Meadow Jumping Mouse -- <i>Zapus hudsonius</i> _____	5	SR - S1	G5
Myocastoridae - Coypu - [1 species in NC]			
Coypu -- <i>Myocastor coypus</i> _____	6	SE	G5
Sciuridae - Squirrels - [7 species in NC]			
Eastern Gray Squirrel -- <i>Sciurus carolinensis</i> _____	7	S5	G5
Eastern Fox Squirrel -- <i>Sciurus niger</i> _____	8	W - S3	G5
Red Squirrel -- <i>Tamiasciurus hudsonicus</i> _____	9	S4	G5
Northern Flying Squirrel -- <i>Glaucomys sabrinus</i> _____	10	E - S2	E - G5
Southern Flying Squirrel -- <i>Glaucomys volans</i> _____	11	S5	G5
Woodchuck -- <i>Marmota monax</i> _____	12	S5	G5
Eastern Chipmunk -- <i>Tamias striatus</i> _____	13	S5	G5
Cricetidae - New World Mice and Rats, Voles - [16 species in NC]			
Rock Vole -- <i>Microtus chrotorrhinus</i> _____	14	SC - S3 [S2?]	G5
Meadow Vole -- <i>Microtus pennsylvanicus</i> _____	15	S5 [S4]	G5
Woodland Vole -- <i>Microtus pinetorum</i> _____	16	S5	G5
Common Muskrat -- <i>Ondatra zibethicus</i> _____	17	S5	G5
Southern Red-backed Vole -- <i>Myodes gapperi</i> _____	18	S5	G5
Southern Bog Lemming -- <i>Synaptomys cooperi</i> _____	19	S3S4	G5
Eastern Woodrat -- <i>Neotoma floridana</i> _____	20	W - S3S4	G5
Allegheny Woodrat -- <i>Neotoma magister</i> _____	21	SC - S2S3	G3G4
Golden Mouse -- <i>Ochrotomys nuttalli</i> _____	22	S5	G5
North American Deermouse -- <i>Peromyscus maniculatus</i> _____	23	S5	G5
Oldfield Deermouse -- <i>Peromyscus polionotus</i> _____	24	SC - S1	G5
White-footed Deermouse -- <i>Peromyscus leucopus</i> _____	25	S5	G5
Cotton Deermouse -- <i>Peromyscus gossypinus</i> _____	26	S5	G5
Eastern Harvest Mouse -- <i>Reithrodontomys humulis</i> _____	27	S4	G5
Hispid Cotton Rat -- <i>Sigmodon hispidus</i> _____	28	S5	G5
Marsh Rice Rat -- <i>Oryzomys palustris</i> _____	29	S5 [S4]	G5
Muridae - Old World Mice and Rats - [3 species in NC]			
Brown Rat -- <i>Rattus norvegicus</i> _____	30	SE	G5
Roof Rat -- <i>Rattus rattus</i> _____	31	SE	G5
House Mouse -- <i>Mus musculus</i> _____	32	SE	G5
Leporidae - Rabbits and Hares - [3 species in NC]			
Marsh Rabbit -- <i>Sylvilagus palustris</i> _____	33	S5 [S4]	G5
Eastern Cottontail -- <i>Sylvilagus floridanus</i> _____	34	S5	G5
Appalachian Cottontail -- <i>Sylvilagus obscurus</i> _____	35	SR - S3	G4
Talpidae - Moles - [3 species in NC]			
Star-nosed Mole -- <i>Condylura cristata</i> _____	36	S4	G5
Hairy-tailed Mole -- <i>Parascalops breweri</i> _____	37	S4	G5

TABLE OF CONTENTS

Species	Page	Rank	Status
Talpidae - Moles - [3 species in NC]			
Eastern Mole -- <i>Scalopus aquaticus</i>	38	S5	G5
Soricidae - Shrews - [9 species in NC]			
Northern Short-tailed Shrew -- <i>Blarina brevicauda</i>	39	S5	G5
Southern Short-tailed Shrew -- <i>Blarina carolinensis</i>	40	S5	G5
North American Least Shrew -- <i>Cryptotis parva</i>	41	S5 [S4S5]	G5
Long-tailed Shrew -- <i>Sorex dispar</i>	42	SR - S3	G4
Smoky Shrew -- <i>Sorex fumeus</i>	43	S4S5	G5
American Pygmy Shrew -- <i>Sorex hoyi</i>	44	W - S3	G5
American Water Shrew -- <i>Sorex palustris</i>	45	SR - S3 [S2S3]	G5
Cinereus Shrew -- <i>Sorex cinereus</i>	46	S4	G5
Southeastern Shrew -- <i>Sorex longirostris</i>	47	S4	G5
Vespertilionidae - Common Bats - [16 species in NC]			
Tricolored Bat -- <i>Perimyotis subflavus</i>	48	SR - S3	G2G3 [G3]
Big Brown Bat -- <i>Eptesicus fuscus</i>	49	S5	G5
Evening Bat -- <i>Nycticeius humeralis</i>	50	S5	G5
Eastern Red Bat -- <i>Lasiurus borealis</i>	51	S5	G3G4 [G5]
Hoary Bat -- <i>Lasiurus cinereus</i>	52	W - S3S4	G3G4
Seminole Bat -- <i>Lasiurus seminolus</i>	53	W - S3	G5
Northern Yellow Bat -- <i>Lasiurus intermedius</i>	54	SC - S1	G5
Rafinesque's Big-eared Bat -- <i>Corynorhinus rafinesquii</i>	55	SC - S3	G3G4
Townsend's Big-eared Bat -- <i>Corynorhinus townsendii</i>	56	E - S1	E - G4
Southeastern Bat -- <i>Myotis austroriparius</i>	57	SC - S2 [S2S3]	G4
Gray Bat -- <i>Myotis grisescens</i>	58	E - S1	E - G4
Eastern Small-footed Bat -- <i>Myotis leibii</i>	59	SC - S2	G4
Little Brown Bat -- <i>Myotis lucifugus</i>	60	SR - S2 [S2S3]	G3
Northern Long-eared Bat -- <i>Myotis septentrionalis</i>	61	T - S2 [S2S3]	T - G2G3
Indiana Bat -- <i>Myotis sodalis</i>	62	E - S1S2	E - G2
Silver-haired Bat -- <i>Lasionycteris noctivagans</i>	63	S4	G3G4
Molossidae - Free-tailed Bats - [1 species in NC]			
Mexican Free-tailed Bat -- <i>Tadarida brasiliensis</i>	64	S4	G5
Felidae - Cats - [2 species in NC]			
Bobcat -- <i>Lynx rufus</i>	65	S4 [S5]	G5
Cougar -- <i>Puma concolor</i>	66	E - SX	E - G5
Canidae - Wolves and Foxes - [5 species in NC]			
Coyote -- <i>Canis latrans</i>	67	S5	G5
Red Wolf -- <i>Canis rufus</i>	68	T - S1	E - G1Q
Gray Wolf -- <i>Canis lupus</i>	69	SX	G5
Red Fox -- <i>Vulpes vulpes</i>	70	S4 [S5]	G5
Gray Fox -- <i>Urocyon cinereoargenteus</i>	71	S5	G5
Ursidae - Bears - [1 species in NC]			
American Black Bear -- <i>Ursus americanus</i>	72	S4	G5
Procyonidae - Raccoon - [1 species in NC]			
Common Raccoon -- <i>Procyon lotor</i>	73	S5	G5
Mustelidae - Weasels - [4 species in NC]			
North American River Otter -- <i>Lontra canadensis</i>	74	S4 [S5]	G5
Long-tailed Weasel -- <i>Mustela frenata</i>	75	W - S3	G5
Least Weasel -- <i>Mustela nivalis</i>	76	SR - S2	G5

TABLE OF CONTENTS

Species	Page	Rank	Status
Mustelidae - Weasels - [4 species in NC]		State	Global
American Mink -- <i>Neovison vison</i> _____	77	S4	G5
Mephitidae - Skunks - [2 species in NC]			
Striped Skunk -- <i>Mephitis mephitis</i> _____	78	S4 [S5]	G5
Eastern Spotted Skunk -- <i>Spilogale putorius</i> _____	79	SR - S3	G4
Phocidae - Earless seals - [4 species in NC]			
Hooded Seal -- <i>Cystophora cristata</i> _____	80	SAM	G5
Harbor Seal -- <i>Phoca vitulina</i> _____	81	S2S3M	G5
Harp Seal -- <i>Pagophilus groenlandicus</i> _____	82	S1M	G5
Gray Seal -- <i>Halichoerus grypus</i> _____	83	S1M	G5
Equidae - Horses - [1 species in NC]			
Feral Horse -- <i>Equus caballus</i> _____	84	SE	GNR
Suidae - Pigs - [1 species in NC]			
Wild Boar -- <i>Sus scrofa</i> _____	85	SE	G5
Bovidae - Bovids - [1 species in NC]			
American Bison -- <i>Bison bison</i> _____	86	SX	G4
Cervidae - Deer - [2 species in NC]			
Elk -- <i>Cervus elaphus</i> _____	87	[W2] - S1	G5
White-tailed Deer -- <i>Odocoileus virginianus</i> _____	88	S5	G5
Delphinidae - Oceanic Dolphins - [18 species in NC]			
Killer Whale -- <i>Orcinus orca</i> _____	89	S1M	E - G4G5
Rough-toothed Dolphin -- <i>Steno bredanensis</i> _____	90	S2M	G4
Striped Dolphin -- <i>Stenella coeruleoalba</i> _____	91	S3M	G5
Atlantic Spotted Dolphin -- <i>Stenella frontalis</i> _____	92	S4S5M	G5
Spinner Dolphin -- <i>Stenella longirostris</i> _____	93	S1S2M	G5
Clymene Dolphin -- <i>Stenella clymene</i> _____	94	S2?M	G4
Pantropical Spotted Dolphin -- <i>Stenella attenuata</i> _____	95	SUM	G5
Short-beaked Common Dolphin -- <i>Delphinus delphis</i> _____	96	S4M	G5
Common Bottlenose Dolphin -- <i>Tursiops truncatus</i> _____	97	S5M	G5
Fraser's Dolphin -- <i>Lagenodelphis hosei</i> _____	98	S1M	G4
White-beaked Dolphin -- <i>Lagenorhynchus albirostris</i> _____	99	SAM	G4
Atlantic White-sided Dolphin -- <i>Lagenorhynchus acutus</i> _____	100	S1S2M	G5
False Killer Whale -- <i>Pseudorca crassidens</i> _____	101	S2S3M	G4
Risso's Dolphin -- <i>Grampus griseus</i> _____	102	S3M	G5
Long-finned Pilot Whale -- <i>Globicephala melas</i> _____	103	S2?M	G5
Short-finned Pilot Whale -- <i>Globicephala macrorhynchus</i> _____	104	S4M	G5
Pygmy Killer Whale -- <i>Feresa attenuata</i> _____	105	S1?M	G4
Melon-headed Whale -- <i>Peponocephala electra</i> _____	106	S1?M	G4
Phocoenidae - Porpoises - [1 species in NC]			
Harbor Porpoise -- <i>Phocoena phocoena</i> _____	107	S3S4M	G4G5
Kogiidae - Small Sperm Whales - [2 species in NC]			
Pygmy Sperm Whale -- <i>Kogia breviceps</i> _____	108	S3M	G4
Dwarf Sperm Whale -- <i>Kogia sima</i> _____	109	S3M	G4
Physeteridae - Sperm Whales - [1 species in NC]			
Sperm Whale -- <i>Physeter macrocephalus</i> _____	110	S3M	E - G3G4
Ziphiidae - Beaked Whales - [5 species in NC]			
Gervais' Beaked Whale -- <i>Mesoplodon europaeus</i> _____	111	S3M	G3

TABLE OF CONTENTS

Species	Page	Rank	Status
Ziphiidae - Beaked Whales - [5 species in NC]		State	Global
Blainville's Beaked Whale -- <i>Mesoplodon densirostris</i> _____	112	S2M	G4
True's Beaked Whale -- <i>Mesoplodon mirus</i> _____	113	S1?M	G3
Northern Bottlenose Whale -- <i>Hyperoodon ampullatus</i> _____	114	SUM	G4
Cuvier's Beaked Whale -- <i>Ziphius cavirostris</i> _____	115	S3S4M	G4
Eschrichtiidae - Gray Whale - [1 species in NC]			
Gray Whale -- <i>Eschrichtius robustus</i> _____	116	SXM	E - G4
Balaenopteridae - Rorquals - [6 species in NC]			
Blue Whale -- <i>Balaenoptera musculus</i> _____	117	S1?M	E - G3G4
Fin Whale -- <i>Balaenoptera physalus</i> _____	118	S2S3M	E - G3G4
Sei Whale -- <i>Balaenoptera borealis</i> _____	119	S1M	E - G3
Common Minke Whale -- <i>Balaenoptera acutorostrata</i> _____	120	S1?M	G5
Rice's Whale -- <i>Balaenoptera ricei</i> _____	121	SAM	GNR
Humpback Whale -- <i>Megaptera novaeangliae</i> _____	122	S3S4M	E - G4
Balaenidae - Bowhead Whales and Right Whales - [1 species in NC]			
North Atlantic Right Whale -- <i>Eubalaena glacialis</i> _____	123	S1M	E - G1
Trichechidae - Manatees - [1 species in NC]			
West Indian Manatee -- <i>Trichechus manatus</i> _____	124	T - S1M	T - G2G3
Appendix A (Undocumented species for North Carolina)	A1		
Appendix B (NC Mammal Species per County)	B1		

DEFINITIONS

Rank

NatureServe gives each plant and animal species a Global Rank of rarity, and each state Natural Heritage Program gives each species occurring within its borders a State Rank of rarity. Thus, each species has a Global Rank and a State Rank. (A rank in brackets is that suggested by the website editors, where it differs from the existing rank.)

State:

Rank Number of Extant Populations

- S1 1-5 Critically imperiled in North Carolina because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from North Carolina.
- S2 6-20 Imperiled in North Carolina because of rarity or because of some other factor(s) making it very vulnerable to extirpation from North Carolina.
- S3 21-100 Rare or uncommon in North Carolina.
- S4 101-1000 Apparently secure in North Carolina, though it may be quite rare in parts of its range, especially at the periphery.
- S5 1001+ Demonstrably secure in North Carolina, though it may be quite rare in parts of its range, especially at the periphery.
- S#M 1-1001+ Migratory, or with extensive movements (used here only for aquatic species -- whales, dolphins, porpoises, seals, and manatee).
- SU 1+ Status and abundance uncertain; need more information.
- SA 1? Accidental or casual; one to several records for North Carolina, but the state is outside the normal range of the species.
- SE 1-1001+ Exotic; not native to North Carolina.
- SH 0 Of historical occurrence, perhaps not having been verified in the past 20 years, and suspected to be still extant.
- SX 0 Presumed extirpated -- believed to be extirpated in North Carolina.

Global: Global ranks are similar to state ranks except "in North Carolina" is replaced by "globally", and "extirpation from North Carolina" is replaced by "extinction". Additional global ranks are:

- T# --- The rank of a subspecies or variety. As an example, G4T1 would apply to a subspecies of a species with an overall rank of G4, but the subspecies warranting a rank of G1.
- GNR --- Not ranked.

Status

State:

E = Endangered; legal status as designated by the NC Wildlife Resources Commission

T = Threatened; legal status as designated by the NC Wildlife Resources Commission

SC = Special Concern; legal status as designated by the NC Wildlife Resources Commission

SR = Significantly Rare; non-legal status as given by the NC Natural Heritage Program

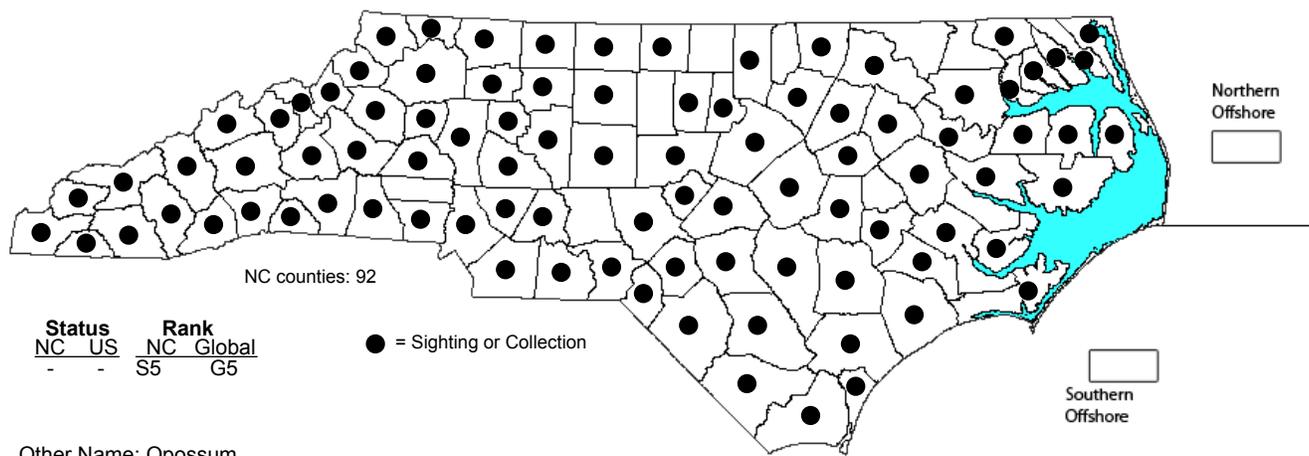
W = Watch List; non-legal status as given by the NC Natural Heritage Program

Federal (US):

E = Endangered; legal status as designated by the US Fish & Wildlife Service

T = Threatened; legal status as designated by the US Fish & Wildlife Service

Didelphis virginiana Virginia Opossum



DISTRIBUTION: In NC, it occurs statewide, and undoubtedly occurs in all 100 counties. It might be absent on a few barrier islands, and in the highest mountains.

Occurs throughout the eastern 60% of the United States, and adjacent southern Canada, far southward into the Neotropics.

ABUNDANCE: Essentially abundant nearly across the state, but less common in the higher mountains and on some islands. It does occur on the Outer Banks and is numerous in the Buxton Woods area. Note that the iNaturalist website contains photos for more than half of the state's counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Occurs over a very wide range of habitats, favoring forested areas, more so in bottomlands than in overly dry sites; areas near fresh water are preferred. It prefers open woods, or near forest edges, and it forages in forests as well as in a variety of fields, brushy places, residential areas, and other habitats at night. It is often common in wooded suburban areas.

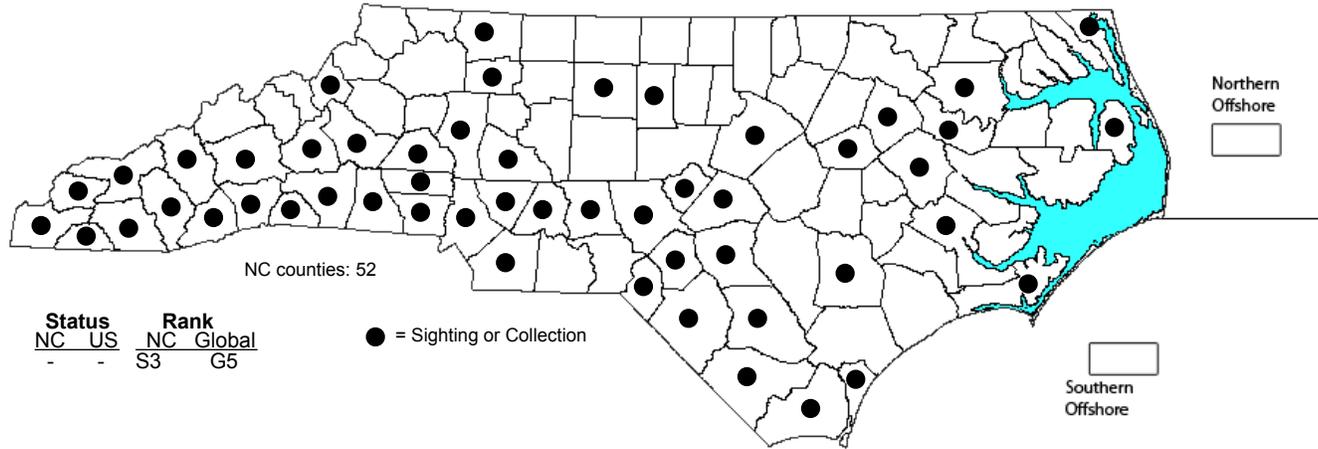
BEHAVIOR: Essentially nocturnal in activity, rarely active by day in the winter months. They climb fairly well, and spend some time in trees, mainly to escape. Nests are typically in burrows in the ground, under rocks, or in hollow logs, but they can be inside hollow trees or in knotholes in live trees. They often raid suburban yards at night, going after garbage and other food items.

COMMENTS: This is the only marsupial in the United States, and thus is unique from that aspect. Large numbers are killed by vehicles on roads at night, seemingly not even causing a dent in the very large population of the species. Though they can be hard to see in forested areas, as they are essentially nocturnal, homeowners can often spot them in their yards at night, especially where the yard is well-lit, and there is some food available for the opossums.

STATUS: Native

LIST TYPE: Official

Dasypus novemcinctus Nine-banded Armadillo



DISTRIBUTION: In NC, throughout the southern mountains and the southwestern Piedmont at present, from Avery County southeast to Gaston County. Scattered elsewhere in the western and southern Piedmont and southwestern Coastal Plain, with a few records for the northern Piedmont and the Coastal Plain. There are numerous photo records (65 on the iNaturalist website as of January 2022), mostly in the southern mountains.

This is a somewhat tropical species, extending from Mexico northward to KS and southern NC. The species is slowly expanding its range northward, and is a relatively new species to NC. The advance into NC actually appears to be more from the southwest (northern GA and northwestern SC) than directly north from SC, based on the relatively few records from east of Gaston County.

ABUNDANCE: Poorly known, as some records undoubtedly relate to releases, but clearly increasing since 2000. Now uncommon in the southern mountains, especially close to the SC and GA state lines. Rare in the extreme southwestern Piedmont, north to Catawba County. Very rare in the extreme southern Coastal Plain, close to the SC border, and also very rare in the northwestern part of the Piedmont. Seemingly still absent over most of the northern mountains and northern half of the Piedmont, as well as some far eastern Coastal Plain counties. A few years ago, the species was considered by the N.C. Natural Heritage Program on its Watch List, with an SU (Uncertain) rank; however, with the clear increase in numbers, that program has taken the armadillo off of its Watch List and given a State Rank of S3.

SEASONAL OCCURRENCE: Generally active all year, but apparently limits its above-ground activities in winter, as the Carolinas are at the northern edge of the range.

HABITAT: Requires sandy or other soft soils for its burrowing and foraging activities. Mostly found in open, sandy woods and brushy fields, but can occur in bottomlands and open fields. Tends to avoid areas with clay-like soils.

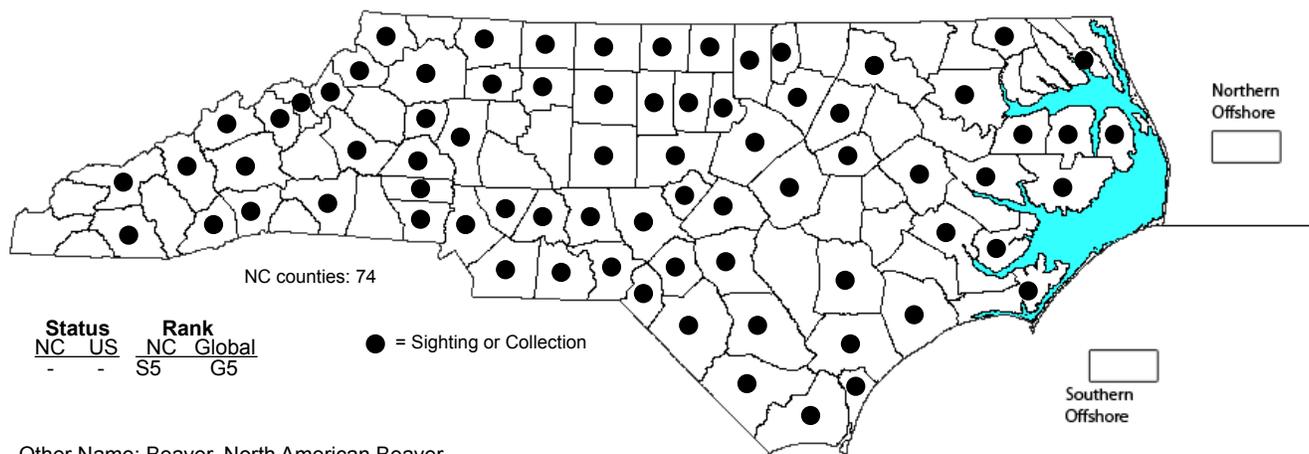
BEHAVIOR: This is a unique animal north of Mexico, as no other species in the United States has armor like it. They are mostly nocturnal in the warmer months, but can be abroad in daylight in winter. They have poor eyesight and can be fairly easily approached, but can quickly scurry away, at times quickly digging a hole to escape. Most of their time is spent in burrows, deep into the soil, with a large chamber for nesting. Armadillos give birth to four identical young, all of the same sex, a feature found only in a few species of armadillos, but nowhere else among mammals.

COMMENTS: Lee et al. (1982) state "Although armadillos are not established in North Carolina, a modest number have found their way into the southeastern part of the state where they have been released by interstate travelers who discover that the unique pets they captured in Georgia and Florida can claw their way through boxes, bags, and other containers. Most winters are too severe for armadillos to survive this far north. We include this species in these accounts simply to clarify its status." As mentioned above, its status in the state is unsettled. Twenty to thirty years ago, it might have been called an Introduced species; but there are many records now that certainly relate to animals moving northward out of SC and GA, and thus the species is clearly an official member of the state list. Personnel at the N.C. Wildlife Resources Commission are concerned about armadillos digging holes in yards and thus damaging personal property. In fact, as of August 2013, the Wildlife Resources Commission "allows armadillos to be hunted year-round with no bag limit. Armadillos can be trapped during the regulated trapping season". Most of the photo records on iNaturalist are of road-killed animals, though that should indicate a somewhat healthy population of live animals in the southern mountains, if not elsewhere.

STATUS: Native

LIST TYPE: Official

Castor canadensis American Beaver



DISTRIBUTION: It occurs throughout NC, undoubtedly found in all counties (currently). It apparently became extirpated in the state by the early 1900's, due to relentless and uncontrolled trapping for its pelt. However, releases began in the state in the late 1930's, and it has still been increasing from multiple release points.

Occurs over nearly all of North America, with one of the widest distributions of any of our mammals.

ABUNDANCE: Common and widespread across the Coastal Plain and Piedmont, but less numerous in the mountains, mainly at the lower and middle elevations. Generally uncommon to common in the mountains. It was stocked at several places in the state by the N.C. Wildlife Resources Commission, and perhaps by private interests. It is now increasing over most of the state. However, it is rare to absent in tidal areas, and does not occur along the Outer Banks, and probably is absent from other coastal islands and nearby mainland. Note that the iNaturalist website contains photos for more than half of the state's counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Beavers create their own habitat by damming streams/creeks, though they also inhabit larger creeks and rivers and some lakes and ponds that are already present. Occurs along almost all types of freshwater habitats, but favored habitat is a fairly small woodland stream, within a modest floodplain, where it can create a moderate-sized pond by damming the creek.

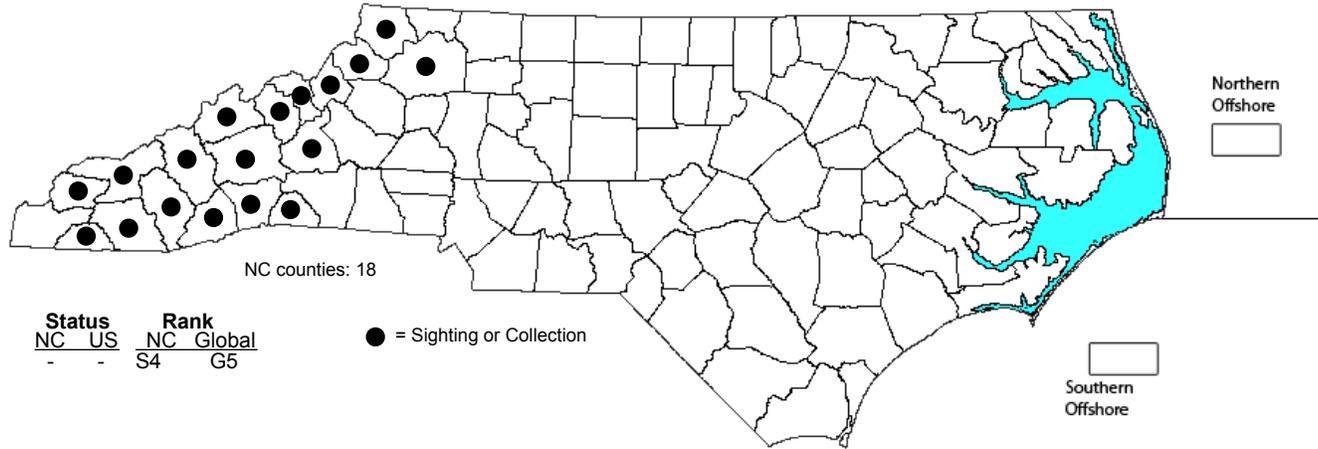
BEHAVIOR: Primarily nocturnal or crepuscular, but can be seen at times during the day. They are well-known to build mounded/conical lodges in ponds and lake margins, though in some areas their nests are built into the banks of streams and rivers, without a lodge. They often forage on tree bark in nearby forests and woodlands.

COMMENTS: No other mammal alters the natural landscape the way that the Beaver does, at least in the United States. Its ponds provide habitat for a wide array of frogs, turtles, birds, and many other species of plants and animals that live in pond and marsh habitats. However, Beavers do damage private property, by cutting down trees for dam- and lodge-building, and their ponds can kill trees by flooding them, and pond waters can flood fields. Even though it is still considered as a game/furbearer species, and thus can legally be trapped and taken, there are regulations about the numbers that can be harvested. With each passing decade, more and more beaver ponds are dotting the landscape in the state.

STATUS: Native

LIST TYPE: Official

Napaeozapus insignis Woodland Jumping Mouse



DISTRIBUTION: In NC, it is limited to the mountains; essentially only from 2,800 feet and higher.

The northeastern portion of North America only, from Labrador and Manitoba, south into the United States mostly down the Appalachians, to northern GA.

ABUNDANCE: Locally common at middle and high elevations, but uncommon in many areas, and certainly very scarce in the lower elevations. Unlike with the similar Meadow Jumping Mouse, NC has numerous recent records.

SEASONAL OCCURRENCE: As with the Meadow Jumping Mouse, these two species are the only mice in the mid-Atlantic states known to hibernate.

HABITAT: Cool and somewhat moist forests, preferably where rocky. Favored are spruce-fir and spruce-hardwoods, but it also occurs lower where there is much rhododendron and water. It can occur in damp thickets and rocky seeps, but it seldom occurs in sunny and open wetlands where the Meadow Jumping Mouse is found.

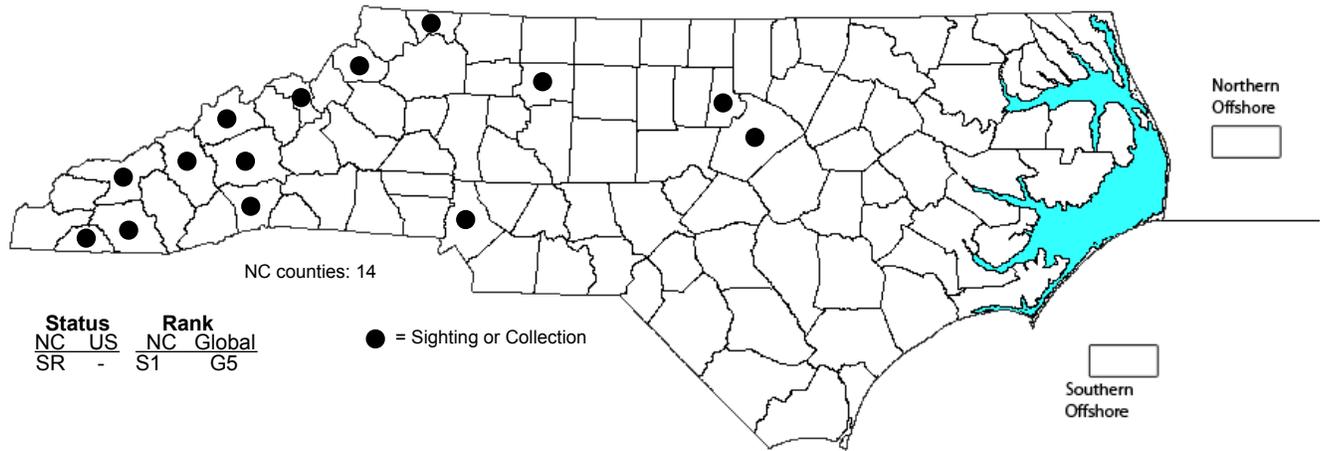
BEHAVIOR: Nocturnal, though can be active around dawn and dusk. They seldom make runways or tunnels, but they can climb somewhat readily.

COMMENTS: With the near loss of Canada hemlock in our mountains, it is possible that the species is declining, at least at middle elevations. As with the Meadow Jumping Mouse, the species is seldom seen by most people except by those who make special efforts, such as with pitfall trapping. This is one of the more colorful of the rodents, as it has a distinctive dark band of fur down the back, contrasting with golden-colored sides, and white underparts.

STATUS: Native

LIST TYPE: Official

Zapus hudsonius Meadow Jumping Mouse



DISTRIBUTION: In NC, it ranges throughout the mountains, but has been recorded only at widely scattered sites in the Piedmont, mainly more than 30 years ago. Thus, currently it is assumed to occur almost solely in the mountains.

A wide range from coast to coast, extending from southern AK east to Labrador, and south to the central parts of the United States -- NC, AL, and OK.

ABUNDANCE: Rare in the mountains, and almost certainly declining; seemingly quite rare in most areas now, with few recent records. We are not aware of any recent records away from the mountains; it likely has declined greatly in the Piedmont and certainly must be considered very rare (or extirpated) in this province. Nearly all of the recent records (photos) of jumping mice in NC have been of the Woodland Jumping Mouse, as opposed to the Meadow Jumping Mouse.

SEASONAL OCCURRENCE: Webster et al. (1985) state that "Jumping mice are the only mice in the region [NC, SC, VA, and MD] which hibernate". Otherwise, active from about March or April at least into late November.

HABITAT: Typically in moist sunny areas -- moist meadows, marshy edges, damp brushy thickets, etc. They are not usually found in forested habitats, where the Woodland Jumping Mouse occurs, but it can occur at wooded edges or in some woods where the latter species is apparently absent; these wooded habitats are usually close to water. In any habitat, there must be dense herbaceous vegetation present.

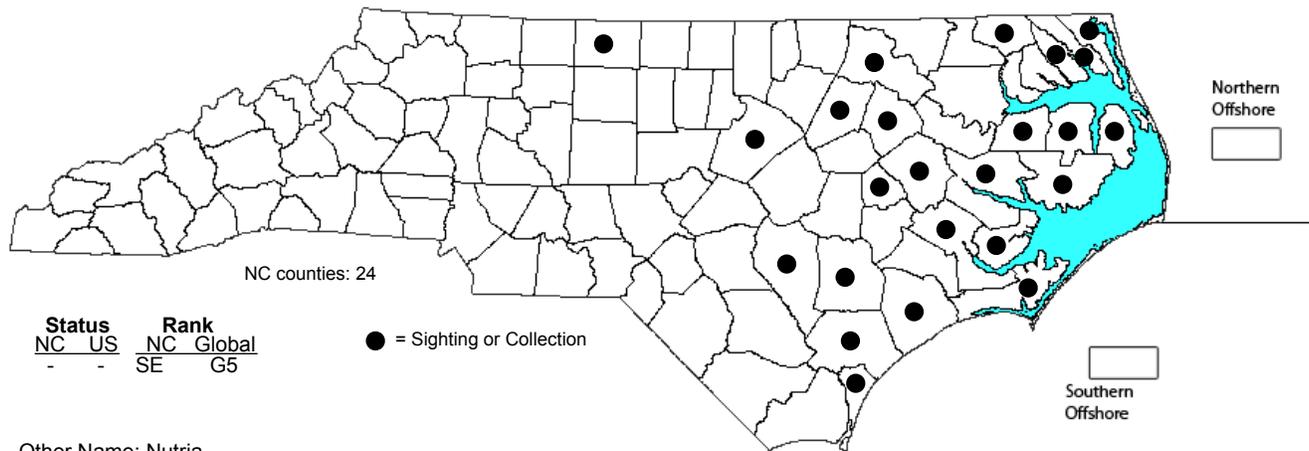
BEHAVIOR: Active mainly at night. They seldom make runways, and as they are generally solitary, biologists seldom find good evidence of the species that points to a Meadow Jumping Mouse. Most records are probably from trapping efforts, or animals found dead on the surface.

COMMENTS: Most field guides consider this species as "common" across its range. However, in the southeastern portion of the range, such as the Carolinas and VA, it is considered to be scarce, with relatively few records. The N.C. Natural Heritage Program long had the species on its Watch List, but with so few records in the past few decades, the State Rank has been moved from S3 all the way to S1; it also was moved from the Watch List to being tracked as Significantly Rare in 2020. Though not yet officially State listed, it seems to merit consideration for Special Concern status.

STATUS: Native

LIST TYPE: Official

Myocastor coypus Coypu



Other Name: Nutria

DISTRIBUTION: Lee et al. (1982) stated that the Nutria, as it is better known in the United States, was "Originally released on the Outer Banks near Hatteras in 1941". From there it has spread to essentially all marshes in the Pamlico Sound/Albemarle Sound/Currituck Sound region, and is making its way southward along the coast and much farther inland. As of 1985, there was only one far inland record -- Rockingham County; however, it now occurs over most of the Coastal Plain, and into the extreme eastern Piedmont. It still seems not to have made its way west into the Sandhills region or to counties that border SC, as our known records seem to be west only to Sampson and Wake counties.

The native range is the southern part of South America. They have been introduced to several parts of the Gulf and Atlantic coasts, for trapping purposes for its fur, especially in LA and TX.

ABUNDANCE: Common to locally abundant in coastal marshes, south to Pamlico Sound. Less common farther south along the coast, and elsewhere in the Coastal Plain (except the Sandhills region), where still mainly rare to uncommon. Scarce in the eastern Piedmont, though many records for Wake County. Increasing in range and abundance in the state, but this expansion seems to have slowed in recent years.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Favors areas of fresh and brackish marshes, where they consume large amounts of grasses. They also occur at lakes, ponds, and impoundments, as well as in salt marshes. Habitats tend to be sunny and well away from forested areas.

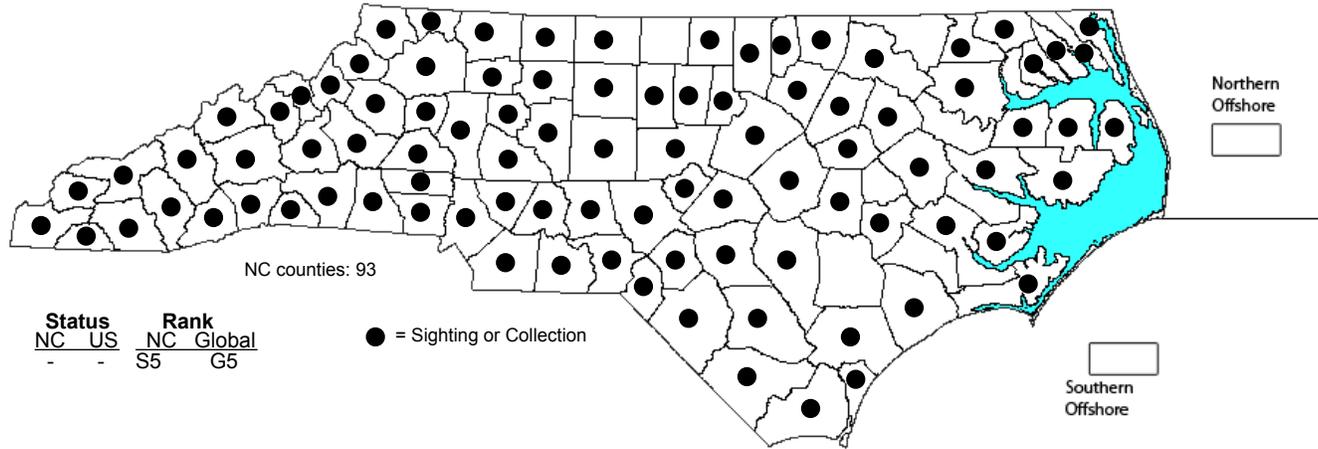
BEHAVIOR: Though active mainly at night, they frequently can be seen during the day, but they are not as active as after dark. They spend much time in the water, but frequently occur on the ground, and are often seen around the margins of impoundments and ponds. They create extensive systems of burrows, often weakening dikes of ponds and impoundments.

COMMENTS: Not surprisingly for a non-native mammal, the Nutria [Coypu is the official name of the species, and is the name applied to the species in its native range in the Neotropics] is a major pest almost everywhere it occurs. It competes with the Muskrat for food and habitat, and it denudes marshy areas, and thus competes with native species such as swans and geese for forage. The burrows in dikes weaken these man-made structures and can thus cause ponds and impoundments to drain or breach at the dike. They also forage on crops in nearby fields, doing financial damage to farmers.

STATUS: Introduced

LIST TYPE: Official

Sciurus carolinensis Eastern Gray Squirrel



DISTRIBUTION: In NC, it undoubtedly occurs in all 100 counties, including on the Outer Banks.

Occurs throughout the eastern United States, barely into adjacent Canada. It ranges all the way to the Gulf Coast.

ABUNDANCE: Abundant statewide, being somewhat less numerous in the mountains, especially so at higher elevations. One of the most widely distributed mammals in the state. Note that the iNaturalist website contains photos for more than half of the state's counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Most any habitat with mature trees, preferably hardwoods. Wooded parks, wooded residential areas, golf courses, open forests, and medium-growth forests are used, especially where the trees are large/old; favor mesic soil conditions. The favored habitat is a mature oak forest, with hickories and/or beech. Least numerous in dry, upland rocky woods, especially where there are pines; and not as numerous in swamps.

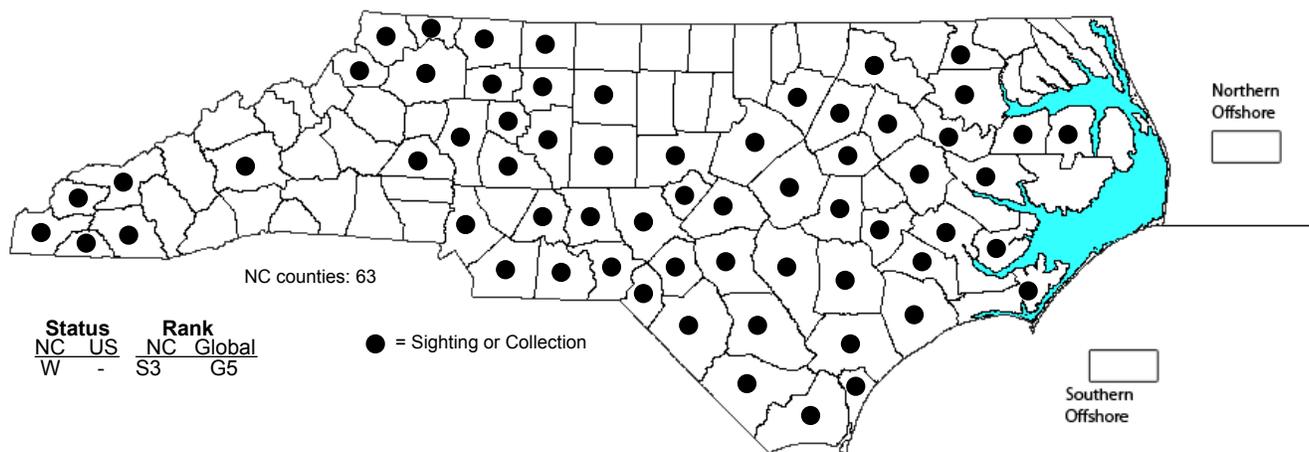
BEHAVIOR: Active during the day only. They are most active in the fall, when they can be seen gathering acorns and other nuts; they can be somewhat inactive in very cold weather. Nests are either in a tree cavity, or in a ball of leaves well out on a fairly large limb. The squirrels are often seen on the ground, though they spend most of their time in the trees.

COMMENTS: This is, by far, the most often seen mammal in the state, because they frequently live in close association with man and are active by day, in addition to their abundance. Thousands are probably road-killed every day in the state. They are a nuisance at bird feeders in the winter season. They are important for seed dispersal in oaks and beech, as Gray Squirrels bury large quantities of acorns and beech nuts in the ground, for later food consumption.

STATUS: Native

LIST TYPE: Official

Sciurus niger Eastern Fox Squirrel



DISTRIBUTION: In NC, has very "checkered" range -- not at all obvious from the range map. It occurs mainly in the southern half of the Coastal Plain (especially in the Sandhills region), but sporadically in the northern Coastal Plain, west of Albemarle Sound; absent (thus far) north of Albemarle Sound and only recently recorded from the western half of the "Pamlico Peninsula". Also present in the northwestern mountains and adjacent northwestern Piedmont, and formerly in the southwestern mountains, where poorly known at the present time. In the Piedmont, there are scattered records, mainly in the southern and central counties, being generally absent in the northern third to half of the province (except in the foothills).

Ranges over nearly all of the eastern United States, barely into Canada, but absent in New England; occurs south to the Gulf Coast.

ABUNDANCE: Generally fairly common in the Sandhills region, but uncommon and local eastward in the Longleaf Pine belt to about Wilmington (and southward, where it can be locally numerous). Oddly scarce northeast of Wilmington, even in Longleaf Pine habitats, northeast to Croatan National Forest. Declining over most of this part of the range. However, somewhat increasing in the northern half of the Coastal Plain, perhaps moving south from VA. Rare but possibly increasing in the Piedmont part of the range, though absent from many northern counties. Rare to uncommon, but increasing, in the northwestern part of the state, spreading south from VA and/or TN. Formerly rare but regular in the southwestern mountains, but very few recent records. The species remains on the N.C. Natural Heritage Program's Watch List, at least for now.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: In the southern half of the Coastal Plain, typically in dry to mesic Longleaf Pine stands, especially where burned and thus where the hardwood understory is not dense. Farther north of the Longleaf Pine belt, and elsewhere in the state, typically in forests or woodlands with mature hardwoods, and seldom near conifers. However, as the species spends much time on the ground, it favors a rather sparse shrub or understory zone. They have adapted to golf courses and some semi-wooded residential areas, especially in the Sandhills and in the Wilmington/Brunswick County areas.

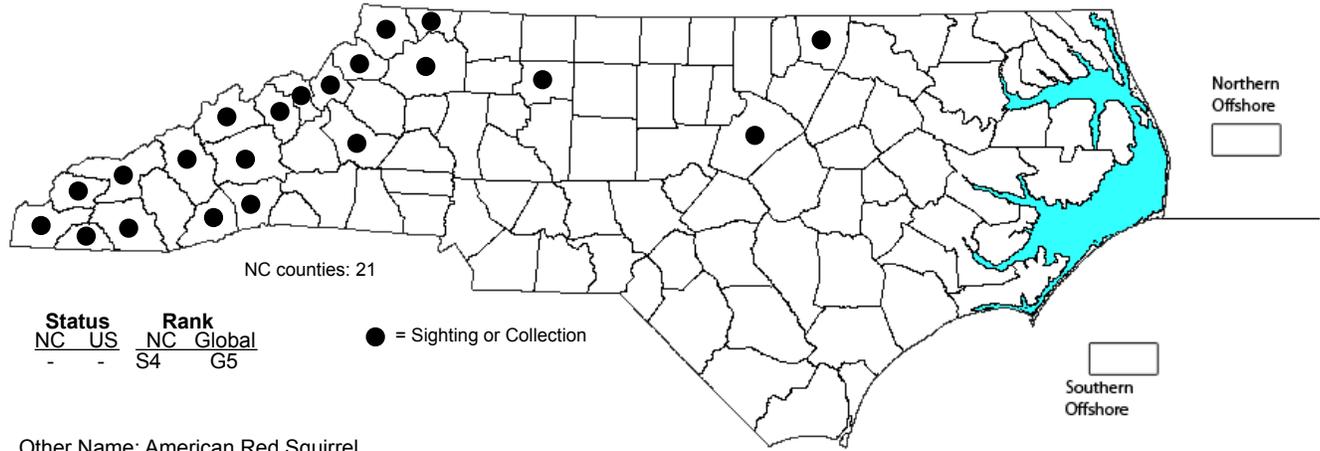
BEHAVIOR: Active during the day. The species is much more at home on the ground than is the Eastern Gray Squirrel, but does not normally stray too far from trees in which to escape. They are not as adept at clambering about trunks and limbs as the latter species. Nests are usually in tree cavities.

COMMENTS: Though it has long been a game animal, there have been many attempts to have the species put on the state protected list, such as State Special Concern. However, a game animal cannot be State-listed, and the N.C. Wildlife Resources Commission has not moved the Fox Squirrel off the game animal list. The various populations around the state have been assigned by various authors to several subspecies. However, there is so much confusion about subspecies that there is little unanimity from mammalogists about what is here. Fox Squirrels can be seen most easily around some golf courses. Fire management of the species is still important in the longleaf pine zone, as fire suppression leads to more oaks in the understory, and such conditions favor the Gray Squirrel over the Fox Squirrel.

STATUS: Native

LIST TYPE: Official

Tamiasciurus hudsonicus Red Squirrel



DISTRIBUTION: In NC, it is strictly found in the mountain region, and apparently does not occur in adjacent Piedmont ranges such as the South Mountains. Several records well into the Piedmont are open to question or are likely released individuals; however, it does range well into the Piedmont in VA. There is a specimen from Wake County, far east of the normal range -- presumably a wandering individual or a released individual.

A very wide range from coast to coast, occurring over most of AK and Canada east to Labrador, and then south to the northern United States; in this country, it ranges far to the south in the Rockies and the Appalachians, but is scarce in non-mountainous regions.

ABUNDANCE: Fairly common to common, though declining -- especially in the far southwestern counties, where seemingly quite scarce now south and west of Swain County. Lee et al. (1982) state "Often abundant and conspicuous at high elevations." Webster et al. (1985) say that it is "abundant in mountainous habitats"; however, that does not seem to be the case in recent years. Perhaps the near total loss of Canada Hemlock (*Tsuga canadensis*) to the hemlock woolly adelgid has helped contribute to the decline in numbers of the squirrel.

SEASONAL OCCURRENCE: Active all year.

HABITAT: Favors cool coniferous or mixed forests -- spruce-fir, spruce-hardwoods, or (formerly) hemlock-hardwoods. Also can occur in white pine stands, typically where mixed with hardwoods. Cool, moist sites are favored over dry sites.

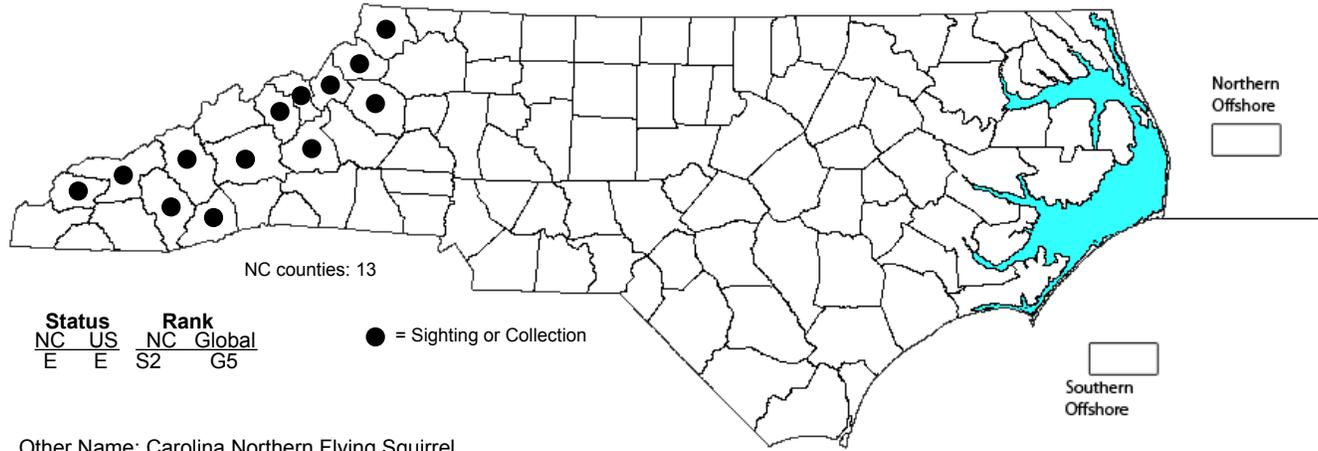
BEHAVIOR: Active during the day. Very noisy, making many sounds, with a long ratchet-ing trill/rattle being characteristic. As a result, it is often called "boomer". They have varied nest locations. Some are in tree cavities and hollows, whereas others are ball nests along limbs. Some squirrels even use burrows below ground. They are quite territorial, more so than other squirrel species.

COMMENTS: Though not well documented, the species does not seem to be abundant in most places in the mountains today. The death of most hemlock trees cannot but hurt local populations of Red Squirrels, as hemlock trees were a major feature of many population's habitat in the Appalachians. Fortunately, because it is noisy and active during the day, it easily becomes familiar to the layman and is one of the most frequently seen mammals in the higher elevations.

STATUS: Native

LIST TYPE: Official

Glaucomys sabrinus Northern Flying Squirrel



DISTRIBUTION: In NC, it is limited to the higher mountains, though it does occur at middle elevations as far southwest to Graham County. In most places in the state, found above about 4,000 feet elevation, and the majority of them occur above 5,000 feet.

Ranges from coast to coast from AK to Labrador, and south to the northern United States, extending considerably farther southward down several mountain chains; it ranges down the Appalachians to southwestern NC.

ABUNDANCE: Rare and somewhat local, being absent to very rare in counties along the VA border, but locally uncommon in a few higher mountain ranges, such as the Black Mountains and the Great Smokies.

SEASONAL OCCURRENCE: Active year-round, despite occurring in winter where the temperatures often range into single digits.

HABITAT: Favors spruce-fir forests or forests where spruce is mixed with hardwoods. Also occurs to a lesser extent in pure hardwood stands, or where mixed with other conifers, but these are typically in cool microclimates.

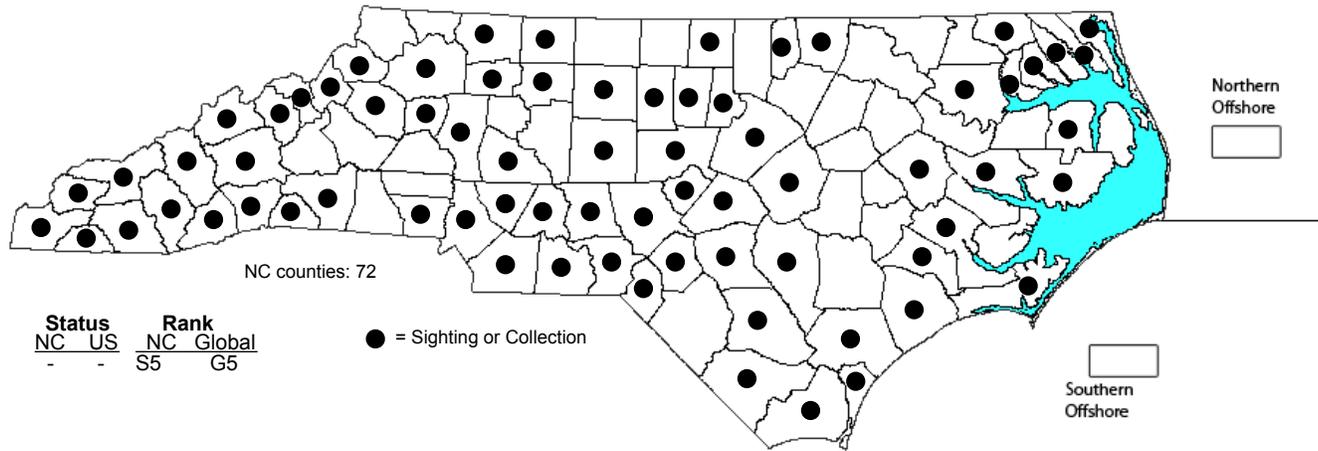
BEHAVIOR: Nocturnal in activity, apparently more active just after dusk and just before dawn. Utilizes woodpecker cavities or other holes/cavities in trees, mainly in dead trees, for roosting and nesting. They also utilize nest boxes placed in their habitat. As with the Southern Flying Squirrel, these animals glide from the upper parts of one tree downward to the base of another tree, rarely to the ground.

COMMENTS: Though the full species is not rare, the population in NC is a very rare subspecies -- *G. sabrinus coloratus* -- that occurs northward only to neighboring VA, and barely into adjacent TN. Not surprisingly, this subspecies, called the Carolina Northern Flying Squirrel, is Federally listed as Endangered.

STATUS: Native

LIST TYPE: Official

Glaucomys volans Southern Flying Squirrel



DISTRIBUTION: In NC, it is assumed to occur statewide, though it is quite secretive and not confirmed in a number of counties.

Occurs over most of the eastern United States and extreme southern Canada, south to the Gulf Coast.

ABUNDANCE: Though not often seen by the public, mammalogists consider it to be common, at least relatively so, over the entire state, well into the middle elevations of the mountains and also on the Outer Banks and other barrier islands with forests (though seemingly no records yet for Dare County). Note that the iNaturalist website contains photos for about one-third of the state's counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active year-round, though such activity is reduced in winter.

HABITAT: Generally in hardwood or mixed forests, of various moisture. Mature forests are preferred, as the squirrels roost and nest in old woodpecker holes and other tree cavities, which are more likely to be found in large trees. They often occur in wooded residential areas, and can utilize bird boxes or attics of homes for roosting or nesting.

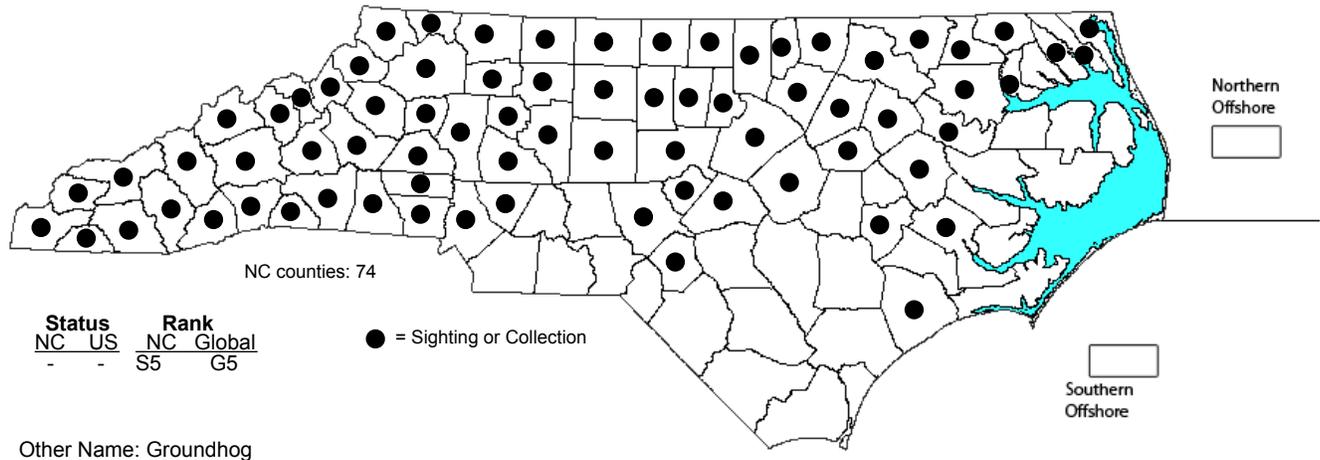
BEHAVIOR: Strictly nocturnal in activity. They are most easily detected by their high pitched squeaking or hissing calls. This and the Northern Flying Squirrel are well known for their gliding habits, which no other North American mammals show; glides are normally from high up in one tree toward the bottom of another tree, often 50 or more feet away.

COMMENTS: It is unfortunate that flying squirrels are nocturnal, unlike our three other squirrels, as their behavior is so spectacular. The species can occasionally be seen by tapping on a hollow tree with a woodpecker cavity, and hoping on a rare occasion that a squirrel will poke its head out of the hole. They can sometimes be seen at night in yards that are well lit, and they sometimes come to food left out on a balcony railing, for example.

STATUS: Native

LIST TYPE: Official

Marmota monax Woodchuck



DISTRIBUTION: In NC, it occurs throughout the mountains, nearly throughout the Piedmont, and into the northern third to half of the Coastal Plain, except lacking records for counties south of Albemarle Sound. Possibly absent in a few southeastern Piedmont counties, but the species is spreading southward in the Coastal Plain, and seemingly also in the Piedmont. Expected eventually to be found in the few southeastern Piedmont counties lacking records, but not expected to be found in the near future in the far southeastern Coastal Plain counties.

Quite widespread for a rodent, ranging from coast to coast, across most of the southern half of Canada and the northeastern United States. It ranges south to NC, AL, and AR.

ABUNDANCE: Common and widespread in the mountains; common in the northwestern Piedmont, but decreasing in abundance southward and eastward, but fairly common now to the northeastern part of the Piedmont. Scarce to possibly absent in Piedmont counties east of Charlotte and near or along the SC border. Uncommon but increasing in the northern Coastal Plain, spreading southward fairly rapidly. Note that the iNaturalist website contains photos for nearly half of the state's counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active all year in the Coastal Plain, and probably parts of the Piedmont. However, hibernates in the mountains and probably so in much of the Piedmont.

HABITAT: Favors montane meadows and pastures, often near wooded edges and open woods. Farther eastward, often in wooded margins or even inside forests, but often around roadbanks and roadsides where there are vertical or near-vertical banks. In the Coastal Plain, they also occur in wooded areas, usually near edges, as well as along roadbanks. Thus, downstate they are more likely to be found near roadsides where there are banks (often man-made), as opposed to the mountains, where there is much more topography.

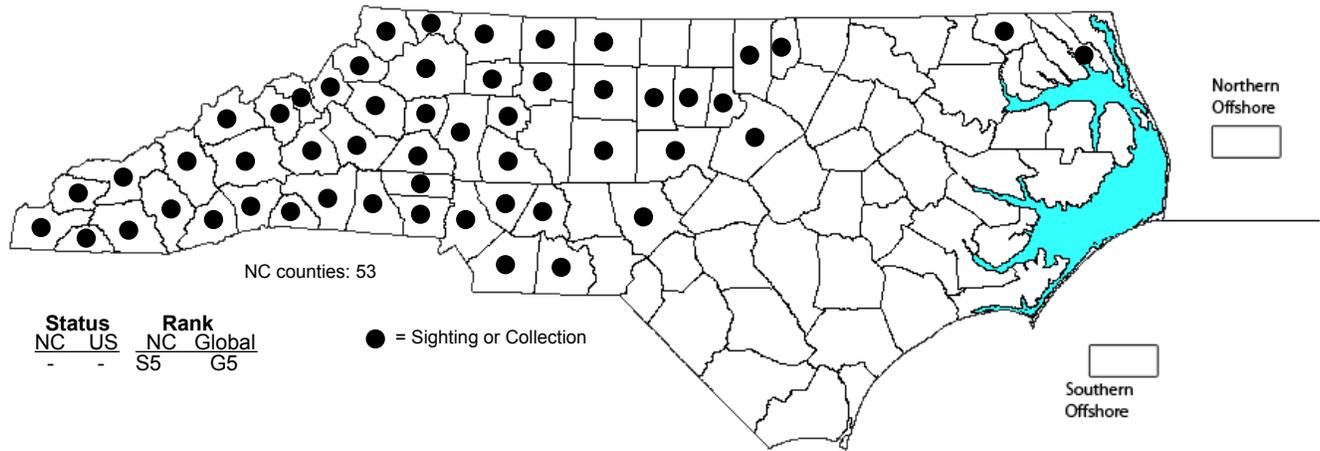
BEHAVIOR: Woodchucks are active most often in early morning and late afternoon, and sometimes at night. They are not as active in the middle of the day, particularly in the heat of summer. They are commonly seen feeding along grassy road edges, and many are killed on roads. They create extensive burrows, and the burrow openings are fairly conspicuous and often seen in forested banks.

COMMENTS: The species is clearly moving south and increasing in abundance, perhaps as many newer roads and highways now are raised on built-up ground, allowing the mammals to be able to burrow into the man-created banks. They are considered as pests in much of the range, such as in the mountains, where ranchers are fearful of their livestock breaking a leg by stepping into a woodchuck burrow.

STATUS: Native

LIST TYPE: Official

Tamias striatus Eastern Chipmunk



DISTRIBUTION: In NC, occurs throughout the mountains and the Piedmont, and sparingly into the far northern Coastal Plain. Absent over the Coastal Plain south of Albemarle Sound and apparently south and east of Wake County, and likely no records for the Sandhills.

Occurs over most of the eastern United States and southeastern Canada, but generally absent from the Coastal Plain; occurs mostly south to central GA and MS.

ABUNDANCE: Common to locally abundant throughout the mountains. Common to locally very common in some foothills ranges. However, mostly uncommon to locally common in the Piedmont, being quite scarce in many southeastern and far northeastern Piedmont locales. There is an odd "semi-disjunction" of the range in the Wake County area, where it is much more numerous than in some areas to the west in the Piedmont. Very rare to rare in the northwestern Coastal Plain. Note that the iNaturalist website contains photos for the majority of the state's mountain and Piedmont counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active for most of the year, but hibernates in winter.

HABITAT: Mainly in hardwood forests with considerable numbers of rocks, within and under which they burrow. They also occur around brush piles, stumps, logs, etc., but normally do not favor dense herbaceous cover in the forest. Also occurs in other types of woodlands, such as those with rhododendron or Mountain Laurel. Chipmunks also occur in some residential areas, preferably where somewhat wooded.

BEHAVIOR: Active during the day only, but likely somewhat more active early in the morning and late in the afternoon. They can be quite vocal, making loud chirping notes and other noises. In some places, they can come to bird feeders, picking up seeds such as sunflower seeds beneath feeders, and making burrows beneath buildings.

COMMENTS: This is a familiar mammal to many people in the state, especially so in the mountains, and at scattered places in the Piedmont. They can at times be seen scurrying across a road, or seen atop a stump, or feeding on the ground in yards. Chipmunk populations can be surprisingly local, such as being numerous in parts of Raleigh, but hard to find in nearby towns or forested areas with seemingly excellent habitat.

STATUS: Native

LIST TYPE: Official

Microtus chrotorrhinus Rock Vole



DISTRIBUTION: In NC, restricted to the middle and higher elevations of the mountains, typically over 3,800 feet. As a result, it may well be absent from the southwesternmost three counties (Graham, Clay, and Cherokee) in the state. It might also be absent in several other mountain counties.

Fairly restricted range, only from southeastern Canada south to the Appalachians, to southern NC. Generally absent in the United States except in the mountains.

ABUNDANCE: Uncommon within the higher portions of the Great Smoky Mountains National Park, but very rare to rare, and local, away from this park. Suspected of being in moderate decline, as there are very few recent records; sadly, data from this national park have been somewhat "guarded" in recent decades, and thus we know very little about its true status currently in NC. As a result of a suspected decline, this website suggests a new State Rank of S2? (rank in brackets below). The species is State-listed as Special Concern.

SEASONAL OCCURRENCE: Probably active all-year, but this is only speculation.

HABITAT: Mainly found in forested areas with many rocks -- boulderfields and talus slopes in the spruce-fir zone are favored. Other cool forests where there are moss-covered rocks are also inhabited. The species can also be found in rocky areas in pastures and weedy fields, as long as they are at high elevations.

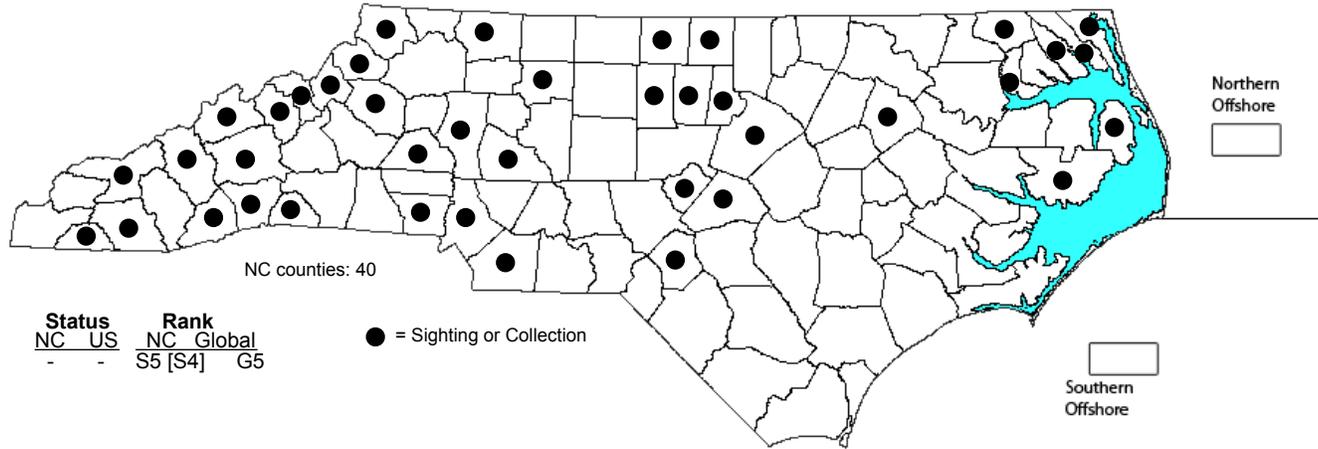
BEHAVIOR: Probably most active at night, but likely has some activity during the day. They are seldom seen far from rocks, where they tunnel in crevices or beneath the rocks.

COMMENTS: This is one of our poorer-known rodents. However, it might still be at least locally numerous within the national park. Further declines are expected with climate change. The population that occurs in the southern Appalachians -- NC and TN north to WV -- is a different subspecies (*M. chrotorrhinus carolinensis*) from that occurring from northeastern PA northward.

STATUS: Native

LIST TYPE: Official

Microtus pennsylvanicus Meadow Vole



DISTRIBUTION: In NC, it occurs nearly throughout the mountains, but is scattered in the Piedmont and in the northern half of the Coastal Plain. There are a few records from the Sandhills portion of the Coastal Plain, but is essentially absent eastward. In the mountains, it usually occurs below 4,000 feet elevation, and may well be absent from the extreme southwestern counties.

A very broad range, from coast to coast, and from AK and Labrador south to the central portion of the United States.

ABUNDANCE: Generally fairly common to common in the mountains, though perhaps somewhat local; however, very rare to rare in the southwestern mountains (including Great Smoky Mountains National Park). Uncommon to fairly common in the northern Piedmont but less common in the southern Piedmont. It is rare to uncommon in the northern Coastal Plain. Numbers have probably declined in recent decades, as older references tended to call it a common species in much of the state. As a result, the range map and recent data suggest a State Rank now of S4 (as shown in brackets below).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Almost always in areas without forested cover; mainly in damp fields, wet thickets, marshy edges, and even in brackish marshes. It also occurs in drier fields and brushy areas.

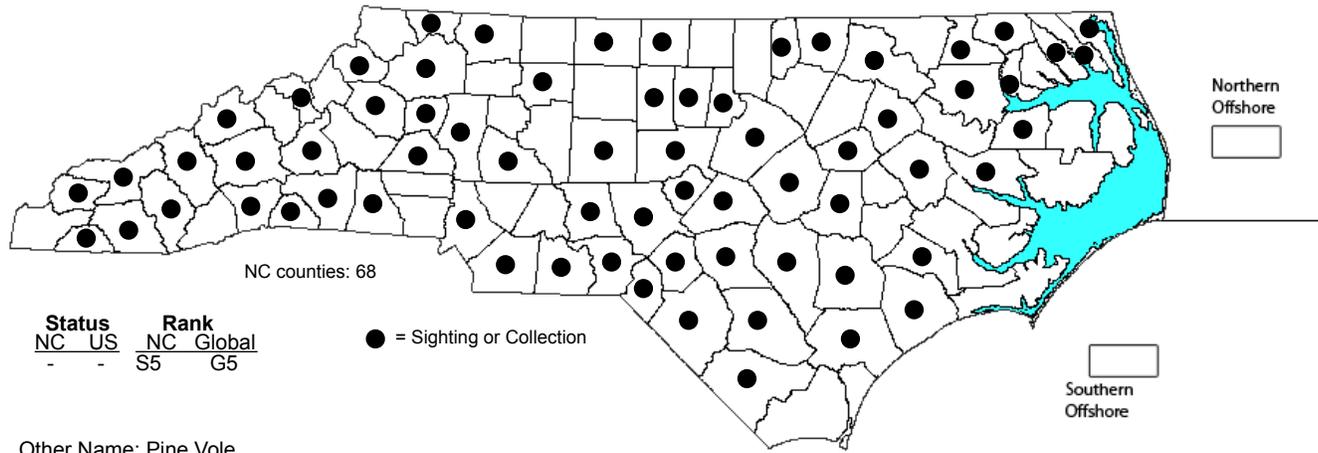
BEHAVIOR: Active both day and night. Creates networks of tunnels in dense grasses.

COMMENTS: The Meadow Vole is one of the most numerous mammals in North America, and it is abundant from VA northward. In the southeastern states, such as NC, it is considerably less numerous. Linzey (1995) indicates that there is just a single record for well-studied Great Smoky Mountains NP. This species can occasionally be seen scurrying across roads, like a small version of a Hispid Cotton Rat. The species is believed to be quite a bit more numerous in the state than the range map shows (i.e., many counties without known records), though it still is far from common in most of the state and is much less numerous and widespread in NC than is the Woodland Vole.

STATUS: Native

LIST TYPE: Official

Microtus pinetorum Woodland Vole



DISTRIBUTION: In NC, it is present all across the state, and likely occurs in all counties, though it might be absent near some coastal areas (e.g., no known records yet for heavily studied Dare, Hyde, Carteret, New Hanover, and Brunswick counties).

Occurs over nearly all of the eastern United States, from extreme southern Canada to the Gulf Coast, and west to the Great Plains.

ABUNDANCE: Various uncommon to common across the state, not obviously more numerous in one region over another, other than seemingly quite rare within 20 miles of the coast. Many more recent collection records from the southern half of the Coastal Plain than elsewhere, and relative few recent ones for the mountains, though it is not certain if the species is more abundant in the southern Coastal Plain than elsewhere.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: A wide variety of open woodlands and various types of fields, preferably in somewhat moist (but not wet) soils. They even occur in residential areas and gardens. Brushy areas with an abundance of leaf litter or dense grasses are favored.

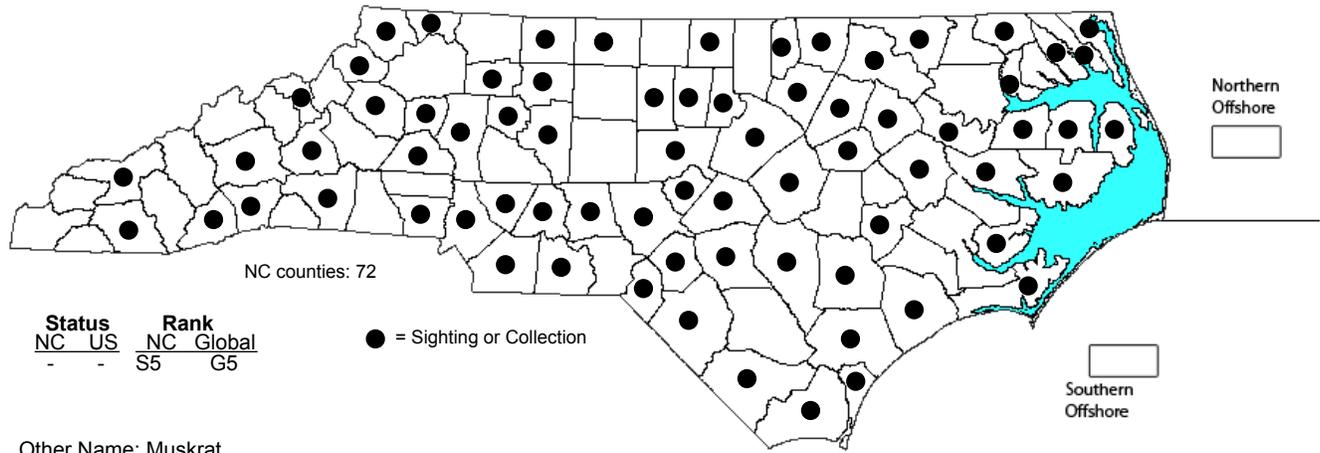
BEHAVIOR: Primarily nocturnal. Lives essentially in burrows, rarely seen on the surface. They are considered as pests because they often feed on roots of garden plants and orchard trees.

COMMENTS: It is probably least numerous in the far eastern counties, and might be locally absent in some such counties. There are apparently no records for coastal islands, especially from the Outer Banks.

STATUS: Native

LIST TYPE: Official

Ondatra zibethicus Common Muskrat



DISTRIBUTION: In NC, it occurs essentially statewide, but is of spotty distribution in the mountains.

Ranges over nearly all of North America, south to the Gulf Coast, but absent in FL and the adjacent coastal areas of GA and SC.

ABUNDANCE: Common to locally abundant in the Tidewater and other north-coastal regions of the state, south to Hyde County. Generally common elsewhere in the Coastal Plain, except rare to uncommon in the southeastern quarter. Generally fairly common to common in the Piedmont, and uncommon to very locally common in the mountains, at least at lower elevations; somewhat local in the Piedmont and mountains, as suitable habitat is not widespread in some counties. Note that the iNaturalist website contains photos for many of the state's counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Always in and around water -- fresh or brackish. Favors coastal brackish to fresh marshes; but also widespread around lake and pond margins, such as farm ponds, along streams and slow-moving rivers, and other areas of marsh and open water.

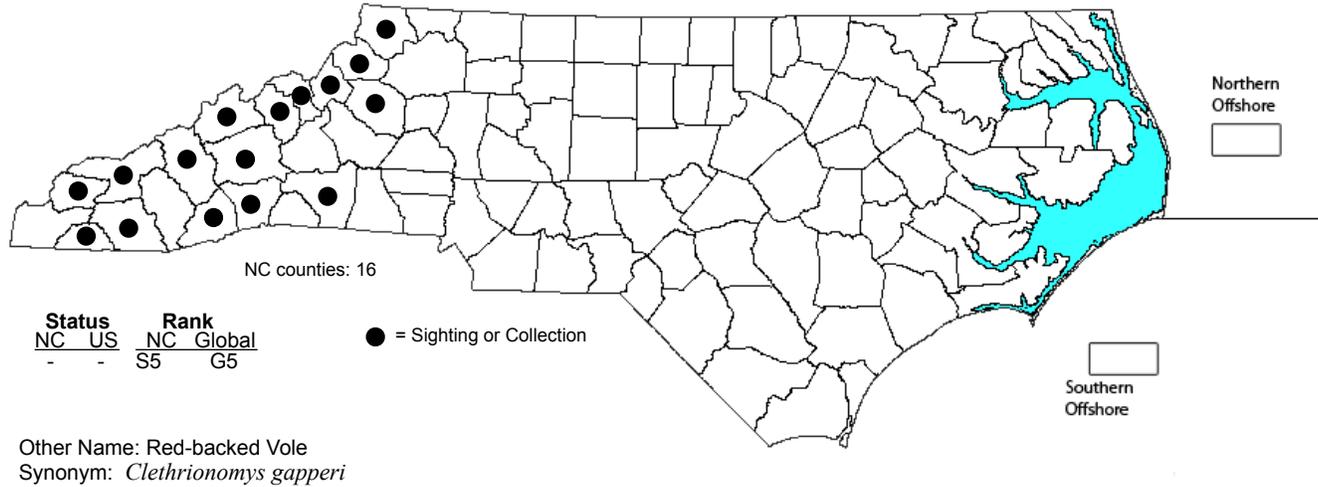
BEHAVIOR: Most active at night, but at times active during the day. In marshes, they build dens, like beavers but smaller, but in many areas of the state, especially farther inland, nests are typically tunnels/burrows, such as in dikes of ponds.

COMMENTS: The range is still a bit spotty, at least in the western half of the state, though it is presumed to occur in all 100 counties. The species has adapted rather well to man, as many farm ponds have a pair of muskrats. The fairly rapid spread of the Coypu (= Nutria) into some habitats used by Muskrats does not seem to have negatively impacted Muskrats, but this might change in upcoming years, if Nutria keep spreading inland and southward.

STATUS: Native

LIST TYPE: Official

Myodes gapperi Southern Red-backed Vole



DISTRIBUTION: In NC, it occurs only in the mountain province, essentially in all counties there, at elevations above 2,500 feet.

An extensive range from coast to coast, ranging north to most of Canada, and south in major mountain ranges in the United States -- the Appalachians and the Rockies; it is absent in most of the United States in non-montane regions.

ABUNDANCE: Abundant at higher elevations, and common at middle elevations, down to about 2,500 feet.

SEASONAL OCCURRENCE: Active year-round, even at its high elevations.

HABITAT: Favors cool and moist forests, with spruce-fir stands being preferred. Also occurs in other cool forests, such as (formerly) hemlock stands, cove forests, or other forests with much rhododendron. An abundance of logs, rocks, or roots are favored.

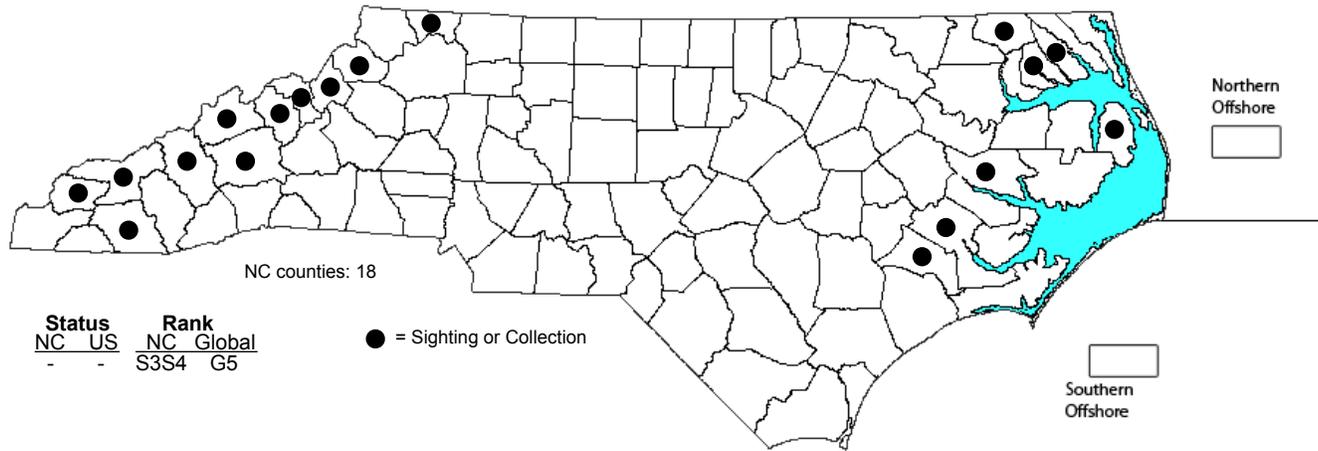
BEHAVIOR: Primarily nocturnal, but sometimes active by day. Utilizing existing runways or burrows, or utilizes natural cover of logs, rocks, etc., for foraging and roosting.

COMMENTS: This may well be the state's most abundant mammal within the spruce-fir zone. The subspecies in NC -- *carolinensis* -- is endemic to the southern Appalachians.

STATUS: Native

LIST TYPE: Official

Synaptomys cooperi Southern Bog Lemming



DISTRIBUTION: In NC, the range is bimodal, occurring only in the mountains and in the northeastern and far eastern Coastal Plain; seemingly absent from the Piedmont and the western Coastal Plain. Probably occurs in all mountain counties, though it could be absent in several in the far southwestern corner of the state.

Occurs over the northeastern quarter of the country, into southeastern Canada; ranges south to NC, northeastern AR, and KS.

ABUNDANCE: Rare to uncommon, and somewhat local (because of its spotty habitat) in the mountains; rare to uncommon in the Coastal Plain north of Albemarle Sound, but very rare or poorly known south to Jones and Craven counties.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: In the mountains, occurs in bogs, wet meadows, open wet grassy areas, and damp thickets, but avoids forests. In the Coastal Plain, it favors damp weedy fields and recent clearcuts, canebrakes, and marshy edges; not usually in shaded habitats.

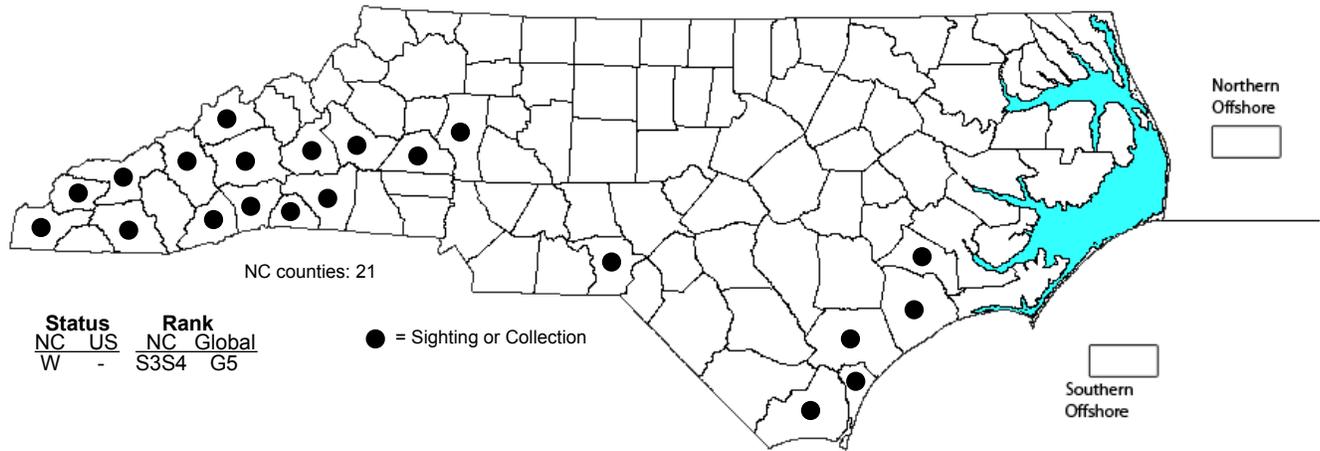
BEHAVIOR: Generally nocturnal, but at times active by day. Utilizes runways through dense grassy cover for movement and feeding, but has underground tunnels and burrows for roosting and nesting.

COMMENTS: This species has two subspecies in NC -- the mountain population is *Synaptomys cooperi stonei*, and the Coastal Plain population is *S. c. helaletes*. Though neither is truly rare in the state, the coastal population, known as the Dismal Swamp Southern Bog Lemming, is considered as Significantly Rare by the N.C. Natural Heritage Program. It actually can be locally numerous in the Dismal Swamp area, but there are just a few scattered records southward into Croatan National Forest.

STATUS: Native

LIST TYPE: Official

Neotoma floridana Eastern Woodrat



DISTRIBUTION: It has an apparent trimodal range in NC, occurring mostly in the southern half of the mountains and the adjacent southwestern Piedmont foothills, and also at a few sites in the southeastern Coastal Plain. Incredibly, in 2019, someone trapped one in northern Richmond County; Terry Sharpe (retired NCWRC biologist) and others soon located two nests in nearby buildings, as well as live-trapping a woodrat in 2020, adding an isolated Sandhills distribution to the state.

Essentially the southeastern United States, from southern NC west to SD, and south to eastern TX and FL.

ABUNDANCE: Generally uncommon in the southern half of the mountains, probably north to about Buncombe and Madison counties, and very rare to rare in the Hickorynut Gorge area in the foothills. Also apparently into the western Piedmont, though species identification there (as well as in the central mountains) is uncertain -- see the Allegheny Woodrat account and map. Very rare to rare, and local, in the extreme southeast, north to Jones County (where first found in 2017), and north to Richmond County.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: In the mountains, it occurs in rocky forested habitats, both dry and moist situations; talus slopes, boulders along and near streams, cliffs, and roadcuts all provide suitable micro-habitat. In the Coastal Plain, it favors floodplains and other moist hardwood forests; a favored site contains much Dwarf Palmetto (*Sabal minor*). They sometimes use abandoned buildings for nest sites.

BEHAVIOR: Mainly or essentially nocturnal. They are noted for building large stick and leaf nests, often to at least a foot high and wide. Shiny objects can often be seen in these nests.

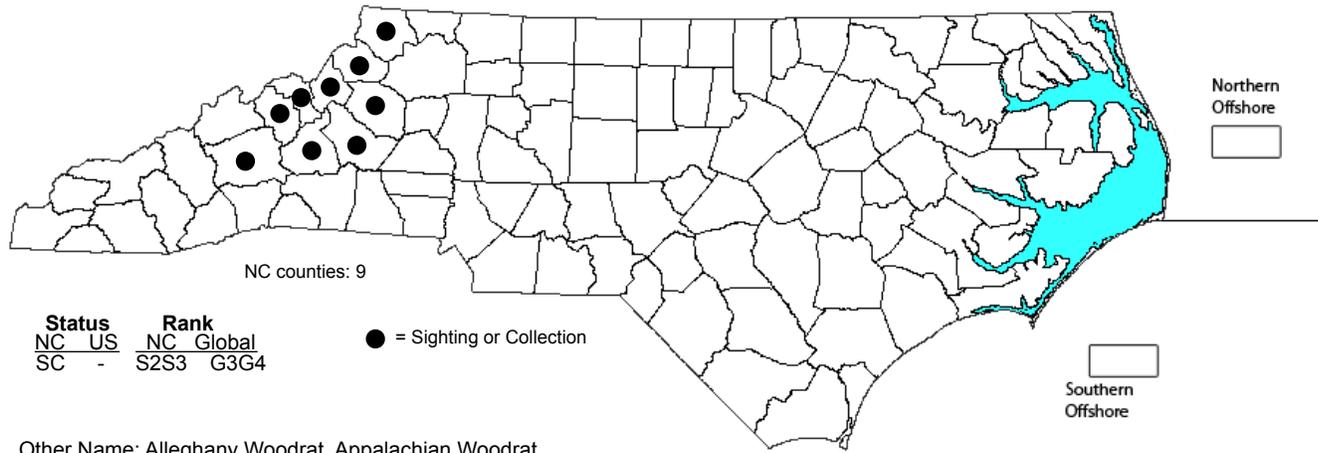
COMMENTS: The northern portion of the original Eastern Woodrat species was split off in 2001 as the Allegheny Woodrat (*Neotoma magister*). As the two species are presumably allopatric (do not overlap) in the range, the separation in NC, apparently around Madison, Buncombe, McDowell, and Burke counties, plus eastward into the Piedmont, is difficult to assess because they are practically impossible to identify by visual means and because the nest structures are probably identical. Records have been increasing for this species in the mountains, most likely due to increased field work. However, the Coastal Plain population is State listed as Threatened and is in considerable decline, owing to habitat destruction. This coastal population belongs to the *N. f. floridana* [i.e., the nominate] subspecies, whereas the mountain population belongs to a different subspecies -- *N. f. haematorea*.

NOTE: Because of the impossible nature of identifying a woodrat to species without a specimen or hand-examination of a live individual (or likelihood of geographic range), some records simply must be left unidentified. The website editors feel that a Photo record from Madison County, from March 2020, though accepted as Eastern Woodrat, must actually be treated as "Woodrat unidentified species", as both Eastern Woodrat and Allegheny Woodrat can potentially occur in Madison County.

STATUS: Native

LIST TYPE: Official

Neotoma magister Allegheny Woodrat



Other Name: Alleghany Woodrat, Appalachian Woodrat

DISTRIBUTION: In NC, it occurs in the northern half of the mountains, apparently south only to Buncombe County. It also occurs in the Piedmont foothills, at least in the northern foothills. As this species was split off from the Eastern Woodrat fairly recently (2001), the southern extent of the Allegheny's range in the NC mountains is not clear, as the two species are practically identical visually.

A very small range, and only in the Appalachians -- northern NJ and northeastern PA, and formerly CT and NY, south to northern GA and western TN.

ABUNDANCE: Rare to uncommon, but seemingly rather widespread, in the northern mountains; likely very rare in the Piedmont.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Almost always in rocky areas in upland forests, typically where somewhat dry. These rocky places can be in natural talus slopes, boulders, rocks along forested streams, and even roadcuts. Most sites are in hardwood forests.

BEHAVIOR: Mainly nocturnal. Woodrats are famous for building fairly large stick nests, mixed with leaves and other objects, and typically placed in a crevice between rocks. However, some nests are placed at the base of a tree or base of a cliff. Nests are often a foot or more high or across, and are often quite conspicuous, especially if shiny man-made objects are in the nest.

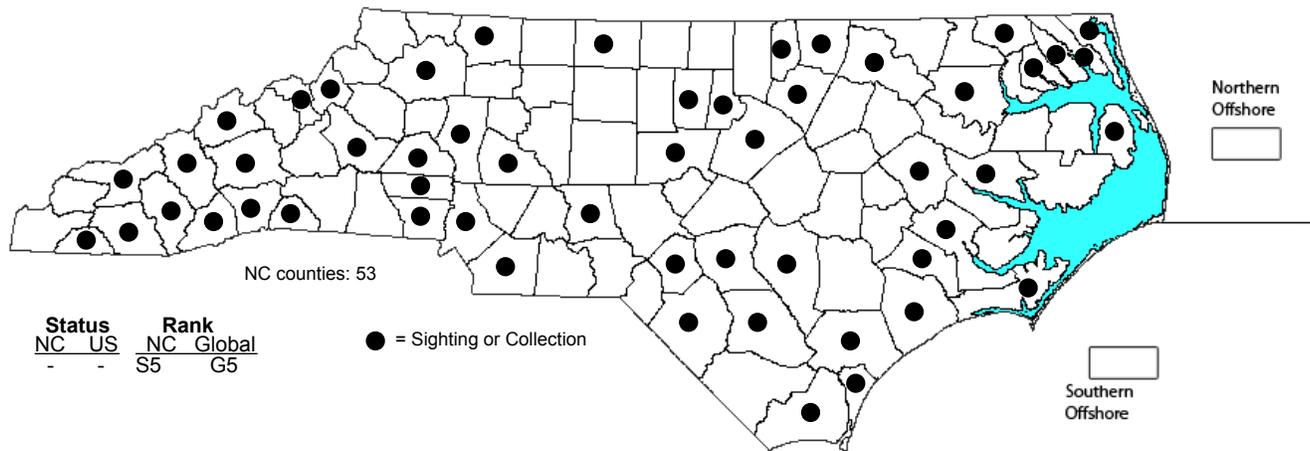
COMMENTS: This species is State listed as Special Concern. The northern populations (north of NC) are severely declining; it formerly occurred in CT and NY. No such declines have been noted in NC, but with climate change, the species might become less common in future years. In addition, this species and the similar Eastern Woodrat, which occurs immediately to the south in the mountains and foothills of NC, build very similar nests; as most reports of Alleghenies are of nests, species identification is based almost solely on geography, and not on specimens. This makes it nearly impossible to determine the range boundary between the two species.

NOTE: Because of the impossible nature of identifying a woodrat to species without a specimen or hand-examination of a live individual (or likelihood of geographic range), some records simply must be left unidentified. The website editors feel that a Photo record from Madison County, from March 2020, though accepted as Eastern Woodrat, must actually be treated as "Woodrat unidentified species", as both Eastern Woodrat and Allegheny Woodrat can potentially occur in Madison County.

STATUS: Native

LIST TYPE: Official

Ochrotomys nuttalli Golden Mouse



DISTRIBUTION: In NC, it ranges essentially statewide, and likely occurs in all counties, but it is scarce toward the coast.

Strictly the southeastern states, ranging north to VA, WV, and MO, and west to eastern TX.

ABUNDANCE: Generally fairly common in the mountains and Piedmont, though with many counties still lacking records. Fairly common to perhaps locally common over much of the Coastal Plain, though quite rare to locally absent on barrier islands. As collection records seem to be slow to accumulate, and as there are only a few photographs of the species (or likely nests) on the iNaturalist website, this species might be declining across the state. The range map does not clearly suggest "common statewide" anymore.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Strictly in forested areas, favoring somewhat moist hardwoods, often near edges of the forests. Favored habitats are bottomlands, especially with many vine and brier tangles, or large stands of cane. Also occurs in upland forests, particularly so in the mountains, where floodplain forests are rare. Occurs also in swamps, or in pine stands where there is an abundance of evergreen vine cover; places with much Japanese honeysuckle growing up into shrubs and small trees, or dense areas of greenbriers, make for good micro-habitat conditions.

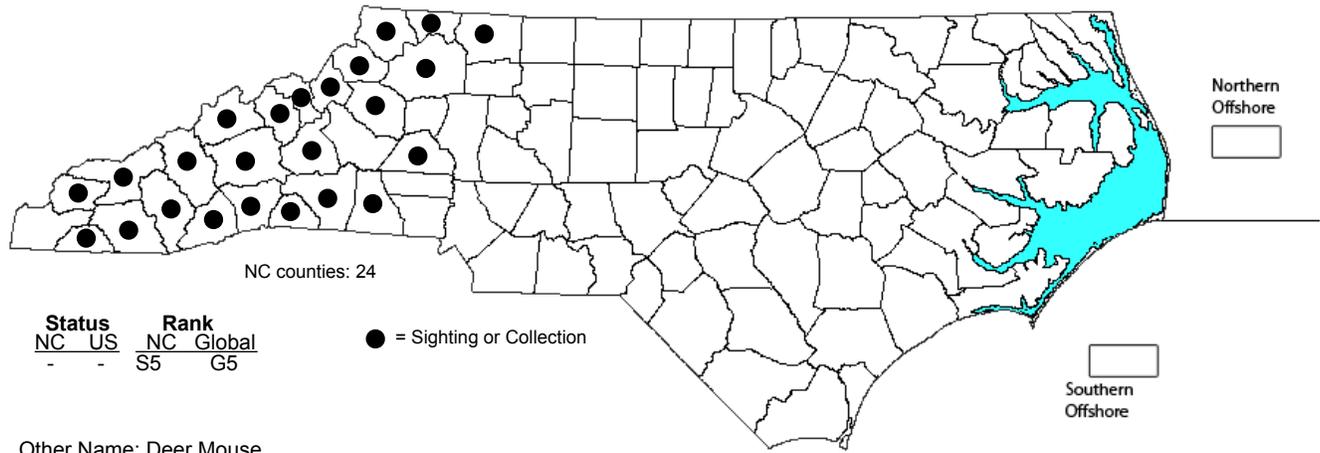
BEHAVIOR: Essentially nocturnal. Makes round nests of leaves, typically 4-6 inches across, placed several to many feet above the ground, in dense vine cover; typically the nests are about 3-6 feet above ground. The species is an agile climber, and spends most of its time off the ground.

COMMENTS: This species is quite different in its habits (often arboreal) and behavior from the deermice (genus *Peromyscus*), and the Golden Mouse is monotypic. There are two subspecies in the state.

STATUS: Native

LIST TYPE: Official

Peromyscus maniculatus North American Deermouse



DISTRIBUTION: In NC, it is essentially limited to the mountain region, and there found mostly from 3,500 feet and higher, though ranging down to about 2,000 feet in winter. There are only a few records for the western Piedmont, where questions remain about regular occurrence.

By far the most wide-ranging native mouse that occurs in North America, occurring from coast to coast and from northern Canada south to the southern Appalachians and down into Mexico. It thus is absent from most of the Piedmont and Coastal Plain provinces.

ABUNDANCE: Abundant in the mountains, mostly above 4,000 feet; less numerous at lower elevations, where it broadly overlaps with the White-footed Deermouse. Very rare, apparently, in the western Piedmont, where it is uncertain if it is a resident, or a stray from the mountains.

SEASONAL OCCURRENCE: Active year-round. In the Great Smoky Mountains National Park, it has been recorded below 2,000 feet in winter or early spring, but in summer the same site was occupied by only the White-footed (Linzey 1995), suggesting that there is some altitudinal movement to lower elevations in the colder months.

HABITAT: Strictly in cool forests, preferably where moist. Favored are spruce-fir or spruce-hardwoods, but cove forests or hardwood forests with much rhododendron cover are also utilized. It is seldom found in dry forests, and hardly even in fields and brushy habitats.

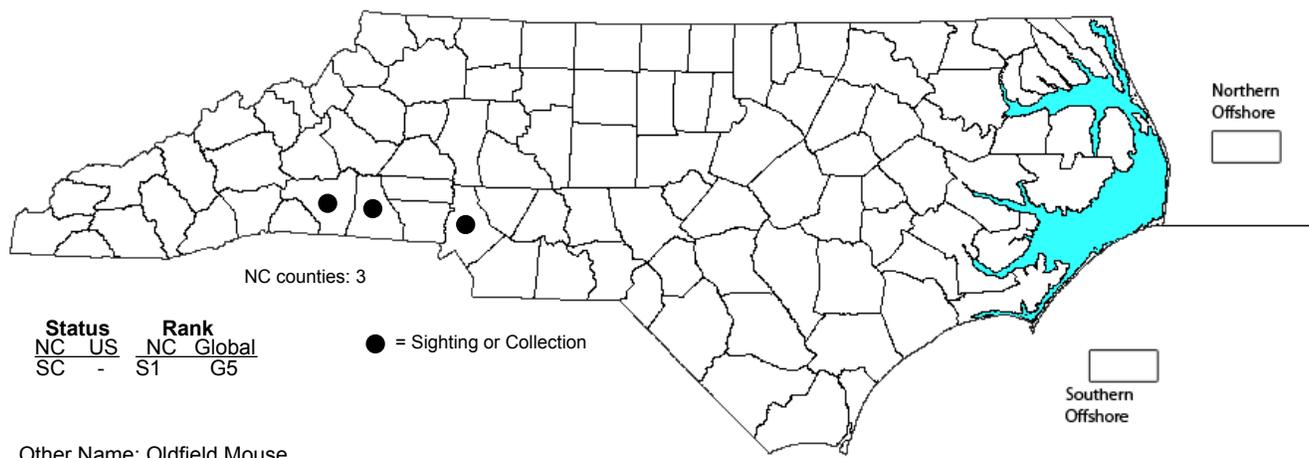
BEHAVIOR: Essentially nocturnal. Spends much time in areas with rocks, logs, and other heavy cover on the forest floor.

COMMENTS: This is possibly the most abundant mammal in the state at the middle and higher elevations in the mountains, along with the Southern Red-backed Vole and possibly one or two shrews. There is a moderate range overlap with the White-footed Deermouse, especially from about 2,000 to 4,500 feet elevation; both can occur in the same habitats. The few records from the Piedmont, east of the higher foothill ranges, are puzzling. Does the species occur at all in the South Mountains or the Brushy Mountains? Records for those mountain ranges do not appear on the Lee et al. (1982) range map.

STATUS: Native

LIST TYPE: Official

Peromyscus polionotus Oldfield Deermouse



DISTRIBUTION: In NC, it is known only in the extreme southwestern Piedmont, in counties bordering SC -- records only from Rutherford, Cleveland, and Mecklenburg counties.

A small range for a mouse, being limited to the southeastern states, north to extreme southern NC and TN, east to central SC, and west to AL.

ABUNDANCE: Though it can be locally common in SC, it is quite rare in NC, as well as poorly known. It is probably slowly expanding its range northward. There are just a few records for the state, with the most recent being in a protected site in northern Mecklenburg County. It is State listed as Special Concern.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Strongly favors brushy and weedy grasslands and fields, in sandy soils, as it is a burrowing species. It thus tends to avoid wet habitats, and it also typically avoids forests. It can occur along the sandy borders of cultivated fields, as well as overgrown sites. It also occurs in sandy roadsides, and possibly might be spreading northward along highway margins.

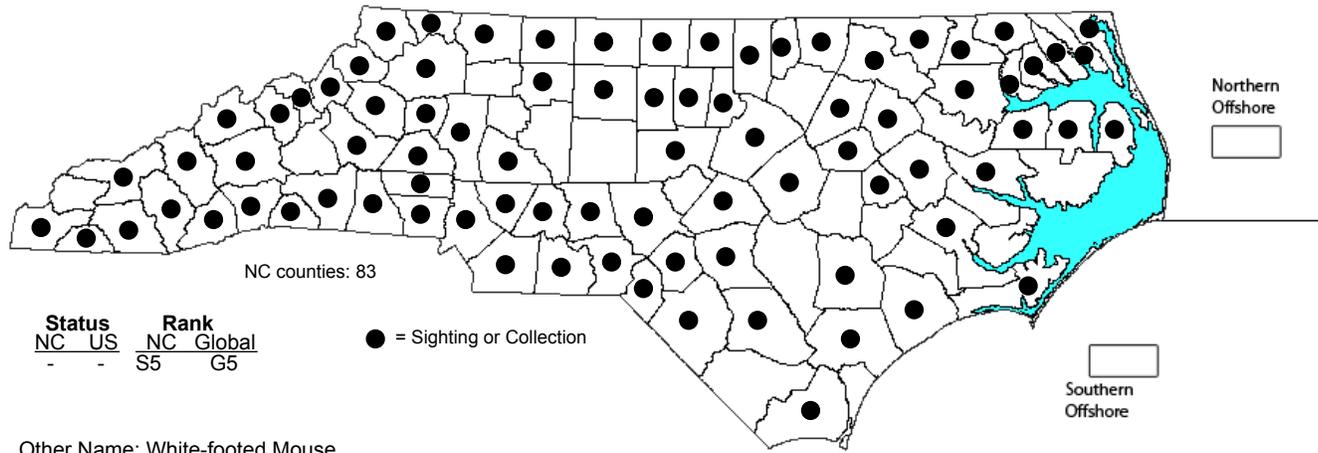
BEHAVIOR: This species spends most of its time underground, in a burrow, unlike most other mice in the state. Perhaps for that reason, it isn't well known across its overall range. It is almost certainly nocturnal in its activity.

COMMENTS: The first record for the state did not come until 1976, from Rutherford County, as reported in Lee et al. (1982). Since then, it has been noted from two additional counties, to the east, but still in the Piedmont within about 30 miles of the SC line. As it is numerous in the Sandhills region of SC, it might be expected in the Sandhills region of NC in upcoming years.

STATUS: Native

LIST TYPE: Official

Peromyscus leucopus White-footed Deermouse



DISTRIBUTION: In NC, it is found essentially statewide, but is scarce in a few southeastern Coastal Plain counties, though there is at least one record each from Brunswick and Pender counties.

Occurs over nearly all of the eastern and central United States, and barely into southern Canada. It ranges south to southeastern NC, LA, and TX, but is absent in the extreme Southeast (FL and adjacent coastal areas).

ABUNDANCE: Generally abundant over the range in NC, except less numerous near the coast, and more scarce in the southeastern quarter of the Coastal Plain. Also, less numerous at high elevations, where it is generally replaced by the North American Deermouse. Considered to be the most numerous mammal in the state, in terms of total number of individuals. Note that the iNaturalist website contains photos for many of the state's mountain and Piedmont counties, and the editors have not taken the time to update the map with "Photo" records/documentation across the entire state unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Favors hardwood forests of a wide variety. Most numerous in mesic to dry forests, but also occurs in bottomlands, as well as various thickets and brushy areas. It is infrequent in fields, but is can occur there, as well as in marshes. Scarce to absent in spruce-fir forests, as well as some coastal forests such as pocosins. It does occur in some buildings in wooded areas.

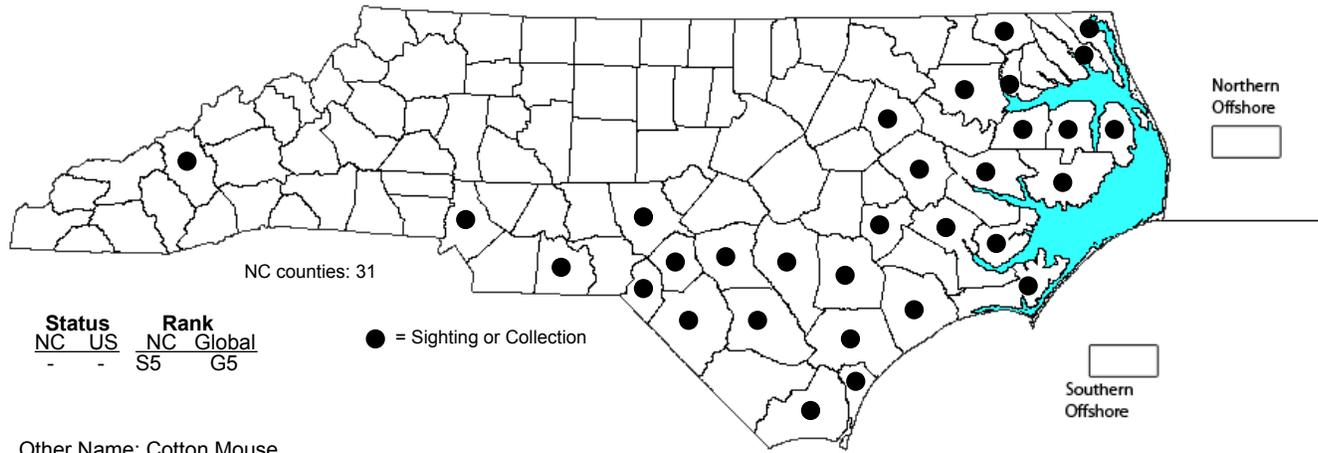
BEHAVIOR: Primarily nocturnal in activity. It swims and climbs fairly well, though it stays primarily on the ground.

COMMENTS: The species is somewhat replaced at the higher elevations by the North American Deermouse, but it does occur to the highest peaks; Linzey (1995) notes a record to 6,500 feet in the Great Smoky Mountains National Park. On the other hand, this species broadly overlaps the similar Cotton Deermouse in the Coastal Plain, and both are found in bottomlands and some other forested habitats, though the latter species favors wetter habitats than does the White-footed.

STATUS: Native

LIST TYPE: Official

Peromyscus gossypinus Cotton Deermouse



DISTRIBUTION: In NC, it is essentially limited to the Coastal Plain, plus the extreme southeastern edge of the Piedmont (at least west to Mecklenburg County). It does "finger" into a few low elevation areas of the southern mountains (at least in Haywood County), presumably from TN drainages. It is apparently absent from nearly all of the Piedmont and nearly all of the mountains. It has been found on the Outer Banks apparently only in Buxton Woods.

Strictly in the southeastern United States, ranging north to southeastern VA and MO, and west to eastern TX. Most of this range lies in the Coastal Plain, but it does occur into northern GA and much of TN.

ABUNDANCE: Generally common, to possibly locally abundant, in the southern and eastern parts of the Coastal Plain; but rare to absent in the northwestern portions (with no known records west of Gates and Edgecombe counties and north of Duplin, Sampson, and Cumberland counties). Rare in the southeastern Piedmont counties that border SC. Very rare and poorly known in the lowest elevations of the mountains in the southwestern counties, where known from a number of records from the Great Smoky Mountains National Park, all but one apparently from the TN side of the park. As with most small rodents and shrews, true abundance levels are difficult to assess owing to nocturnal activity and few researchers doing trapping surveys of them. Sadly, there are no NC Cotton Deermouse photo reports, "valid" or not, to the iNaturalist website; yet there are numerous such reports there for the congeneric White-footed Deermouse and the North American Deermouse, suggesting that the "Cotton Mouse" is either not nearly as common within its part of NC as they are in theirs, or where it is common there are few photographers.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Favors wetland forested habitats, such as bottomlands and swamps. It also occurs in wet thickets and upland forests to a lesser extent, and occasionally can be found in residential areas and in clearcuts.

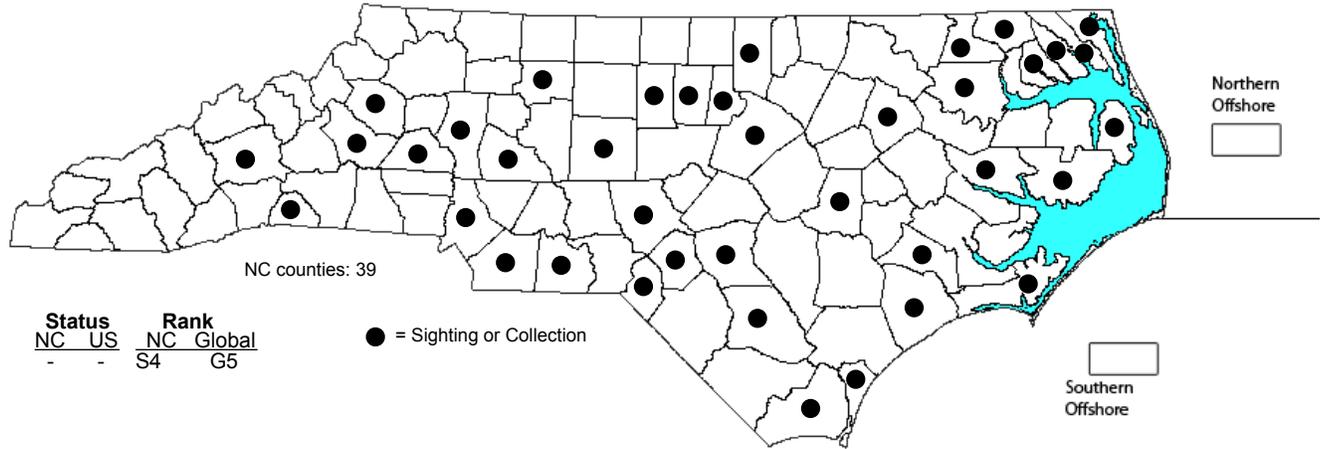
BEHAVIOR: Mainly nocturnal in activity. It swims well for a *Peromyscus* mouse, and it also climbs fairly well.

COMMENTS: Few field guides and other references show the range of this species in the southern Appalachians, though Reid (2006) in the Peterson field guide portrays a finger of the range coming up from GA into adjacent NC. Most interestingly, Linzey (1995) supplies a number of records of this species, including collections from several biologists, from elevations ranging from 1,442 to 2,800 feet in Great Smoky Mountains NP. All but one are from the TN side, but there is a record, presumably a collection, from Big Creek (1,700 feet) in Haywood County, NC. Presumably, the species "fingers" into this corner of the state along the Pigeon River, and perhaps up the Savannah River drainage into northern GA and adjacent NC. Yet, if it occurs in this part of the state, why doesn't it apparently occur over the eastern Piedmont, where elevations are barely 350-500 feet? Needless to say, more collection efforts are needed to solve this puzzling range west of the Fall Line.

STATUS: Native

LIST TYPE: Official

Reithrodontomys humulis Eastern Harvest Mouse



DISTRIBUTION: In NC, it occurs essentially throughout the Coastal Plain and the Piedmont. In the mountains present apparently only at the lower elevations, barely found over about 2,000 feet. It is probably absent from most mountain counties that lack low elevations (below 2,000 feet). Our only mountain record seems to be an old one from Buncombe County.

Occurs over the southeastern United States only, north to OH and MD, and west to eastern TX.

ABUNDANCE: Generally uncommon or infrequent, though widespread, except apparently absent to locally rare in the mountains, and perhaps absent over about 2,500 feet. One of the less common small rodents in a given region, even in its favored habitats. Of course, small rodents are essentially nocturnal and are thus difficult for most people to find (dead or alive), and it could certainly be locally more numerous; however, most references suggest it is an infrequent species compared with many other small rodents.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Strictly in open weedy habitats, favoring overgrown fields, especially ones with broomsedge and some bare ground areas. It can also occur in pastures and damp meadows/marshes, but it is not a true marsh species. It tends to avoid areas of trees.

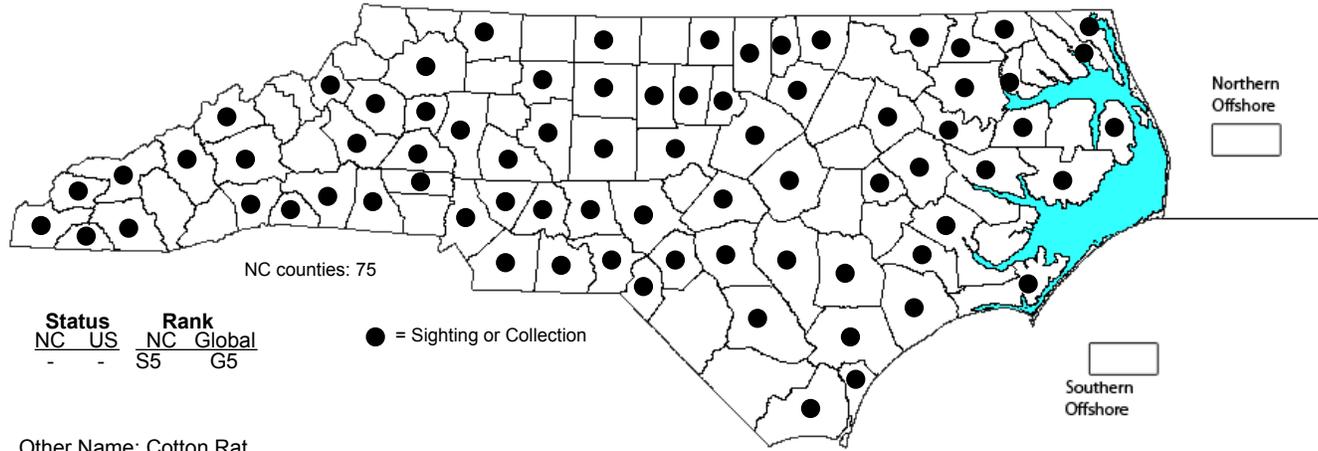
BEHAVIOR: Presumably mostly nocturnal, but seldom has been studied in detail. Presumably not local in occurrence.

COMMENTS: This species might well occur in all Coastal Plain and Piedmont counties, but it has been poorly studied in most parts of its range. Even so, it occurs in "common" habitats, and with more intensive pitfall trapping in overgrown fields, it likely would be shown to be not overly uncommon. Interestingly, the range maps in Reid (2006) and Kays/Wilson (2009) show the species as being absent from the western 40% of the state, which is certainly incorrect, as Lee et al. (1982) show records from scattered counties in this part of NC. Even so, it is very poorly known in the mountains, and range maps perhaps should exclude most of the mountain region except for Buncombe and a few other counties.

STATUS: Native

LIST TYPE: Official

Sigmodon hispidus Hispid Cotton Rat



DISTRIBUTION: In NC, it occurs statewide, at least up to the lower elevations in the mountains. Scarce above about 3,000 feet.

Found over most of the southern parts of the United States, west to southeastern CA, but north only to about northern VA. This range is probably spreading northward.

ABUNDANCE: Abundant and widespread across the Coastal Plain and most of the Piedmont. Generally common in the lower mountains, and perhaps the Piedmont foothills. Scarce at middle elevations, and presumably absent from over 4,000 feet. Perhaps has increased in the mountains in recent decades and might be spreading somewhat into middle elevations now. Note that the iNaturalist website contains photos for several dozen counties across the state, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Dense herbaceous cover, where not overly wet. Weedy fields, pastures, brushy thickets, wooded edges, very open woods, and other places with a thick grassy cover are the typical habitats. It seldom occurs in the marshy habitats where the Marsh Rice Rat is found.

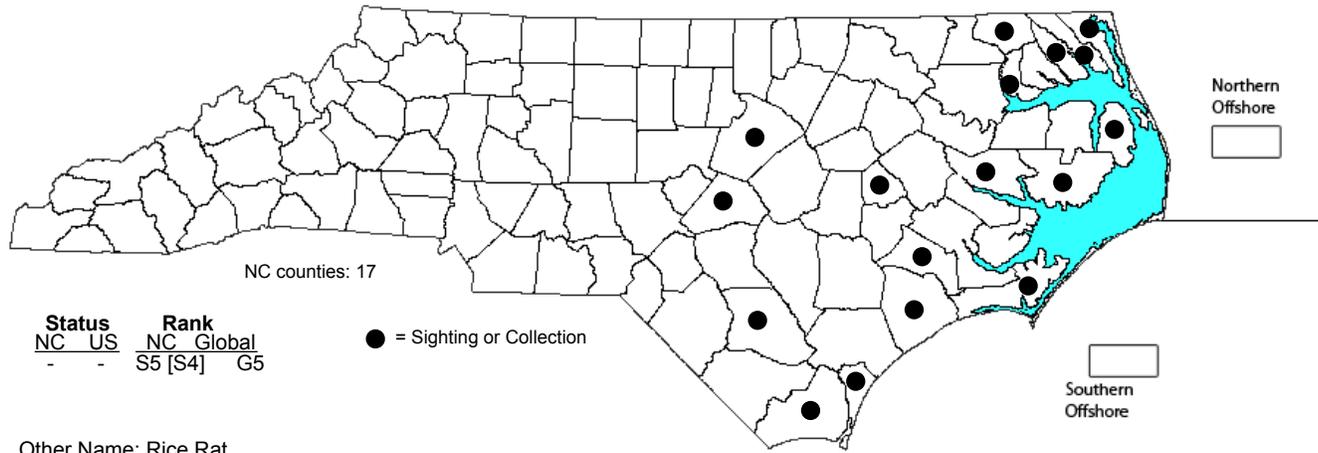
BEHAVIOR: Mainly active at night and at twilight, but unlike many small rodents, it is also fairly active by day. They can often be seen scurrying quickly across a road or wide trail in broad daylight.

COMMENTS: This species has increased considerably in range and abundance in NC in the past 50 years. It is certainly one of the most numerous mammals in the state, in all regions; it is the most often seen native mouse or rat species in the state, owing to its rather large size and frequency of crossing trails and roads in daylight hours.

STATUS: Native

LIST TYPE: Official

Oryzomys palustris Marsh Rice Rat



DISTRIBUTION: In NC, it is scattered over the Coastal Plain, barely west into the eastern edge of the Piedmont (Wake and Harnett counties). However, it is primarily found in coastal and Tidewater counties, inland mainly just to Gates, Beaufort, and Bladen counties.

The southeastern quarter of the country, north to about NJ, and west to eastern TX, primarily on the Coastal Plain, at least in the Atlantic states.

ABUNDANCE: Can be locally very common to abundant in coastal marshes; seemingly quite local, and much less numerous (mostly rare to uncommon) farther inland to the eastern edge of the Piedmont. Perhaps has declined over the inner portion of the range, as there are very few recent reports away from tidal marshes. The only two photo records on the iNaturalist website are from coastal counties. The State Rank of S5 is now seemingly too "liberal", and a less numerous rank of S4 seems more appropriate now.

SEASONAL OCCURRENCE: Active all year.

HABITAT: Strictly in wetlands, and these are almost always in open areas; marshes are the primary habitat. Most common in brackish marshes, less so in salt marshes. Also found in very wet fields and other sunny wetlands.

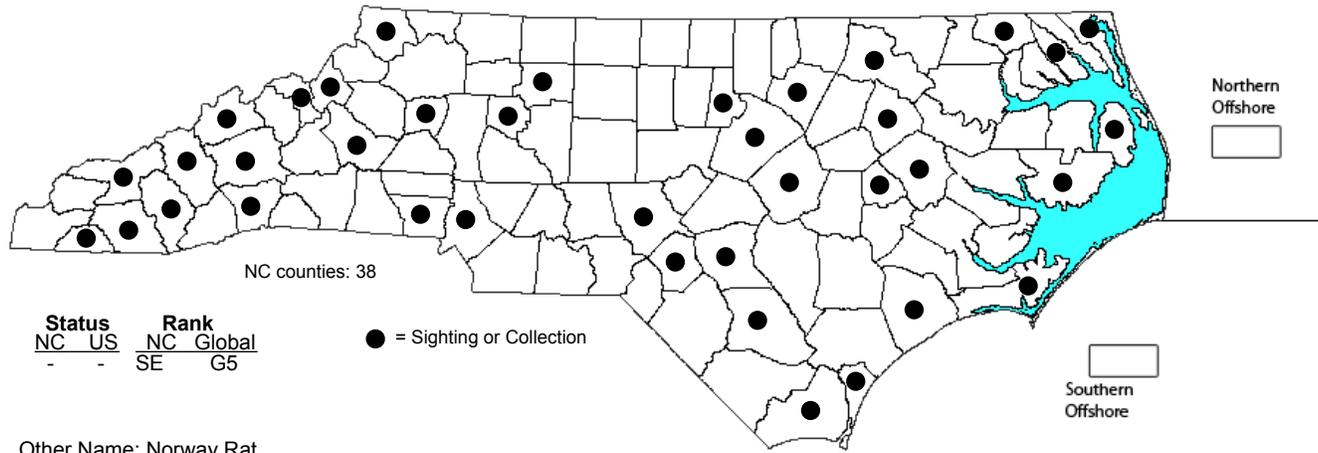
BEHAVIOR: Essentially nocturnal. Because its marshy habitat is less widespread away from coastal and tidewater areas, the species is probably quite local farther inland.

COMMENTS: This species' range inward from the tidal marshes is not well known, though it is assumed to occur essentially throughout the Coastal Plain, as there are scattered records west to Wake County (in the eastern Piedmont), where it is presumed that more biologists have been active.

STATUS: Native

LIST TYPE: Official

Rattus norvegicus Brown Rat



DISTRIBUTION: Undoubtedly found statewide in NC.

Native to eastern Siberia and China, but introduced into the New World around 1775. It now occurs over nearly all of North America except for the colder regions in the Far North.

ABUNDANCE: Common to abundant nearly statewide, though less common in the middle and higher elevations, but still at least common. There are surprisingly few photo reports submitted to the iNaturalist website, though new county records were added by the editors to the map. Perhaps few people care to photograph a Brown Rat or a Roof Rat and thus bother to submit a report of these non-native species to that website. And, there are few recent museum specimens, again likely to apathy in collecting or taking a dead rat to a museum!

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Almost strictly near man -- in cities, towns, and farm areas, especially so in buildings, sewers, around garbage dumps, etc. It also occurs in various fields and brushy areas, even into some marshes, including salt marshes.

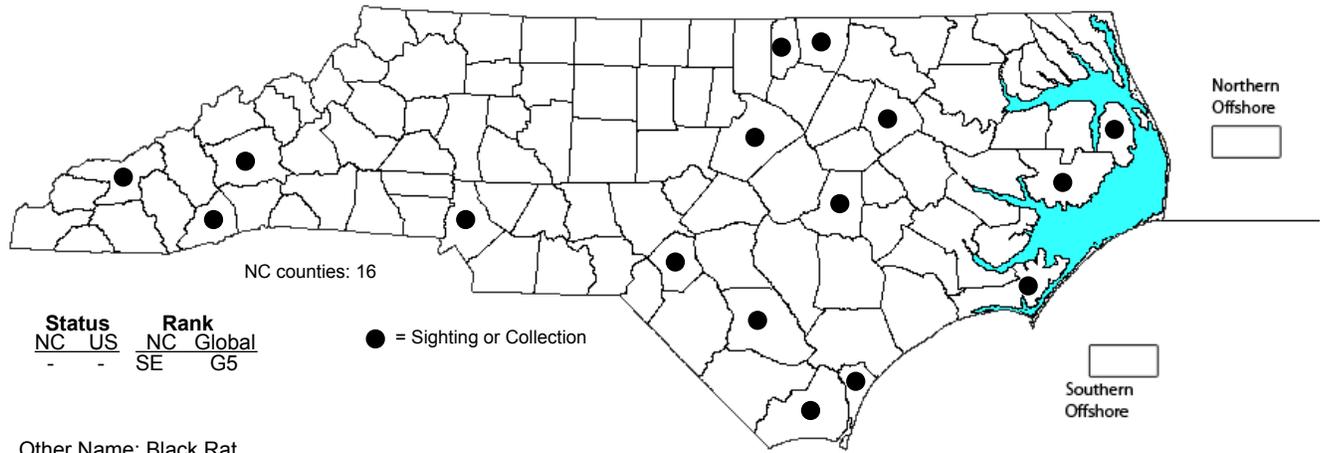
BEHAVIOR: Essentially nocturnal. Occurs in sizable groups, especially in damp places such as sewers.

COMMENTS: This species -- traditionally named as the Norway Rat -- is slightly larger than the closely related Roof Rat (often called the Black Rat) and displaced it from most areas of the state many decades ago. The distribution map below hardly does justice to the range of the species today, as certainly it is present in all 100 counties. It is likely the most disliked mammal species in the state, as its presence signals "filth" and potential disease. At least, the species serves man by being a lab favorite for a variety of testing of medicines.

STATUS: Introduced

LIST TYPE: Official

Rattus rattus Roof Rat



DISTRIBUTION: In NC, widely scattered across the state, and seemingly rather poorly known (at least now), as it resembles the much more common Brown [i.e., Norway] Rat.

Introduced from Europe by the early 17th Century, now found in coastal states from the West Coast to the East Coast, but mainly absent in the center of the country.

ABUNDANCE: Apparently formerly more numerous in the state, but reportedly mostly displaced by the also introduced Brown Rat. Rare and local across most parts of the state. Lee et al. (1982) stated that "the only extant populations we are aware of are in and around Wilmington". However, there are a few more recent records scattered across the state, and thus it is not limited just to coastal areas. As few people bother to photograph non-native rats (Brown or Roof) and submit reports to the iNaturalist website, and as few people bother to take dead rats to a museum for its collection, we likely will not have a clear picture of this species' range and abundance level in NC any time soon, though it is certainly much less numerous than is the Brown (= Norway) Rat in the state.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Occurs in both urban areas and in thickets near man. Somewhat arboreal, being found mostly off the ground, in attics, rafters, etc., in buildings, or in trees, vines, etc., away from structures.

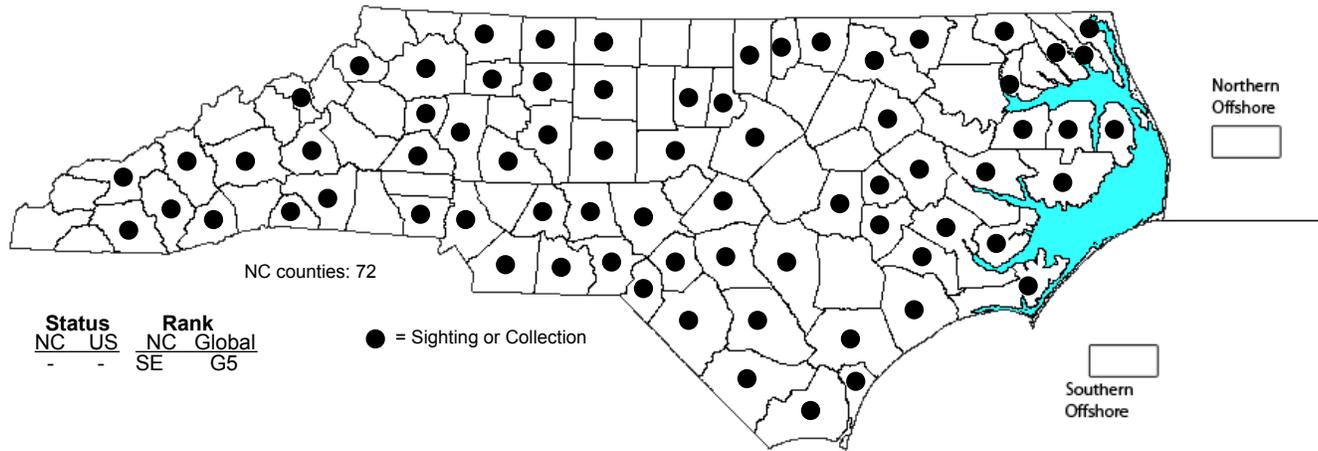
BEHAVIOR: The species is essentially nocturnal, and favors above-ground sites, leaving the ground to the allied Brown Rat, which is larger and apparently more aggressive.

COMMENTS: Webster et al. (1985) indicate that the species is now found mainly at shipping port cites, where the rats undoubtedly come to the states on ships. The Brown Rat has presumably out-competed the Roof Rat at most places where both are present.

STATUS: Introduced

LIST TYPE: Official

Mus musculus House Mouse



DISTRIBUTION: It occurs in all 100 counties in NC.

The native range is Asia, but introduced accidentally into the New World, and now present over most of North America except for northern Canada and northern Alaska.

ABUNDANCE: Essentially abundant statewide. Presumably less numerous in the middle and higher elevations in the mountains, if only because there are fewer human structures for inhabiting at those elevations. Note that the iNaturalist website contains photos for several dozen counties across the state, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: As is well known, occurs typically close to man, in houses, other buildings, urban places, and in farmyards. It also is widely found in fields and other brushy areas, but does not occur in forested areas.

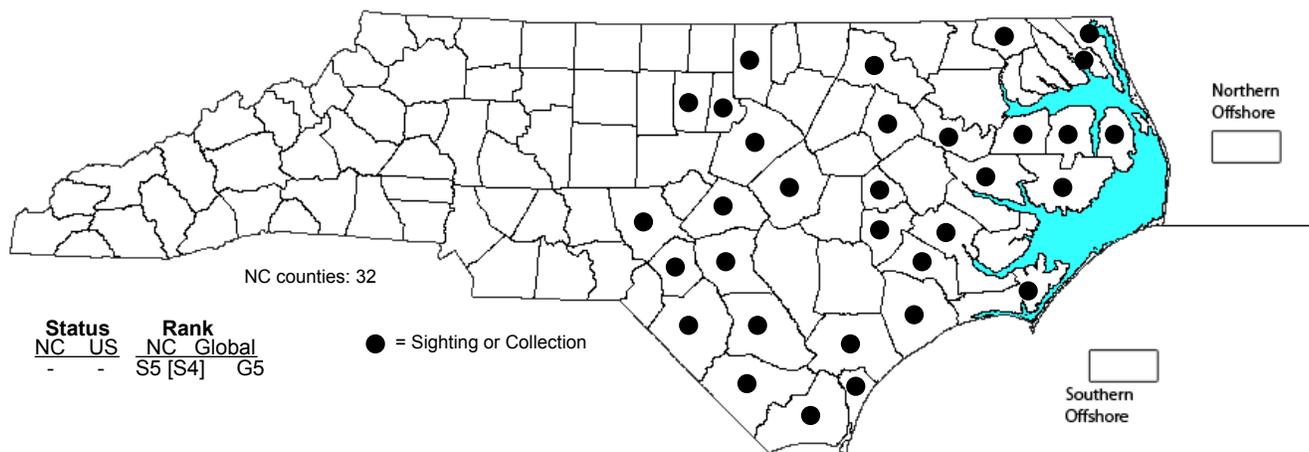
BEHAVIOR: Essentially nocturnal in activity. They are much less active in winter than at other seasons, sticking close to nests at that season.

COMMENTS: This exotic pest is overly familiar to most folks, especially those living in cities and on farms.

STATUS: Introduced

LIST TYPE: Official

Sylvilagus palustris Marsh Rabbit



DISTRIBUTION: In NC, it ranges throughout the Coastal Plain, and sparingly into the extreme eastern edge of the Piedmont (mainly in the Falls Lake and Jordan Lake areas).

A fairly small range, occurring essentially only in the Coastal Plain, from southeastern VA to the Gulf Coast only as far west as AL.

ABUNDANCE: Common in the lower Coastal Plain (mainly in the Tidewater counties), but much less common farther inland (uncommon); rare at the eastern edge of the Piedmont. Likely not common in the Sandhills portion of the Coastal Plain. Seems to have declined in recent years, as there are very few iNaturalist photos away from coastal counties. The editors suggest a slight change in the State Rank from the common S5 to a slightly less numerous S4.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Restricted to wetlands, both forested and non-forested -- marshes and swamps are preferred, but may occur in bottomlands. It occurs on barrier islands, where it is very numerous in brackish marshes (as opposed to salt marshes).

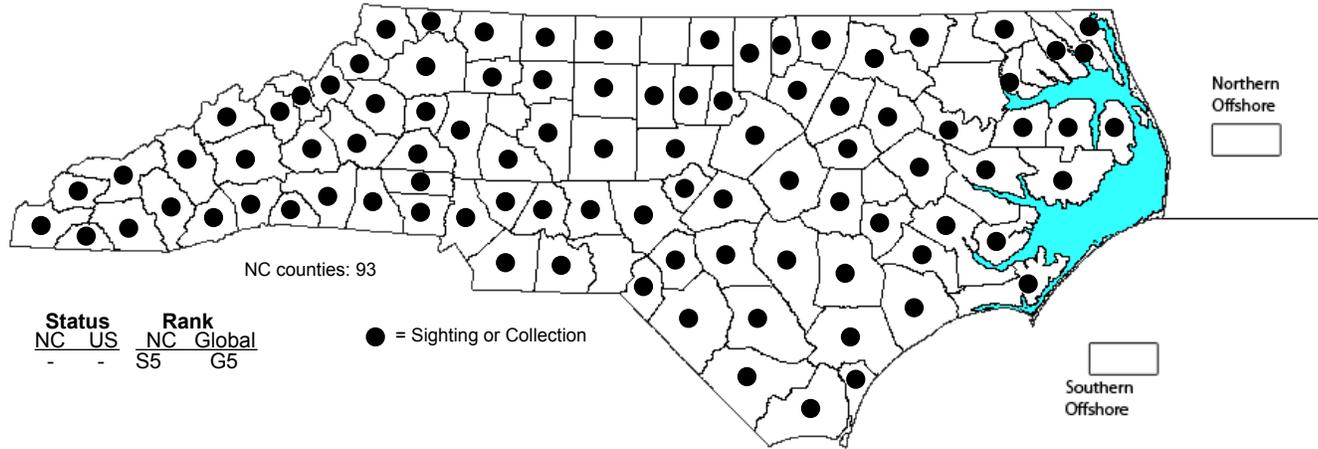
BEHAVIOR: Active mainly at night, but can be seen during the day, as well. Not surprisingly, it is a good swimmer, often escaping by water instead of over land.

COMMENTS: In the extreme eastern Piedmont, it occurs almost solely along several major river floodplains -- the Neuse and the Cape Fear, where it has been seen in the wetland forests above both Jordan Lake and Falls Lake. Both this species and the Eastern Cottontail can be seen "together" alongside NC 12 on the Outer Banks, at the edges of marshes.

STATUS: Native

LIST TYPE: Official

Sylvilagus floridanus Eastern Cottontail



DISTRIBUTION: In NC, it occurs statewide, certainly present in all counties, from the coast to the middle elevations, at least up to 4,200 feet elevation.

Ranges throughout the eastern United States and extreme southern Canada, west through the Great Plains and south to the Gulf Coast and into Mexico.

ABUNDANCE: Abundant across the state, though numbers decrease in the middle and higher elevations, where the very similar Appalachian Cottontail is present. Note that the iNaturalist website contains photos for many more than half of the state's counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Very widespread, but usually near dense herbaceous cover. Favors brushy fields, thickets, clearcuts, and wooded borders, but does occur in forest interiors, as well as in wide open weedy fields, dunes, maritime thickets, and many other places. It favors dry to mesic habitats, as opposed to wet places. It is often seen by the layman in yards, close to cover, usually at twilight.

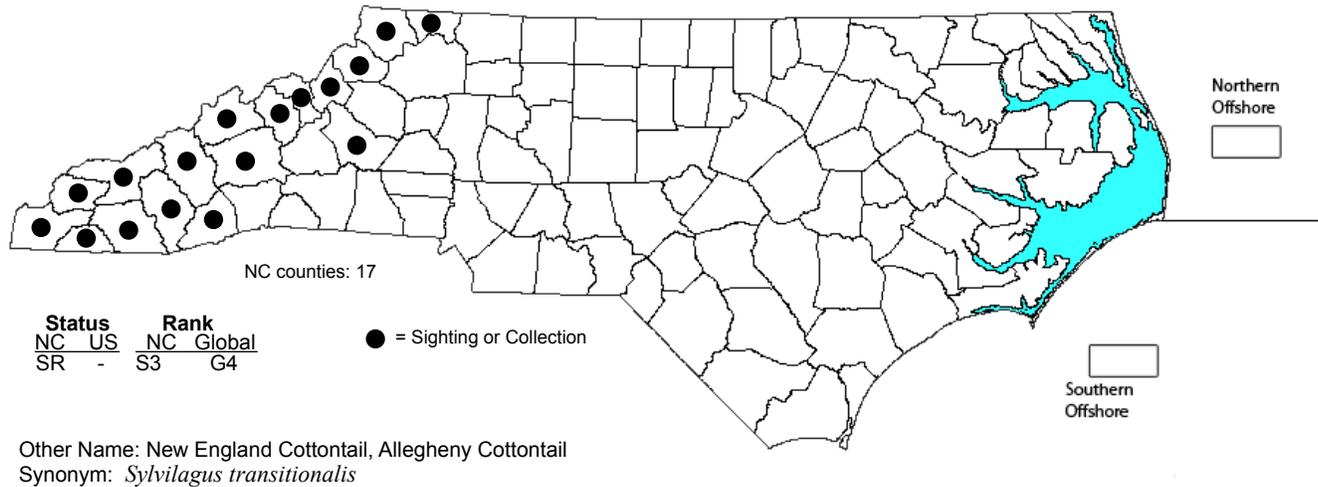
BEHAVIOR: Primarily nocturnal, but occasionally active by day, mainly at dawn and dusk. As is well known, it is very prolific as a breeder.

COMMENTS: This well-known species is one of the most frequently seen mammals in the state, after only the Eastern Gray Squirrel and perhaps the White-tailed Deer. In wetter habitats, the Marsh Rabbit "replaces" the Eastern Cottontail, as does the Appalachian Cottontail at the higher elevations.

STATUS: Native

LIST TYPE: Official

Sylvilagus obscurus Appalachian Cottontail



DISTRIBUTION: The NC range is solely in the mountains, mainly at middle and high elevations. Records are now available for all but one such county (Henderson).

A very small range, solely in the Appalachians, from PA south to AL.

ABUNDANCE: Easily overlooked because of the great similarity to the Eastern Cottontail, but generally rare to uncommon. Formerly thought to be rare, but with a decent number of recent reports (some with photos), and with records for essentially all mountain counties, it should no longer be considered truly as a rare species. More numerous over 4,000 feet, and probably occurs down to at least 2,500 feet.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Middle and high elevation forests, almost always with a thick cover of rhododendrons and/or Mountain Laurel. This can also include cut-over thickets regenerating back with these evergreen shrubs, but seldom far from dense evergreen cover. Also occurs around small openings, grass balds, and heath balds, especially their edges, but not normally in open fields and near man (where the Eastern Cottontail can be quite common).

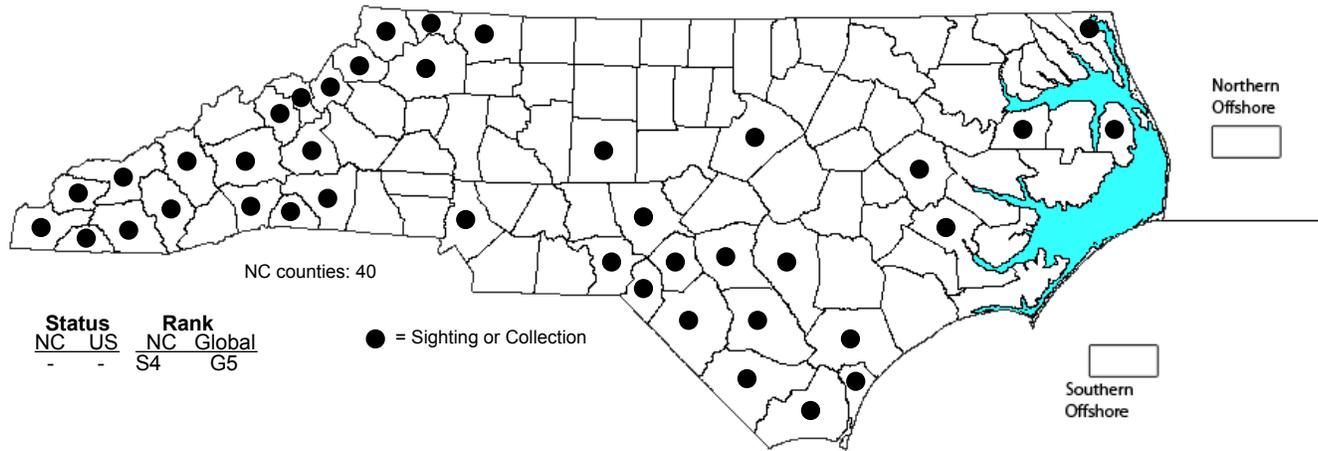
BEHAVIOR: More active at night than day, but can be seen during the daytime. Seldom ventures as far from dense cover as does the Eastern Cottontail.

COMMENTS: This species was split off from the former New England Cottontail (*S. transitionalis*), which ranges from ME to AL; this split took place in 1992. The remainder of this population in the north retains the common and scientific names. Both of these species are rather rare and of conservation concern, especially the New England Cottontail. Though Appalachian Cottontails are game animals, it is unlikely that hunters make a distinction between it and the Eastern Cottontail, and the N.C. Wildlife Resources Commission does not have a separate bag limit for it; thus, it is difficult to obtain information about the number of them that are harvested by hunters. The N.C. Natural Heritage Program continues to keep records on the species, and lists it as Significantly Rare.

STATUS: Native

LIST TYPE: Official

Condylura cristata Star-nosed Mole



DISTRIBUTION: In NC, it has a bimodal range, being found essentially only in the mountains and the Coastal Plain, though it does range south to the Piedmont of VA. There are a few sight reports and one or two specimens from the Piedmont of NC, plus a specimen from the foothills (Surry County) not far from the mountains.

Found from eastern Canada south in the eastern United States only to the Great Lakes states and the Atlantic coast states, south to GA.

ABUNDANCE: Uncommon to locally common in the mountains; uncommon, and perhaps local, in the Sandhills and the remainder of the southern third of the Coastal Plain. Rare elsewhere in the Coastal Plain except very rare to absent in the northwestern portion of that province. Casual to very rare in the Piedmont, and mainly there in the foothills.

SEASONAL OCCURRENCE: Active year-round, though seldom seen, as it spends nearly all of its time underground.

HABITAT: Almost strictly in wetland habitats; swamps, bottomlands, bogs, marshes, wet thickets, moist meadows, etc., are favored habitats. They can also be found along streams and springs in hilly topography, especially in the mountains.

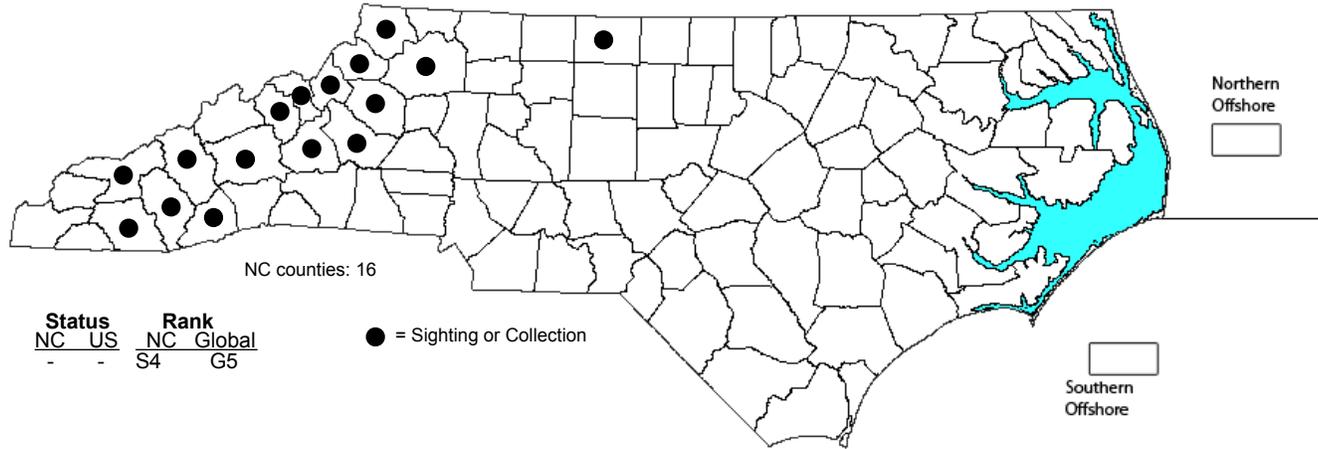
BEHAVIOR: They spend very little time on the surface, as with the other two mole species in the state. Its tunnels alternate between underground burrows and on-the-ground runways, unlike other moles. These tunnels are thus more undulating, and as it is a good swimmer, a mole tunnel leading to water is strongly suggestive of a Star-nosed Mole.

COMMENTS: This is one of the more bizarre-looking mammals in the state, with its fleshy 22-"fingere" snout. The N.C. Wildlife Resources Commission lists the Coastal Plain population as State Special Concern, because it is rather scarce; the mountain population has no special status. Both populations belong to the same subspecies (*Condylura cristata parva*) and thus there is apparently no phenotypic difference among the populations in the state.

STATUS: Native

LIST TYPE: Official

Parascalops breweri Hairy-tailed Mole



DISTRIBUTION: In NC, essentially restricted to the mountain province, generally above 2,000 feet in elevation. It may well occur in all mountain counties, but it might possibly be absent in a few in the southwestern corner of the state. In 2013, one was seen and photographed well into the Piedmont, in Rockingham County; however, it likely extends into the Piedmont only in the extreme northern and northwestern portions.

A fairly small range in the northeastern states and adjacent southeastern Canada, extending southward only through the Appalachians.

ABUNDANCE: Generally common to perhaps locally abundant within its range in the state, especially above about 2,500 feet.

SEASONAL OCCURRENCE: Active year-round, but seldom seen at any times, as it tends to remain underground.

HABITAT: A wide variety of forested and brushy habitats, including wooded residential areas and other sites similar to that of the Eastern Mole in its range (at lower elevations). Moist soil sites, such as rich wooded slopes, are favored.

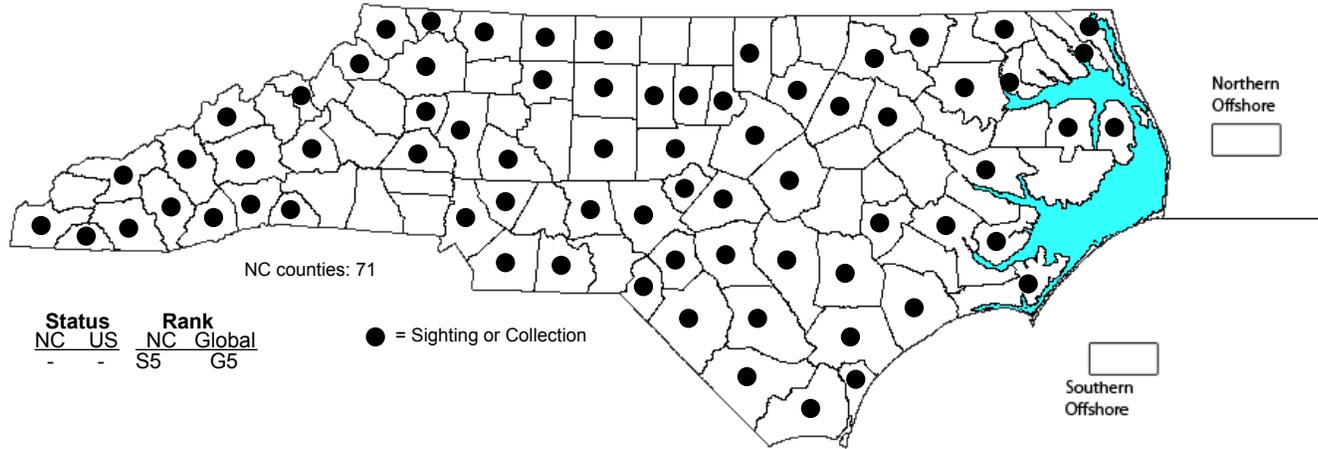
BEHAVIOR: Very similar to that of the more familiar Eastern Mole. It digs tunnels just below the surface, but they are not as obvious as those of the Eastern Mole, as more are located in wooded areas and less so in lawns. Deeper tunnels are used mainly in winter, and for nesting and for shelter.

COMMENTS: This species is the highland counterpart of the Eastern Mole, though the former species has a hairy tail as opposed to a naked tail in Eastern Mole. It is less easily detected by the public, as it is more typical of montane forests and is less at home in lawns and other areas near man.

STATUS: Native

LIST TYPE: Official

Scalopus aquaticus Eastern Mole



DISTRIBUTION: In NC, it occurs statewide, certainly present in all 100 counties.

Occurs over nearly all of the Eastern United States, except for areas close to Canada.

ABUNDANCE: Common to very common and widespread across the Coastal Plain and Piedmont, including on the Outer Banks. Less numerous -- mainly uncommon to fairly common -- over the mountains as a whole, but can be numerous in low elevations such as in river valleys. Scarce at higher elevations, and likely absent over 4,500 feet. Note that the iNaturalist website contains photos for at least one-third of the state's counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Active year-round, but seldom comes to the surface.

HABITAT: Favors a wide variety of somewhat moist, but not wet, soil. Open woods, wooded residential areas, brushy areas, fields, pastures, and even dunes are used. It tends to avoid very wet soils, as well as high elevation sites, which are favored by the Star-nosed Mole and the Hairy-tailed Mole, respectively.

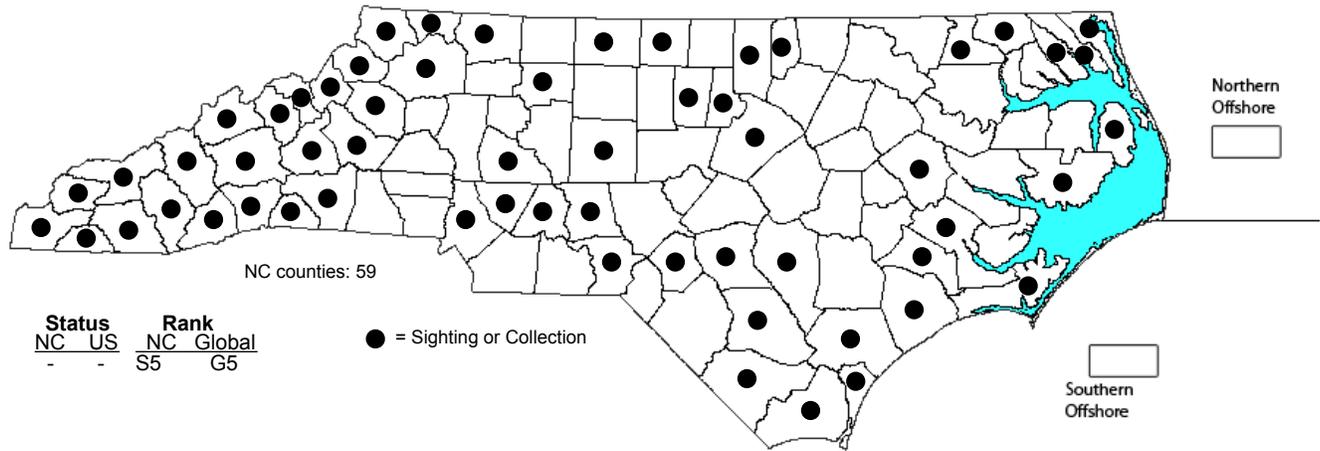
BEHAVIOR: It digs tunnels of several types. The ones just below the surface, well-known to the layman, are used mainly for foraging; deeper tunnels are used for shelter, nesting, and passage to foraging tunnels.

COMMENTS: Eastern Moles often are considered as pests for their soil disturbance to golf courses and some lawns. They are seldom seen above ground, except when found dead. Sadly, quite a few are seen dead on the ground, and thus for a small mammal there are a large number of photos posted to the iNaturalist website.

STATUS: Native

LIST TYPE: Official

Blarina brevicauda Northern Short-tailed Shrew



DISTRIBUTION: In NC, it ranges over essentially the entire state, with several subspecies present. Two occur primarily in the mountains and the western part of the Piedmont, and the other primarily in the Coastal Plain. There are old records from the remainder of the Piedmont, likely not assigned to subspecies. There has been much difficulty of separation of short-tailed shrews in much of the state just to full species -- Northern (*Blarina brevicauda*) versus Southern (*B. carolinensis*) -- and thus identification of many shrews is perhaps not prudent, especially by sight and even with photographs (such as those uploaded to the iNaturalist website).

Occurs over southeastern Canada and the northeastern United States, south to OK and GA.

ABUNDANCE: Abundant in the mountains, but much less numerous in the western Piedmont, though perhaps common there. Probably uncommon in the Coastal Plain and the eastern and central Piedmont, where the Southern is also present, but might be locally common in parts of the Coastal Plain, even in southern counties. Appears to be least numerous in the eastern two-thirds of the Piedmont, especially as there are relatively few specimens, in particular in recent decades, from this large region. Note that though there are a moderate number of NC photos, identified to this species, on the iNaturalist website -- all from the mountains and western Piedmont -- the editors cannot reliably verify such reports owing to the extremely similar Southern Short-tailed Shrew, whose range overlaps most of that of the Northern in NC.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Favors forests and woodlands, of various types, but also found in various brushy areas, fields, and even in salt marshes. Leaf litter is preferred in the habitat, and thus most often found in deciduous or mixed forests. The coastal race is found in a variety of wetland habitats, especially swampy places with much leaf litter.

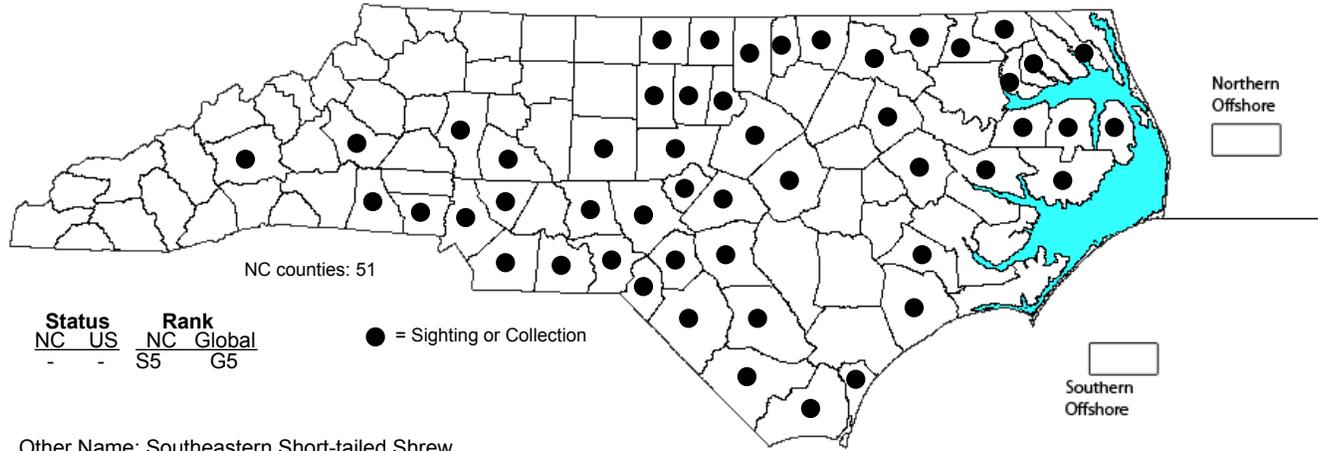
BEHAVIOR: Active by day and night, though more often at night. Spends most of its time burrowing under leaf litter.

COMMENTS: This is one of the most abundant mammals in the state, at least within the mountains. The coastal subspecies was formerly considered as a separate species, but it seems odd that it is assigned to the Northern Short-tailed Shrew instead of the Southern. This subspecies is possibly not found at the same place as is the Southern, even though the ranges overlap. Thomas French, in a paper published in *Brimleyana*, found specimens of Northern Short-tailed Shrew eastward in the Piedmont only to Rockingham and Forsyth counties; on the other hand, he noted that specimens of shrews west to Randolph and Cabarrus were Southern. Thus, the many counties in the eastern half of the Piedmont reported in Lee et al. (1982), as shown in blue on the map, might in actuality be Southern Short-tailed Shrews, and not Northerns. Because of this confusion of shrews just to the full species level, use of the subspecies for segregating Northerns in NC is indeed problematic.

STATUS: Native

LIST TYPE: Official

Blarina carolinensis Southern Short-tailed Shrew



DISTRIBUTION: In NC, the range is somewhat poorly delineated from the extremely similar Northern Short-tailed Shrew, but apparently found throughout the Coastal Plain and the southeastern half of the Piedmont. It seems to be essentially absent from the mountain region, and is very scarce in the northwestern half of the Piedmont.

Occurs from southeastern VA south to the Gulf Coast, and west to TX.

ABUNDANCE: Common to abundant over most or all of the Coastal Plain, and common over the southeastern half of the Piedmont. Seemingly quite rare or local in the northwestern Piedmont and low mountains. This is the predominant *Blarina* species (i.e., "short-tailed shrew") in the southeastern half of the Piedmont.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: A variety of forests and thickets, probably more numerous in wetlands than in uplands. It also occurs in fields and other open brushy areas, but wooded areas are favored.

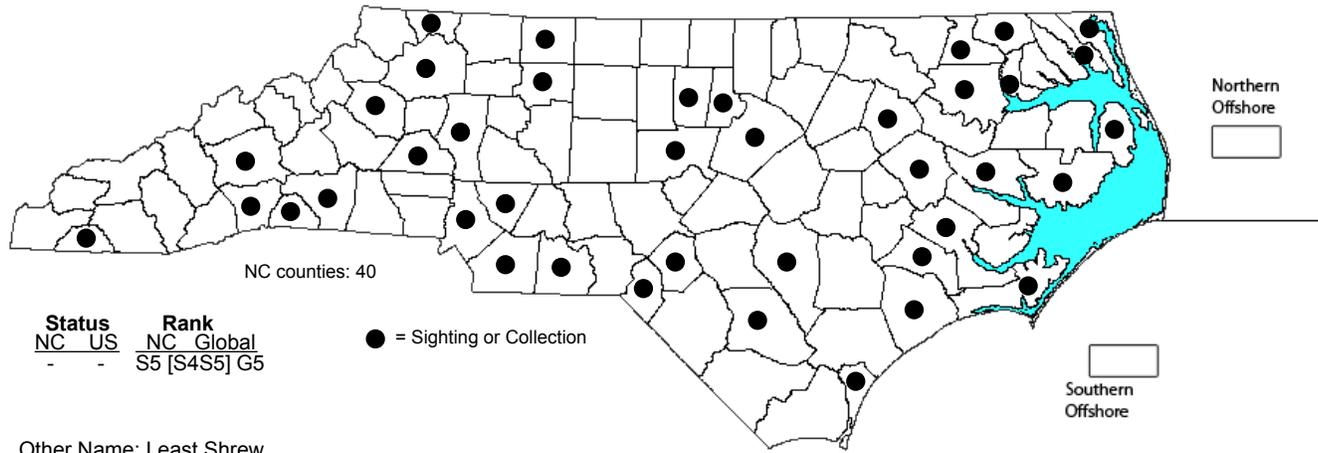
BEHAVIOR: Active day and night, though presumably more active at night. They spend much time in leaf litter and are hard to detect.

COMMENTS: This species and the Northern Short-tailed Shrew had often been considered as a single species -- the Short-tailed Shrew -- for much of the 20th Century, but by the latter decades there was general agreement among taxonomists that the two entities are distinct species. Lee et al. (1982) indicated that the Southern Short-tailed Shrew occurred west only to the extreme eastern Piedmont, but recent examination of the chromosomes of *Blarina* shrews has indicated that the Southern occurs over the eastern and central portions of the Piedmont, west at least to Caswell, Iredell, and Burke counties. However, there are some details of the range that are still not yet finalized, especially as one subspecies of the Northern has populations in part of the Coastal Plain, disjunct from another subspecies in the western Piedmont; is the Southern present with the Northern at the same sites in the Coastal Plain? And, there is a specimen (from 1930) of the Southern from Buncombe County in the National Museum of Natural History, but with "fluid" listed rather than skin, skull, etc., for confirmation. This seems to be somewhat shaky confirmation of the species for the mountain region.

STATUS: Native

LIST TYPE: Official

Cryptotis parva North American Least Shrew



DISTRIBUTION: In NC, it is statewide in occurrence, one of just a few shrew species in the state that occurs in all three provinces. In the mountains, however, it is found mainly at lower elevations (below 3,000 feet) and thus might be absent in a few high-elevation counties.

Occurs over most of the eastern United States, barely reaching Canada, and ranging west to NB and TX and south to the Gulf Coast.

ABUNDANCE: Probably fairly common (to perhaps locally common) in the Coastal Plain and Piedmont, but apparently rare to uncommon in the mountains. However, it is seldom seen unless specifically searched for with trapping efforts; compared with a number of other statewide rodents and shrews, there are still many counties lacking definite records (owing to tiny size and difficulty of trapping?). There are a number of recent photos on the iNaturalist website, many vetted by a expert reviewer; these are all from the Coastal Plain and Piedmont. Nonetheless, the editors suggest a slightly less numerous State Rank of S4S5 than the current S5 assigned by the N.C. Natural Heritage Program, as there are still far too many counties with no known records as yet to be completely assured that the species merits a State Rank of S5.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Occurs mainly in open habitats, especially brushy fields and clearcuts; however, marshes are also used, as are damp meadows. Seldom found in forested areas.

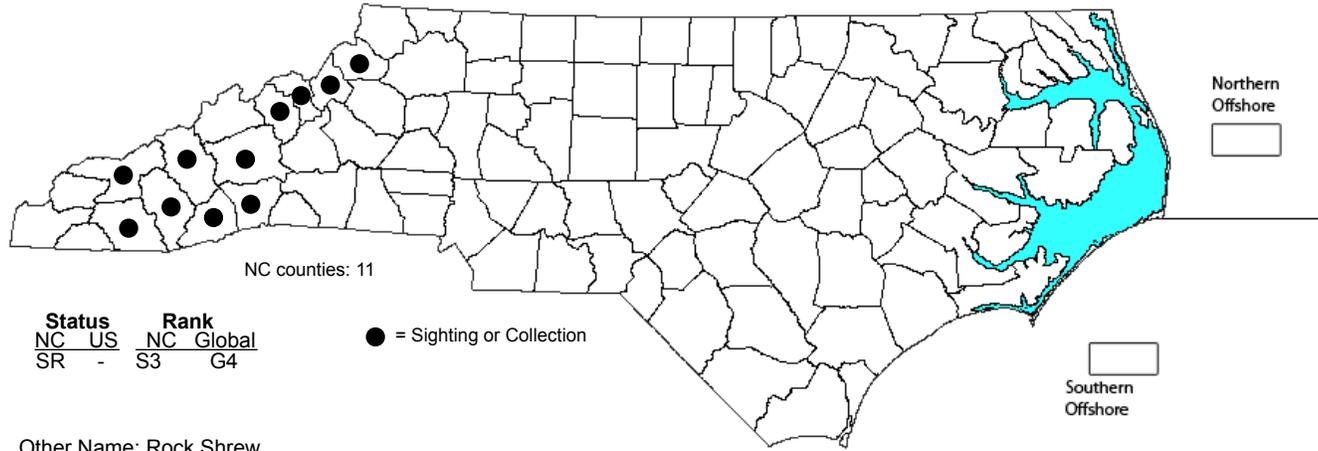
BEHAVIOR: Probably active both day and night, but it is very secretive because of its small size and dense herbaceous cover in which it inhabits.

COMMENTS: Webster et al. (1985) indicate that the species undergoes strong population fluctuations at a given site from season to season and year to year; this reference also indicates that Least Shrews can be quite gregarious, rather unusual for shrews.

STATUS: Native

LIST TYPE: Official

Sorex dispar Long-tailed Shrew



DISTRIBUTION: In NC, it is limited to the mountains, with most records from the southern half of the province, though likely occurs over most of the province. Most records are from over 4,000 feet in elevation.

A very restricted range for a shrew, being limited strictly to the Appalachians, from the Canadian Maritimes and ME south into NC.

ABUNDANCE: Rare in the southern and central mountains, and very rare to locally rare in the northern mountains, where very poorly known. It is currently listed by the N.C. Natural Heritage Program as Significantly Rare; though the current State Rank of S3 is perhaps suitable, a rarer rank of S2 or S2S3 might be more realistic.

SEASONAL OCCURRENCE: Occurs year-round, presumably, but likely there has been little collecting effort in its restricted habitat during the winter season to determine its activity level at that season.

HABITAT: Quite restricted -- limited to forested areas with rocks, such as talus slopes, rocky areas on steep slopes, cliffs and caves with crevices/cavities, and occasionally along streams with rocky margins. These habitats are mostly in the higher elevations, rarely down to about 4,000 feet.

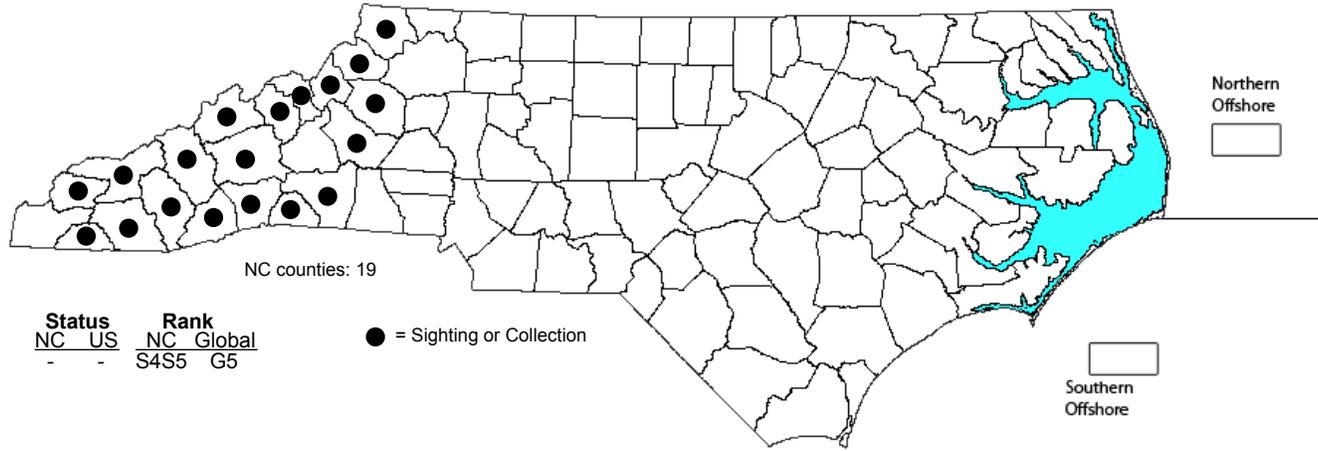
BEHAVIOR: Individuals are active day and night, foraging mainly within rock crevices.

COMMENTS: This species is often known as the Rock Shrew in many references, which is a much better name than Long-tailed Shrew. It has been difficult to collect with pitfall traps, as it spends much time deep in crevices where such cans are hard to place. Not surprisingly, accumulation of records has been slow, though the species is clearly quite limited in habitat, compared with other montane shrews.

STATUS: Native

LIST TYPE: Official

Sorex fumeus Smoky Shrew



DISTRIBUTION: In NC, it ranges throughout the mountains, but is absent farther to the east.

Unlike most northern shrews, it occurs only in the Northeastern states and adjacent Canada, south in the Appalachians to northern GA.

ABUNDANCE: Common to very common within its range in the state, and not seemingly local.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Favors cool coniferous or mixed forests, at mid- to high elevations, such as spruce-fir, spruce-hardwoods, and hemlock-hardwoods. Areas with moss, logs, and rocks are favored within the habitat.

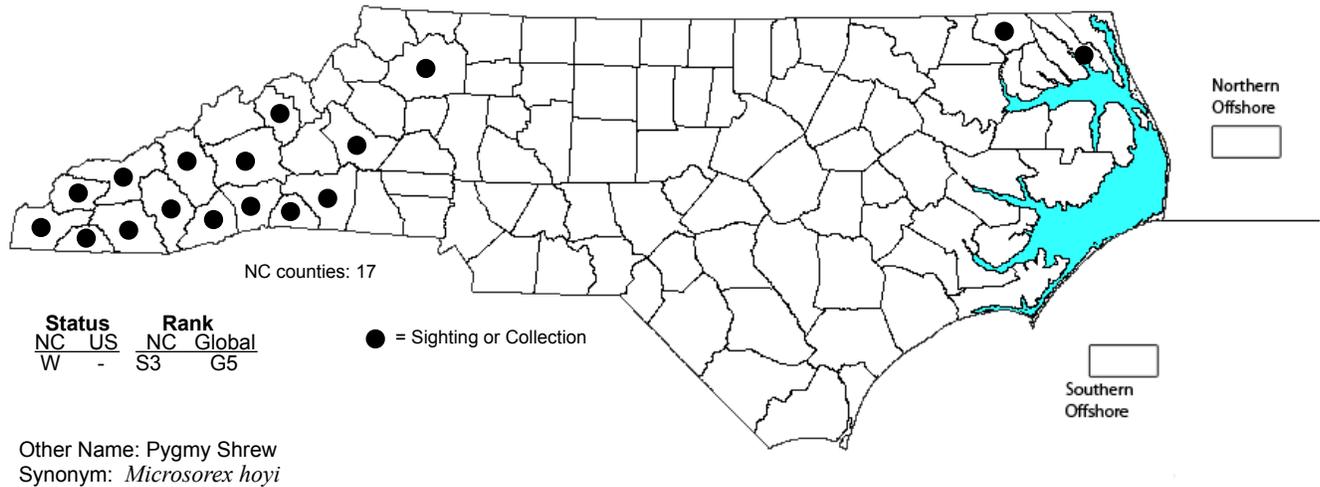
BEHAVIOR: Active mainly at night, but also active by day.

COMMENTS: Compared with the Cinereus Shrew, the Smoky Shrew is more selective in habitat, favoring cool and moist sites, and is less often found in drier forested stands.

STATUS: Native

LIST TYPE: Official

Sorex hoyi American Pygmy Shrew



DISTRIBUTION: In NC, it is found mainly in the mountains, but sparingly in the extreme northern Coastal Plain, in the Great Dismal Swamp area. There are as yet no Piedmont records. As it is a "northern" species, it is assumed to occur in all of the northern mountain counties, despite no records as yet for most of them. Its absence in the Piedmont is apparently real.

Occurs from coast to coast, from AK to Labrador, and south to the northern states. In the East, it ranges southward into the southern Appalachians, and on the Coastal Plain into northern NC.

ABUNDANCE: Rare to uncommon, but probably widespread, over at least the southern half of the mountains. Can be locally numerous -- at least in parts of Macon and Jackson counties. Apparently very rare in the northern mountains. Rare in the Great Dismal Swamp area of the northern Coastal Plain, but not known from any counties farther southward.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Primarily in hardwood forests, less so in mixed forests; seldom found in the mountains away from such wooded habitats. However, in the Coastal Plain it has been found in a variety of habitats, from brushy fields, to cut-over lands, to pine plantations, to upland hardwoods.

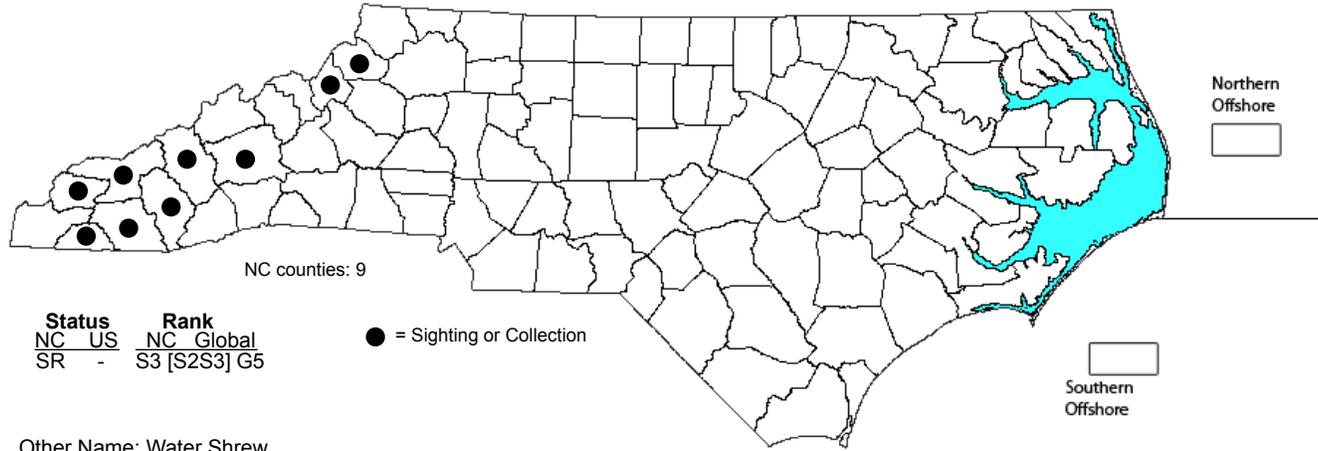
BEHAVIOR: As it is such a tiny species, it easily moves beneath leaf litter. It is active both day and night.

COMMENTS: This is the smallest mammal in the country, and because of that it had been hard to trap until pitfall cans and drift fencing were used to capture small mammals. Though much has been learned of its range and habits since the 1980's, when there were just a few state records, its abundance is poorly known, and it still has never been recorded from the northern mountains (except for Wilkes County) and from the Piedmont. However, most small mammals can be quite numerous, and in reality this probably isn't a rare species in the mountains. In fact, several years ago the N.C. Natural Heritage Program moved the species from its Rare List to its Watch List.

STATUS: Native

LIST TYPE: Official

Sorex palustris American Water Shrew



DISTRIBUTION: In NC, spottily occurring in the mountains, south to Clay County. Relatively few records for most counties where recorded, and perhaps absent in a few mountain counties. There is a 2008 report of two nests seen in Polk County, along the edge of the mountains; this county has not been mapped, as the editors feel uncertain whether this is definitive evidence for such a county record.

Coast to coast, from AK to Labrador, and south to the mountainous areas are the lower 48 states. In the East, it occurs mainly in the mountains, south in the Appalachians.

ABUNDANCE: Rare, at least in the southern counties, and perhaps very rare in the northern mountains. The species probably deserves official State listing as Special Concern, but at least the N.C. Natural Heritage Program tracks it as Significantly Rare. Though that program has its State Rank as S3, it likely should be moved to a rarer S2 or S2S3.

SEASONAL OCCURRENCE: Active year-round, but probably few trapping efforts have been made in winter to determine how active it is at that season.

HABITAT: As the name implies, it occurs very close to water, in this case running water of small streams and creeks, in cool forests. Areas with rhododendron and/or Mountain Laurel, in cove forests, are preferred.

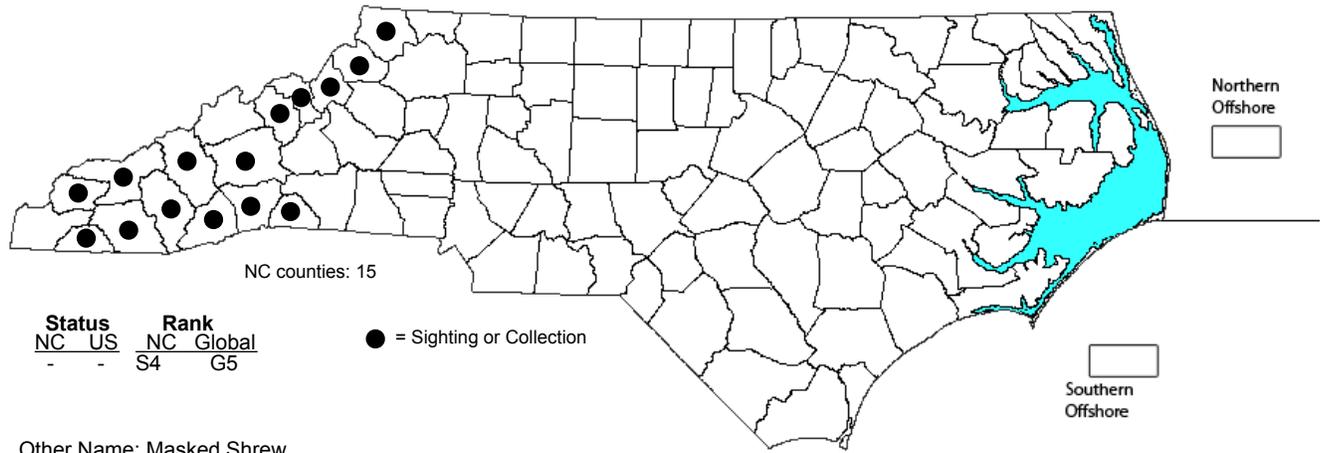
BEHAVIOR: This species feeds in the streams as well as along the edges, but it does enter the water, most unusual for a small mammal.

COMMENTS: This is a difficult mammal to trap, such as in pitfall traps, as its habitat does not lend well to that type of collecting. Therefore, details of its range and abundance are slow in coming.

STATUS: Native

LIST TYPE: Official

Sorex cinereus Cinereus Shrew



DISTRIBUTION: In NC, it is restricted to the mountains, though it has a wide elevational range there, down at least to about 2,000 feet.

A very wide range from coast to coast, from AK east to Labrador, south to the middle of the lower 48 states, but south in the East only through the Appalachians.

ABUNDANCE: Common to abundant in the mountains, though perhaps few records for the northern mountain counties (but still expected to be very numerous there).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: A very wide range of forested habitats, from coniferous forests to hardwood forests, preferably with a good ground cover. It is most numerous in moist forests, especially with much moss, rocks, decaying logs, and leaf litter. It also occurs in certain open habitats such as weedy fields, bogs, and meadows, though it has a preference for shaded habitats.

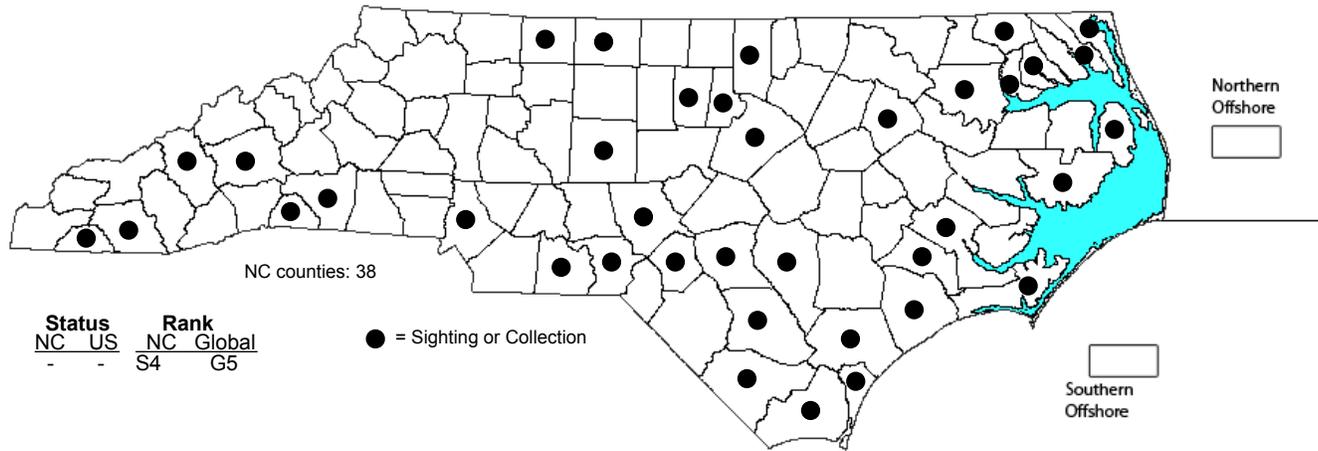
BEHAVIOR: Active day and night, though likely more so at night.

COMMENTS: This species is more often called the Masked Shrew by field guides and other references, but the latest checklists use Cinereus Shrew as the common name. It is smaller in size than the essentially equally numerous Smoky Shrew, which is also restricted in NC to the mountain region.

STATUS: Native

LIST TYPE: Official

Sorex longirostris Southeastern Shrew



DISTRIBUTION: In NC, occurs over nearly all of the state, but likely absent from the northern mountains, and distribution in much of the central and western Piedmont is very spotty. Thus, somewhat poorly known range in the western half of the state, but certainly present throughout the Coastal Plain and eastern half of the Piedmont.

Ranges only over the southeastern third of the country, north to MD and MO, and south to the Gulf Coast and central FL.

ABUNDANCE: Locally common, if not locally abundant, in some areas of the eastern Coastal Plain, more so in the southern parts of the Coastal Plain. Apparently uncommon to locally common in the western Coastal Plain and eastern Piedmont. Scarce (generally uncommon) in the remainder of the Piedmont, and likely rare in the central and southern mountains, where it occurs only at lower elevations.

SEASONAL OCCURRENCE: Occurs and is active year-round.

HABITAT: Generally in moist places, such as bottomlands and pocosins, wet fields, recent clearcuts, pine plantations, and other such damp thickets. It also occurs in some upland habitats, but wetlands are preferred. Areas with tangles of vines are also favored.

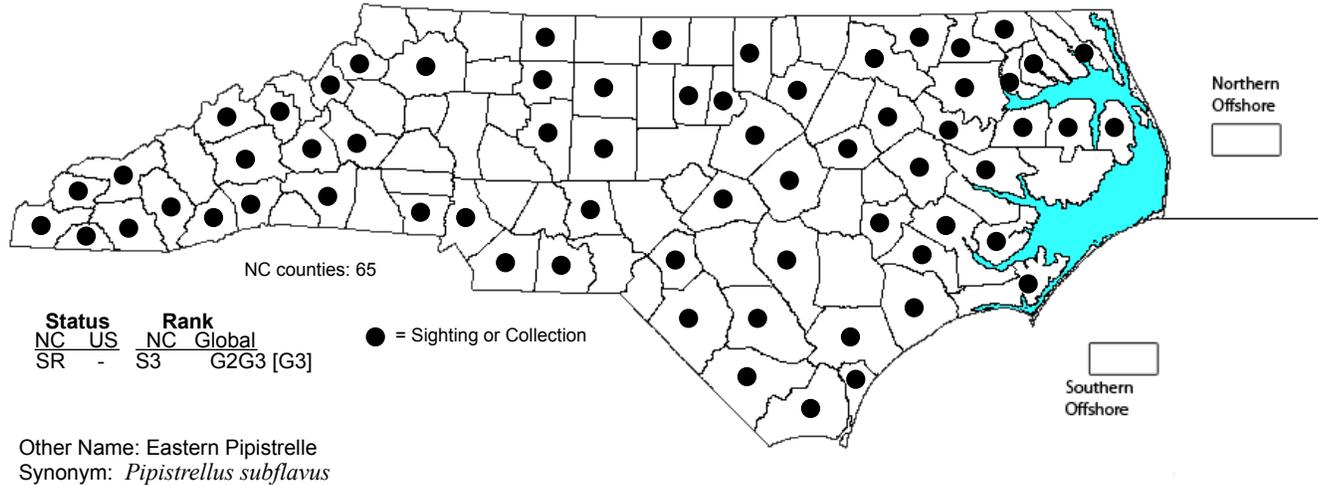
BEHAVIOR: Active both day and night.

COMMENTS: This was a relatively poorly-known species as late as the 1980's, but with the advent of pitfall trapping for small mammals, it became clear that this species is quite common locally in much of the Coastal Plain, even in disturbed habitats such as pine plantations and recent clearcuts in damp areas. The Dismal Swamp Southeastern Shrew (*S. longirostris fisheri*) was Federally listed as Threatened in 1986. However, Dave Webster found that it was not limited to just the Great Dismal Swamp area, but occurred in some numbers southward toward Wilmington in the lower Coastal Plain. After these discoveries, the U.S. Fish and Wildlife Service delisted this subspecies in 2000, as it was determined to be much more widespread and common than previously thought. In fact, there is some question if this is a valid subspecies.

STATUS: Native

LIST TYPE: Official

Perimyotis subflavus Tricolored Bat



DISTRIBUTION: In NC, it occurs essentially throughout the state, perhaps found in all 100 counties.

Occurs throughout the eastern half of the United States and southeastern Canada, to the Gulf Coast.

ABUNDANCE: Declining, especially in the mountains, due to White Nose Syndrome. Formerly common to locally very common in the mountains, but now apparently uncommon; in the Piedmont, seemingly fairly common, but probably uncommon in the foothills. In the Coastal Plain, uncommon to likely fairly common, but can be locally very common there. Perhaps absent to rare near the immediate coast and the Outer Banks. Note that considerable mist-netting efforts have been made for bats in the Coastal Plain, as compared with the Piedmont and parts of the mountains. Thus, the spotty range in the Piedmont (on the map) might be related to a scarcity of mist-netting efforts there as compared with the Coastal Plain.

SEASONAL OCCURRENCE: Not truly migratory, but moves to caves and mines during the late fall and winter, at least in the mountains and foothills. Hibernates in winter.

HABITAT: A wide array of habitats, from upland to lowland forests/woods, to groves, to farmyards, to towns, though rarely in heavily populated areas. Roosts in the mountains and foothills in caves and mines during the colder months, but in most areas, they roost in vegetation in trees, or at times in old buildings.

BEHAVIOR: Emerges in the evening to forage over open water, fields, or wooded areas, generally in slow flight; as this is our smallest bat, its flight is as slow as any others. Though it often roosts singly, it can occur in sizable colonies, at least in winter roosts in caves.

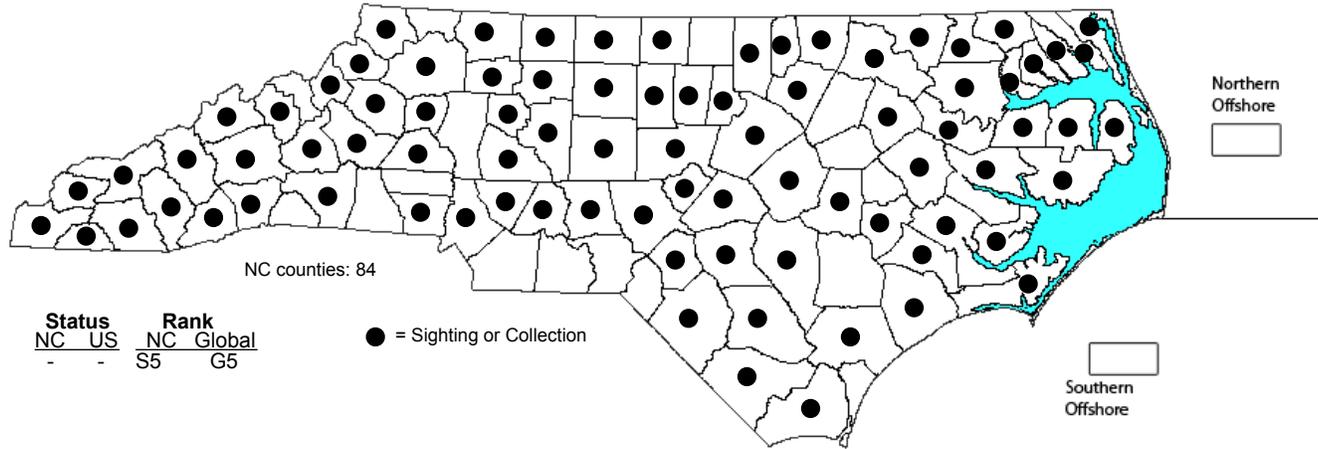
COMMENTS: The species has declined precipitously in the mountains in the last decade, as it is susceptible to White Nose Syndrome. Thankfully, the species is widespread in the state, and as it is not generally local in occurrence, it is not in imminent danger of extirpation over most of the state. However, in recent years the species has been tracked as Significantly Rare by the N.C. Natural Heritage Program. NatureServe has surprisingly uplisted the Global Rank in recent years to an alarming G2G3; however, as it seems to merit a State Rank of S3, the website editors suggest that the Global Rank ought to be G3 if not G3G4 or G4.

The common and scientific names have both changed in the past few years, from Eastern Pipistrelle (*Pipistrellus subflavus*) to Tricolored Bat (*Perimyotis subflavus*) in the past few years.

STATUS: Native

LIST TYPE: Official

Eptesicus fuscus Big Brown Bat



DISTRIBUTION: In NC, essentially statewide, but only in the past decade or two have records been added for most Coastal Plain counties (through mist-netting efforts). Though often long-considered as statewide even decades ago, in reality the records until recently were generally concentrated in the Piedmont and mountains.

Throughout the lower 48 states and southern Canada, and into Mexico.

ABUNDANCE: Common and widespread over the mountains and Piedmont; only recently recorded in most Coastal Plain counties, but it is not clear if this is an actual range expansion and population increase or whether it has always been present (and documented with mist-netting efforts). However, certainly not present in the numbers in the Coastal Plain as farther upstate, and thus tentatively considered as uncommon to possibly fairly common in that province. Perhaps rare in some southern counties in the Coastal Plain.

SEASONAL OCCURRENCE: Non-migratory, but generally hibernates in winter, though can awake and fly briefly during warm winter spells.

HABITAT: Occurs in a wide array of habitats, from wooded areas to farms to cities and towns; the most urban of the bats occurring in NC, as roosts are normally inside buildings, especially attics. They also roost inside hollow trees or beneath bark, and occasionally around the entrance of caves and mines. It does not roost in vegetation.

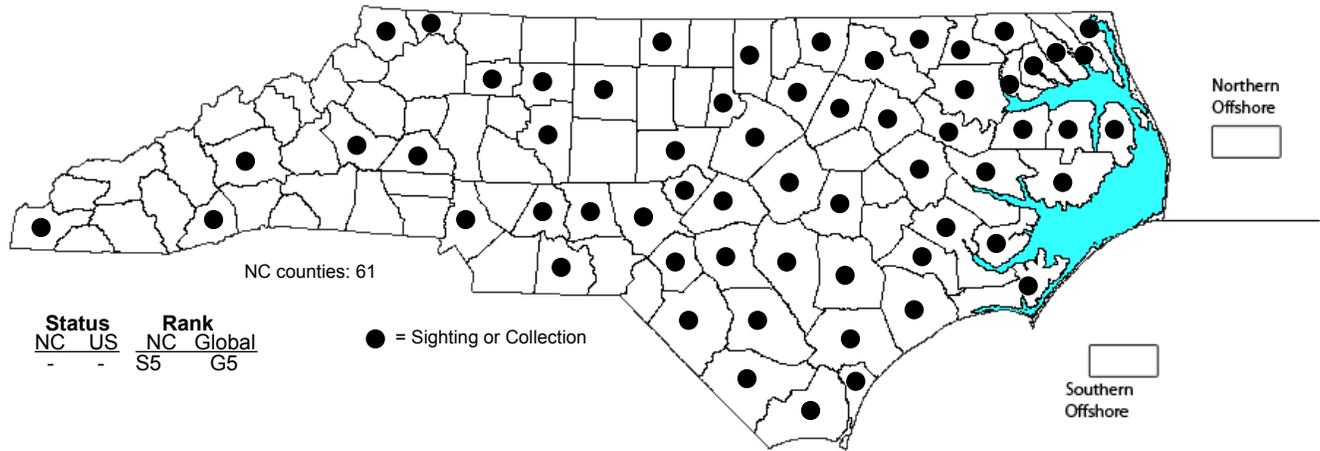
BEHAVIOR: This species roosts in fairly large groups, especially in buildings, of 20 to several hundred; most young are born inside attics. Flies after dark, often around city street lights.

COMMENTS: This is the most familiar bat to city residents, and is the one most often encountered in homes. Its range and abundance in the southeastern counties is not well known; in fact, Lee et al. (1982) had no records at all from the Coastal Plain south of Bertie County, but the species certainly must occur now over essentially all of the province. All field guides and reference broad-brush the species' range to cover the entire eastern half of the country. Thankfully, most Coastal Plain counties have been added to the range map through mist-netting, but it seems clear that the species seldom occupies houses and other buildings in this region, or else homeowners would have been reporting them frequently. Thus, its habits and habitats in the Coastal Plain need further elucidation.

STATUS: Native

LIST TYPE: Official

Nycticeius humeralis Evening Bat



Synonym: *Nycticeius humeralis*

DISTRIBUTION: In NC, it occurs throughout the Coastal Plain and Piedmont, and in the lower portions of the mountains; it appears to be absent from the middle and higher elevations of the mountains.

Occurs mainly in the southeastern portion of the United States, north to NJ and IA, and south to the Gulf Coast and Mexico.

ABUNDANCE: One of the more numerous bats in the state, generally common to possibly abundant in the Coastal Plain, fairly common to perhaps common in the Piedmont (at least formerly), but relatively rare in the mountains, known from just five counties in that province. This status is for the summer only. It was originally thought (as in Lee et al. 1982) that perhaps the entire breeding population migrated out of the state. However, very recent wintertime mist-netting efforts in the eastern parts of the Coastal Plain have captured quite a few Evening Bats. It is thus clear that, at least in part or much of the Coastal Plain, the species occurs routinely and in some numbers in the winter. However, are these winter bats resident there? Are they migrants from farther north or west? Do they hibernate in parts of the state in winter? Do they occur in winter in the western Coastal Plain and Piedmont? Mist-netting in the lower half of the Piedmont in recent years has documented current presence in many counties, but all or nearly all captures are from the warmer months only. Thus, much more is to be learned about its seasonal range and movements in the state.

SEASONAL OCCURRENCE: Formerly considered to be highly migratory, considered to leave NC in fall and return in the spring. Lee et al. (1982) state "Earliest spring record 22 March; latest fall record 15 September". However, there are now many winter records, and thus its winter status is no longer "unknown"; it definitely is present in some numbers in the Coastal Plain all winter. See the "Abundance" section for more details.

HABITAT: Generally found in a variety of forests/woodlands, but forages over open areas as well as over forests. It roosts both inside buildings and in hollow trees and beneath bark, but it does not roost in caves or mines. Apparently it does not roost inside vegetation (clumps of leaves, etc.).

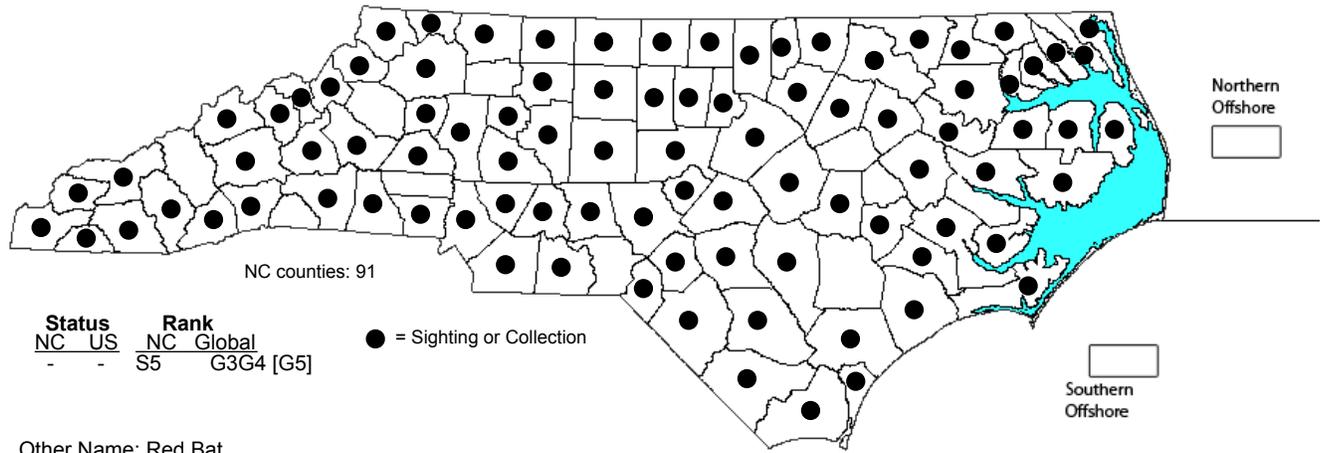
BEHAVIOR: It is somewhat colonial in roosting, such as inside buildings. It feeds at night in a rather slow flight.

COMMENTS: This species is not as well known as the Red Bat, despite its abundance, in part because if seen in flight just before dark it might be difficult to separate from other species. However, owing to recent mist-netting efforts in the Coastal Plain and parts of the other two provinces, we are learning much more about this and many other bats.

STATUS: Native

LIST TYPE: Official

Lasiurus borealis Eastern Red Bat



DISTRIBUTION: It occurs statewide in NC, undoubtedly present in all 100 counties.

Occurs throughout the eastern half of the United States and southern Canada, south into Mexico.

ABUNDANCE: Common to abundant (at least for a bat species) across the entire state, and has been found from the higher mountains to the Outer Banks. It is the most numerous bat species in the state. It has perhaps declined slightly across the state in recent decades owing to a decline in aerial insects from air pollution, though this might just be speculation.

SEASONAL OCCURRENCE: Year-round, with some migration likely involved. It generally goes into torpor in winter, but is active on some warmer nights in winter.

HABITAT: A variety of forested areas, from conifer to hardwood; usually roost in trees or shrubs fairly close to open water or a field/cleared area. They can often occur in semi-wooded residential areas, as well. They roost singly in vegetation of trees and shrubs, and are not found inside buildings or caves/mines. It shows no inclination toward coloniality.

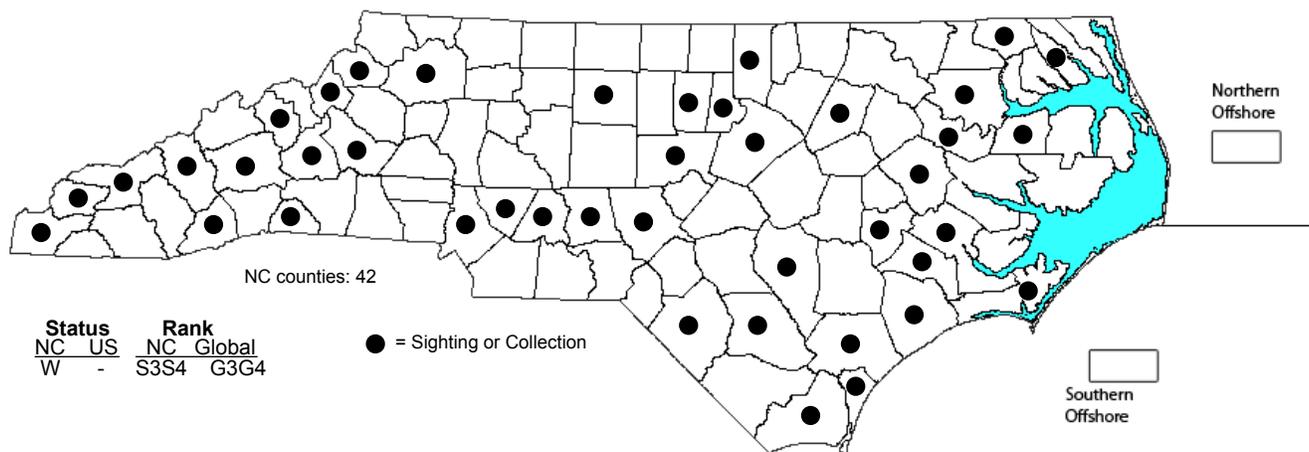
BEHAVIOR: This is one of the earliest bats on the wing in the evening, at times seen before sunset, such that an observer can see the rufous/rusty color of its fur. They often feed around street lights, unlike most bat species.

COMMENTS: A few details of its seasonality and winter behavior are not well understood, but this species is by far the most frequently captured in many, if not most, mist-netting operations. For some odd reason, NatureServe has moved the Global Rank from a secure G5 to a surprising G3G4. This website sees little reason for this, considering that many states, including NC, rank it as S5.

STATUS: Native

LIST TYPE: Official

Lasiurus cinereus Hoary Bat



DISTRIBUTION: In NC, it occurs across the entire state, but it is highly migratory, and its summer range is primarily north of NC. However, it occurs in the warmer months sparingly into the mountains and foothills, and apparently as far east as Stanly County in the eastern Piedmont. In migration and winter, it is primarily found in the state's Coastal Plain and eastern Piedmont, though it might occur in winter in the western half of the state.

A wide range from the Pacific to the Atlantic, and all over the lower 48 states and southern Canada, into Mexico.

ABUNDANCE: In the cooler months, generally uncommon in the Coastal Plain, but seemingly quite rare in the eastern Piedmont and very rare farther westward. Not as well known in spring and summer, but Lee et al. (1982) indicate sight records at Mount Mitchell at that season; since then, there have been more recent records, and now best called rare to uncommon over most of the mountains and foothills, and very rare farther eastward (at least to Stanly County). There are relatively few records for most of the Piedmont; apparently in this province it is mainly a passage migrant, when difficult to find and timing of occurrences would be brief. The N.C. Natural Heritage Program considers it a Watch List species; and as NatureServe has a Global Rank of just G3G4, it is declining and/or not overly common across its very large range.

SEASONAL OCCURRENCE: Highly migratory. Occurs in NC over the entire year, but in most areas only at one or two seasons and not likely present year-round at any specific site. Winter behavior is not well known in NC, but likely it is active on mild nights.

HABITAT: Generally roosts in wooded areas very close to openings and water; apparently not a bat of deep forests. Forests can be coniferous, as well as deciduous. Bats roost in trees, such as in clumps of dense vegetation. It is seldom or never seen roosting in buildings or caves/mines.

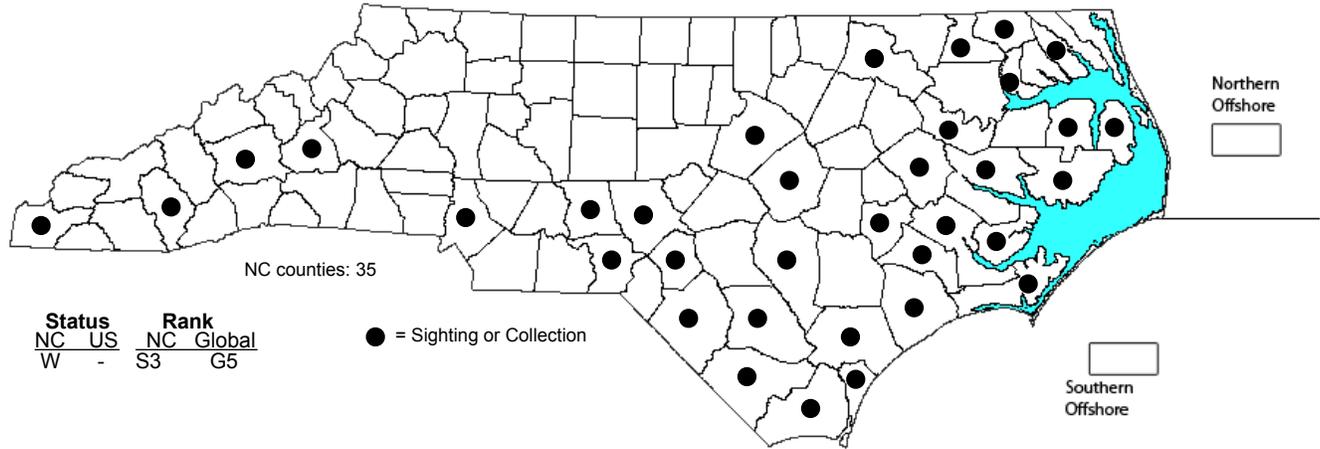
BEHAVIOR: This species can at times be seen during the daylight hours in migration, most unusual for a bat species. Foraging bouts are at night, like with all bat species, and they forage mostly over open areas, including water.

COMMENTS: This bat has a number of features that differ from others, even within its genus. Males and females often occur in nearly completely different regions, at least in summer. It also undergoes long-distance migration, rare for a *Lasiurus* species; sometimes they can be seen during the daytime in migration. It is also much larger than other members of the genus. Despite being well-known over its large range, it is generally uncommon in the East, and much remains to be learned about its natural history -- especially in the Piedmont province.

STATUS: Native

LIST TYPE: Official

Lasiurus seminolus Seminole Bat



DISTRIBUTION: In NC, it occurs over essentially all of the Coastal Plain and the extreme southeastern portion of the Piedmont, and sparingly in the southern mountains. Likely absent over most of the mountains and in most of the Piedmont.

Essentially restricted to the southeastern quadrant of the United States, from southeastern VA to eastern TX, with strays farther northward.

ABUNDANCE: Though poorly known in NC as late as 1985, records have greatly increased in recent years, as more mist-netting has clarified its status. Considered to be uncommon to locally common in the southern Coastal Plain, but probably rare to uncommon in the northern portions of that province. Though apparently absent over 80% of the Piedmont, it seems to be uncommon in the small Piedmont portion of the range. Very rare in the southern mountains. The N.C. Natural Heritage Program still has the species on its Watch List, but there seem to be enough records now (35 counties as of 2022) to remove it from that designation. Interestingly, despite a rather small range, NatureServe lists this with a G5 Global Rank, yet the reasonably abundant and very widespread Eastern Red Bat is given a much rarer G3G4 rank!

SEASONAL OCCURRENCE: Possibly migratory to an extent, as it is known in the summer only over much of the state, but it has been found in the cooler months in the southeastern part of the state. It is mostly in torpor in winter, but it may fly briefly during mild weather in winter.

HABITAT: Wooded areas close to forest edges, as opposed to deep forests. Areas with Spanish Moss are favored, but the literature does not indicate a preference for swamps or bottomlands versus drier pineland habitats. Areas with water are not essential in the habitat.

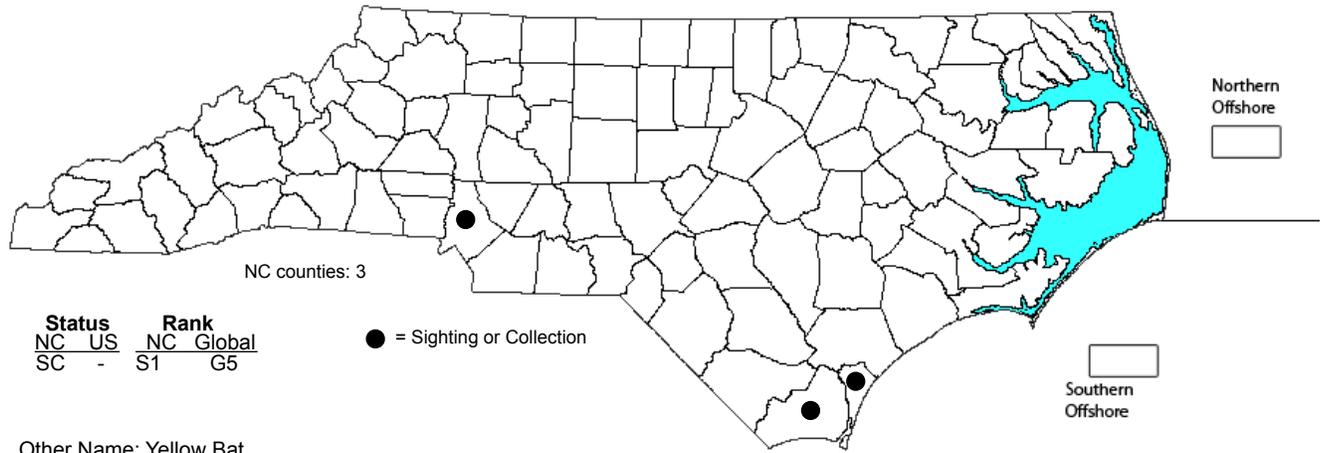
BEHAVIOR: They forage at night mostly over open areas, which can be fields as well as water. Some foraging is presumed to occur over forests.

COMMENTS: Though the species is not rare in the state, much is still to be learned about its range, abundance, and habitats, especially in the Piedmont and the northwestern Coastal Plain. Mist-netting efforts are greatly needed to help fill in these data gaps. In fact, extensive mist-netting efforts in the northern half of the Coastal Plain in 2015-2016 have greatly expanded the previously known range; prior to 2015, the only record for this part of the Coastal Plain was from Gates County. Now (2022) there are records for Pasquotank, Chowan, Hertford, Halifax (technically in the Piedmont part of the county), Martin, Tyrrell, and Dare counties, in addition to Gates County.

STATUS: Native

LIST TYPE: Official

Lasiurus intermedius Northern Yellow Bat



DISTRIBUTION: In NC, it is known only from the extreme southeastern corner of the state (Brunswick and New Hanover counties) and as a probable stray to Mecklenburg County, as this appears to be a Coastal Plain species.

Restricted in the United States to the far Southeast, ranging casually to southeastern VA (resident?) and eastern TX, but extending well into Central America.

ABUNDANCE: Apparently very rare or rare in the Wilmington/Brunswick County area, if not farther west in Brunswick County. Expected to eventually be found farther northward in the NC Coastal Plain. Likely an accidental/stray in Mecklenburg County. This is a State Special Concern species.

SEASONAL OCCURRENCE: Apparently hibernates in winter, though not fully understood in the Carolinas, as it is quite scarce in these states.

HABITAT: Areas with Spanish Moss are favored for daytime roosts, if not at night. It apparently does not roost in buildings or other man-made structures, at least not known to do so in the Carolinas. Areas with Longleaf Pine and Turkey Oak are favored, according to Webster et al. (1985). However, there appears to be a clear association of the bat with Spanish Moss.

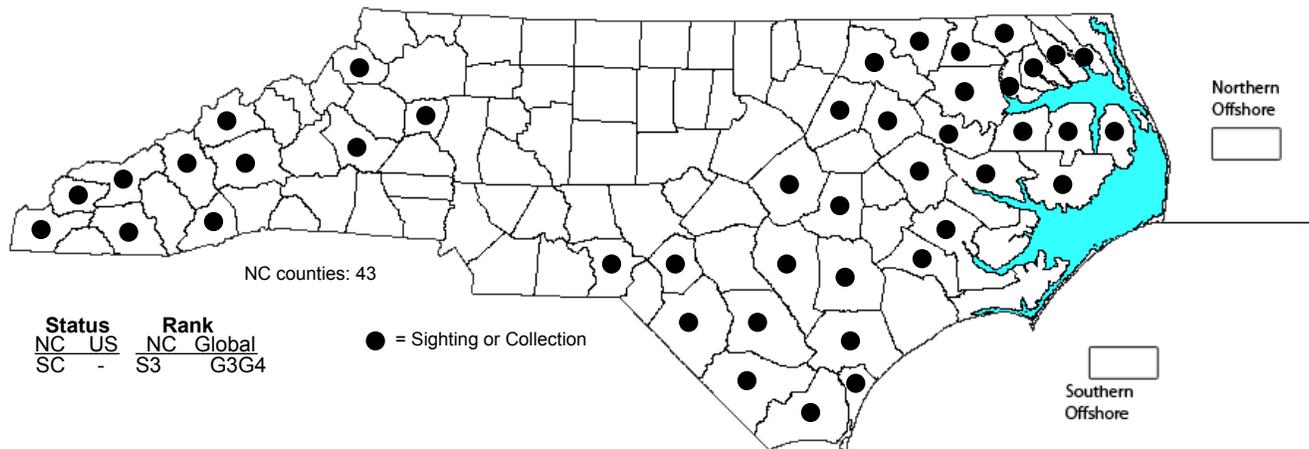
BEHAVIOR: They forage at night over wooded areas and likely over water. However, this species is apparently not as tied to swamps and bottomlands as are several other species (e.g., Rafinesque's Big-eared Bat and Southeastern Myotis).

COMMENTS: The first two state records were of individuals found dead by non-biologists, and thus without any habitat association data. However, in 2008, mist-nets were set up in a wooded residential area in Brunswick County, and a Northern Yellow Bat was captured, providing some indication of the habitat, such that it associates there with broken forested areas, likely where there is Spanish moss. As there are a few records from the extreme southeastern corner of VA, it is possibly a resident in NC farther northward of New Hanover County. Much obviously still is to be learned about its range in NC, though numerous mist-netting efforts over many or most of the eastern Coastal Plain counties (north of Wilmington) in the last decade have yet to turn up a Northern Yellow Bat in the nets -- despite an array of several other rare or uncommon species being found.

STATUS: Native

LIST TYPE: Official

Corynorhinus rafinesquii Rafinesque's Big-eared Bat



DISTRIBUTION: In NC, has a bimodal range -- mountains/foothills and Coastal Plain, but absent in nearly all of the Piedmont. The Coastal Plain population is the subspecies *C. rafinesquii macrotis*, whereas the mountain population belongs to the nominate *C. r. rafinesquii* subspecies.

Found only in the Southeast, ranging north to IN and VA, and south to the Gulf Coast and eastern TX.

ABUNDANCE: Rare to uncommon in the Coastal Plain, but generally rare in the mountains, where it is found mainly in the southern half of the province. Very rare east to the western Piedmont (Alexander County). Though mist-netting efforts have added a great number of counties to the range map, numbers netted always seem to be very low and it should not be assumed to be numerous in that province.

SEASONAL OCCURRENCE: Generally hibernates in winter, though there are a few midwinter mist-netting records near the coast. Non-migratory.

HABITAT: The Coastal Plain population occurs mainly in swamps and bottomland forests, where they roost in hollow trees, under loose bark, old buildings, and beneath bridges, at least in the warmer months. The mountain subspecies roosts mainly in mines, but less so in abandoned buildings and rarely in trees and caves. However, it is not typically considered a cave-dweller, unlike the Virginia Big-eared Bat. Permanent water is usually present in the habitat, over which they typically forage.

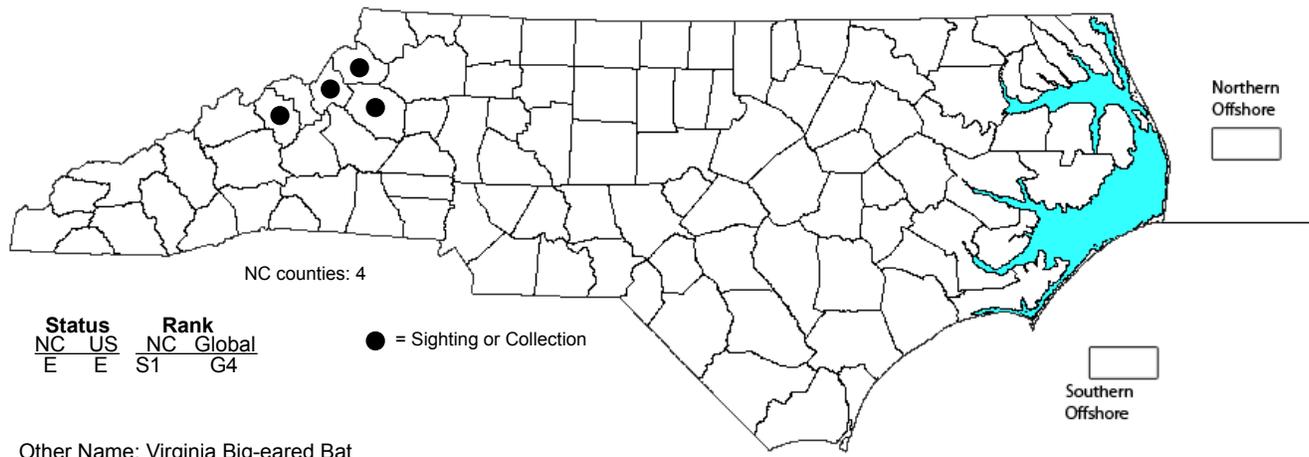
BEHAVIOR: Feeds at night over water and over forests, emerging later than most bats. Roosts in moderate groups.

COMMENTS: As with many bat species not already Federally listed, this species has been proposed for listing, but such listing is not likely, as it is not overly rare within its range. Mist-netting has helped to better understand its range and numbers in the Coastal Plain. Numbers up to several hundred individuals have been found in a few abandoned mines in the southern mountains. Even so, the mountain subspecies (*rafinesquii*) is listed as State Threatened; the Coastal Plain subspecies (*macrotis*) is State Special Concern.

STATUS: Native

LIST TYPE: Official

Corynorhinus townsendii Townsend's Big-eared Bat



DISTRIBUTION: In NC, the species occurs mostly in a few caves/mines in the northern mountains, mainly on Grandfather Mountain.

The full species occurs primarily in the western half of the United States and Mexico, with scattered and isolated populations from WV and KY to northwestern NC; these eastern populations are separate subspecies from the nominate one in the West. The subspecies in VA and NC is the "Virginia Big-eared Bat" (*Corynorhinus townsendii virginianus*).

ABUNDANCE: Rare in NC, and highly restricted to just a few known sites in a small geographic area in the northern mountains. This subspecies has been rather resistant to White Nose Syndrome, and losses have been very few in the state.

SEASONAL OCCURRENCE: Hibernates in winter. Apparently not migratory, at least in NC.

HABITAT: This is a cave-dweller, generally not using buildings or trees for roosting. However, a few recent records have been from inside buildings and in nooks and crannies in rocks, and thus not all records are from caves/mines. Restricted to the higher elevations (over 3,500 feet, and mostly over 4,500 feet), amid such high elevation forests. Probably feeds over creeks/rivers as well as forests.

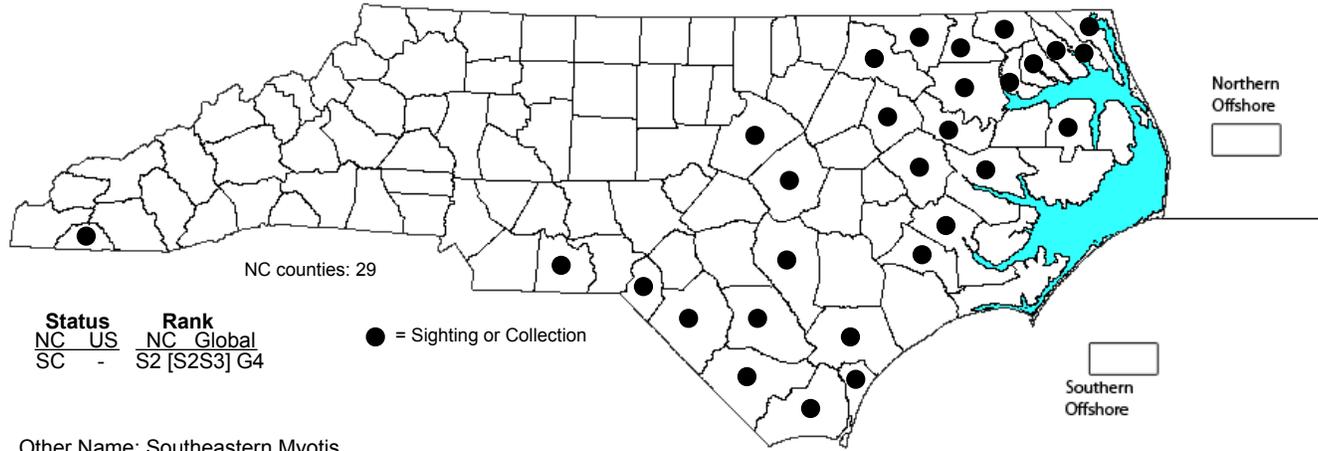
BEHAVIOR: It roosts in winter in moderate-sized colonies, often 100 or more individuals. It is, of course, nocturnal in foraging. In the warmer months, females disperse up to 10 miles or more from the winter roost sites, to give birth in small groups in smaller caves or other shelter sites (cracks in rocks, etc.)

COMMENTS: The two eastern subspecies are each Federally listed as Endangered by the U.S. Fish and Wildlife Service; it is thus also State Endangered. Two caves on Grandfather Mountain are gated, to keep people from entering them and disturbing the bats. In the past few years, radio-tagged female bats from these caves have been tracked to maternity sites 10 or more miles away, especially in western Watauga County.

STATUS: Native

LIST TYPE: Official

Myotis austroriparius Southeastern Bat



DISTRIBUTION: In NC, ranges over nearly all of the Coastal Plain, and barely to the eastern edge of the Piedmont. There is also a record for the extreme southwestern mountains (Clay County).

Only in the southeastern quadrant of the country, north to VA and IL, and south to the Gulf Coast.

ABUNDANCE: Rare to uncommon, but widespread, in the Coastal Plain, and very rare at best along the eastern Piedmont and southwestern mountains. As late as 1990, it was known from only a few sites in the state, but recent mist-netting efforts have shown that it is not overly rare in the state and is found over most (if not nearly all) of the Coastal Plain. Though more widespread in the Coastal Plain than previously thought, there is no indication that populations are actually increasing, and it remains on the State Special Concern list. The current State Rank of S2, assigned by the N.C. Natural Heritage Program, was likely assigned 20 or more years ago, and with much more known about its range in the state now, a revised rank of S2S3, if not S3, seems warranted now (2022).

SEASONAL OCCURRENCE: Generally hibernates in winter, but may be briefly active on mild winter days, as there are now a number of midwinter mist-net records.

HABITAT: Almost always near fresh water, such as rivers, large creeks, and lakes, near forested areas. Favored habitats are swamps and bottomlands.

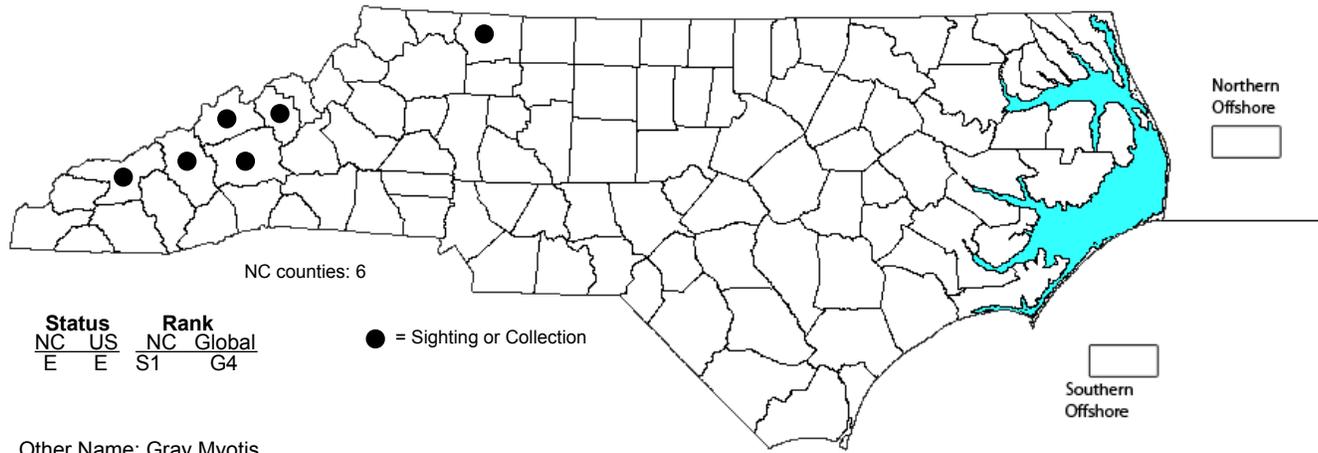
BEHAVIOR: Roosts in the warmer months in hollow trees, old buildings, under bridges, and at other sheltered sites. In winter, hollow trees or buildings are preferred roosting sites, where they occur in small colonies.

COMMENTS: This is still another bat species that has been considered for Federal listing, though not for White Nose Syndrome reasons, but mostly for loss of bottomland forests through logging and other human activities. The considerable use of mist nets has greatly improved our knowledge of distribution and abundance in the state. Webster et al. (1985) had only two county records -- Wake and Pender -- but we are now aware of records for at least 29 counties!

STATUS: Native

LIST TYPE: Official

Myotis grisescens Gray Bat



DISTRIBUTION: In NC, occurs sparingly in the southern half of the mountains, plus a recent record in the northern foothills of a migrant (presumably) in Surry County. Records are essentially limited to the region from Yancey County southwest to Swain County; records from Yancey and Madison counties were newly made in 2016. Until about 2000, there was only a single record from the Asheville area, and the thought at that time was that the record was perhaps of a stray/vagrant individual in search of a roosting cave.

A small range for a bat species, occurring only from IL and OK eastward to WV, western NC, and northern FL.

ABUNDANCE: Rangewide, declining sharply, owing to heavy losses to White Nose Syndrome in caves to the west of North Carolina. In NC, formerly considered accidental to casual and not a part of the species' normal range. However, with recent warm-season records of individuals mist-netted and also found roosting under bridges, it is clearly of regular occurrence in at least part of the mountains, though it is clearly a rare species in the state. It is still poorly known, but because it is not restricted to caves in the state, it likely will be found in additional mountain counties in upcoming years -- as was the case of one photographed roosting under a bridge in Surry County.

SEASONAL OCCURRENCE: Hibernates in winter. Migrates up to several hundred miles from breeding areas to roost in large colonies at just one or two dozen cave sites within its range. Essentially all records in the state are in the warmer months, and its winter status is essentially completely unknown. Despite intensive surveys of dozens of caves in winter for roosting bats, no Gray Bat has yet been found in a cave in the state, despite it being a strong cave-dweller nearly throughout its range. Thankfully, bat biologists have been finding a few of them roosting under bridges.

HABITAT: Over nearly all of its range, this species is more closely tied to caves at all seasons than are other bats, and it is especially habitat-specific, favoring limestone caves with creeks flowing through them. However, it seems to roost in North Carolina under bridges (and likely inside trees or in clumps of leaves), at least in the warmer months. As it often roosts under bridges, apparently, it is presumed to feed over rivers or large creeks. Its winter habitat is not known. Do all of the NC summering individuals leave the state and head westward to caves in TN or other states? This seems unlikely, but why is it not turning up in wintertime cave surveys in NC?

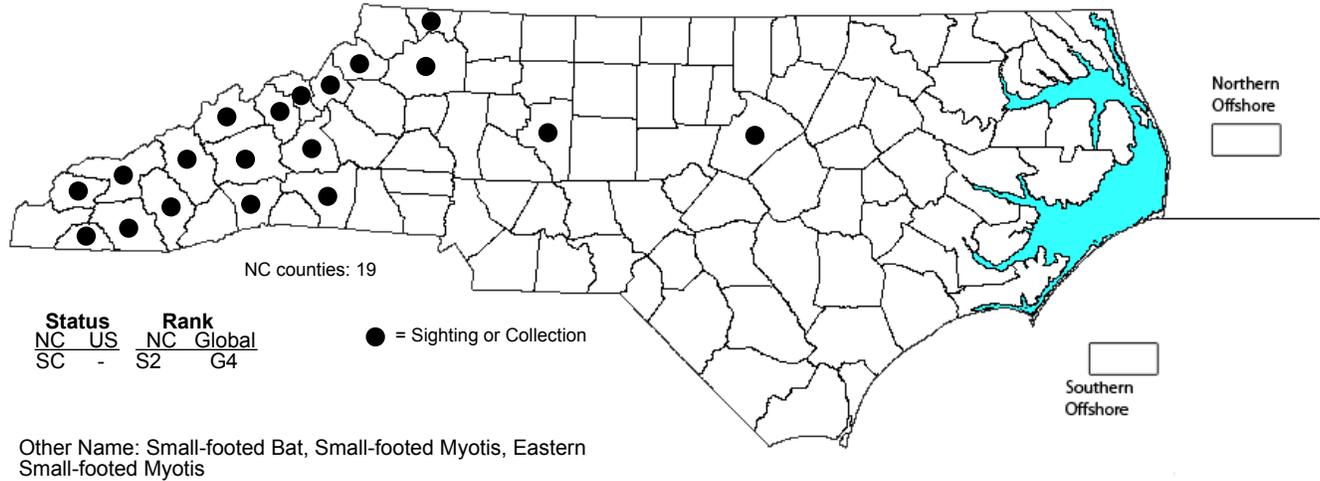
BEHAVIOR: These bats always forage at night over water, such as lakes, ponds, and rivers, fairly close to caves.

COMMENTS: The Gray Bat has long been designated by the U.S. Fish and Wildlife Service as an Endangered species, and most of the relatively few caves where it breeds and roosts are gated, to prevent human entrance. As would be expected, White Nose Syndrome has severely impacted the species since the disease was first uncovered around 2008-09. In NC, this may be the most poorly known of the montane bat species, but a number of new records have been made in recent years, including a handful of bridge sites in Buncombe, Madison, and Yancey counties in 2016, and far eastern Surry County in 2019. As the species is Federally Endangered, the State status is also thus Endangered.

STATUS: Native

LIST TYPE: Official

Myotis leibii Eastern Small-footed Bat



DISTRIBUTION: In NC, it is essentially restricted to the mountains, with most records from the southern half of the region. There is a specimen record for Davidson County, well into the Piedmont; it likely was a migrant or stray that far to the east. Two specimens for Wake County (in 1981) probably relate to the Northern Long-eared Bat, though these two records are currently listed in the N.C. Museum of Natural Sciences collection database as *M. leibii* [Eastern Small-footed Bat].

A fairly small range, as it was recently split from the Small-footed Bat/Myotis; ranges from southeastern Canada southward down the Appalachians and west to the Ozarks.

ABUNDANCE: Moderate decline over its entire range due to White Nose Syndrome. Formerly (prior to about 1990) thought to be quite rare in NC, but in recent years, with more mist-netting and cave surveys, it is better considered as rare to uncommon, at least in the southern half of the mountains. There has been some loss to the fungal disease in the state, but the species does roost in rock crevices, under bridges, and in small spaces between concrete slabs on bridges; thus, it is not limited to caves, where the White Nose Syndrome is prevalent. It is listed as a State Special Concern species.

SEASONAL OCCURRENCE: Apparently non-migratory. Hibernates in winter.

HABITAT: In the warmer months, it roosts mainly in trees, but at times in buildings; in winter, it roosts in caves or in other rock crevices. It forages at night over forests. Recently, some individuals have been seen roosting under bridges or in narrow spaces/gaps in the concrete in bridges.

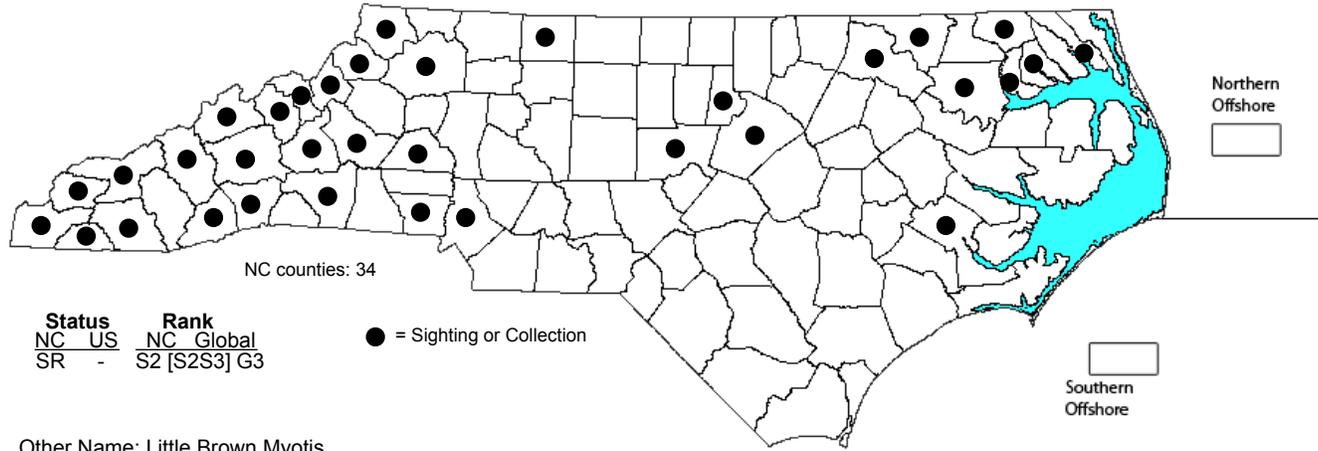
BEHAVIOR: Webster et al. (1985) state that it is "the last species of *Myotis* to enter torpor and the first to become active in the spring". Though a cave-roosting species, it occurs only in small colonies, especially in NC, and seldom are more than 5-10 individuals seen at any given place in the state.

COMMENTS: This species and the Western Small-footed Bat (*M. ciliolabrum*) were until recently considered as the same species -- named *M. leibii* in some references and *M. subulatus* in others. As with most other cave-dwelling bats, White Nose Syndrome has hit this species fairly hard, and there was a proposal to Federally list it as Endangered or Threatened. However, on October 2, 2013, the U.S. Fish and Wildlife Service stated in the Federal Register that the species did not merit Federal listing, based on its status review.

STATUS: Native

LIST TYPE: Official

Myotis lucifugus Little Brown Bat



DISTRIBUTION: In NC, it occurs throughout the mountains, sparingly over much of the Piedmont, but in the Coastal Plain occurs essentially in the northern part of the province, though one was captured in a mist net and measured by experts in Craven County in April 2007.

Occurs from coast to coast, one of the broadest ranges for any bat species; ranges from Alaska to Newfoundland, south to the Gulf Coast states.

ABUNDANCE: Strongly declining, owing to White Nose Syndrome. Not as numerous as would be expected in NC, as it is (or was before this fungal disease was discovered) a very common species across most of its range. In NC, widespread but uncommon over most of the mountains and Piedmont foothills, very rare to rare over most of the Piedmont, and rare to locally uncommon in the northern Coastal Plain. Might possibly be absent in some counties in the central and southeastern Piedmont. Since about 2009, numbers have greatly declined in winter populations in caves in the mountains. The species has never been listed by the N.C. Wildlife Commission as a protected species (such as Special Concern), though it is tracked by the N.C. Natural Heritage Program as Significantly Rare. There may be enough records in recent years to move that program's state rank from the current S2 to S2S3, though probably not yet to S3.

SEASONAL OCCURRENCE: Possibly a migrant in some areas, but generally believed to be non-migratory in most regions of the state. Hibernates in winter.

HABITAT: In the warmer months, breeds and roosts mainly in buildings, especially attics. Forages at night over ponds, rivers, creeks, and some forests. In winter, essentially all members of the species roost in caves and mines, though some in the eastern parts of the state must roost in buildings or other sheltered areas, as caves and mines are very rare there.

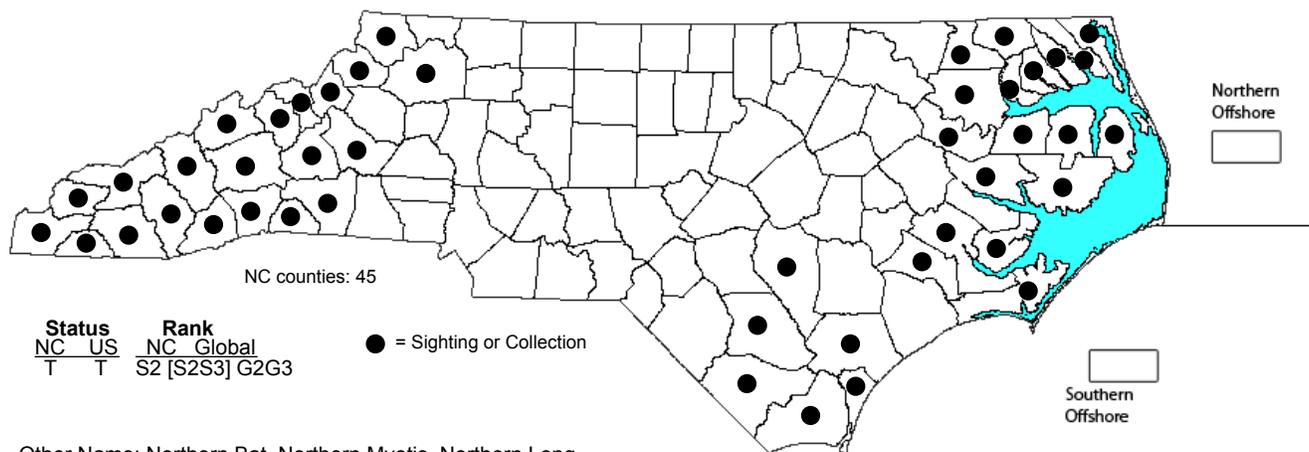
BEHAVIOR: Roosts in moderate sized groups in winter. In summer, females form fairly large maternity colonies in attics and other places in buildings.

COMMENTS: Bat biologists have been alarmed at the great decline, over 90%, in the overall population of this formerly very common bat species, as a result of White Nose Syndrome. Thankfully, it has a huge range, and it does not roost in such very large colonies as do the Gray Bat and a few other species. Thus, despite its huge losses, the future of the species is not quite as bleak as it is for other *Myotis* species, though NatureServe has moved the Global Rank to G3 in recent years. Mist-netting operations in the state, especially in the Piedmont and Coastal Plain, have greatly helped to clarify the range of the Little Brown Bat. However, most of that "clarity" is negative, at least over all of the Piedmont away from the foothills, as hardly any *Myotis* species are mist-netted in this large central area of the state. Only a few have been mist-netted, so far, in the Coastal Plain, and these mostly just in counties close to the VA border.

STATUS: Native

LIST TYPE: Official

Myotis septentrionalis Northern Long-eared Bat



Other Name: Northern Bat, Northern Myotis, Northern Long-eared Myotis

DISTRIBUTION: In NC, it has a distinctly bimodal distribution -- essentially only the mountains and Coastal Plain. The only Piedmont records are for the foothills; former specimen records for Davidson and Lee counties have recently been determined to be of Evening Bat. In the Coastal Plain it is primarily found in the eastern portions, and it has also been found at scattered counties in the southern Coastal Plain (but not in the Sandhills). Thus, lacking records as yet from most of the western third of the Coastal Plain/Sandhills region.

As the name implies, this species ranges farther north than most other bats, occurring from Alberta and Newfoundland south sparingly to the Gulf Coast states, though generally scarce in the Southeast.

ABUNDANCE: Declining somewhat strongly, owing to White Nose Syndrome. In NC, generally uncommon now in the mountains, rare to uncommon in the foothills, and rare to locally uncommon in the northern and eastern Coastal Plain (being quite rare or local in the southeastern counties). Likely absent from most of the inner Coastal Plain and Piedmont (east of the foothills). However, despite records from 44 counties (as of 2022), most counties have are just one or two records, and most mist-netting efforts have produced just one individual in a night.

SEASONAL OCCURRENCE: Year-round, and apparently not migratory. Hibernates in winter, at least in the mountains and foothills. However, there are some winter records in the Coastal Plain, and thus can be active at times in winter in that region.

HABITAT: Generally in moderate to heavy forests, probably with creeks or other water nearby. Roosts in trees or buildings in the warmer months, rarely in caves. However, in winter, it uses caves and other heavily sheltered spots almost exclusively. In the Coastal Plain, it roosts inside hollow trees or other openings inside tree trunks.

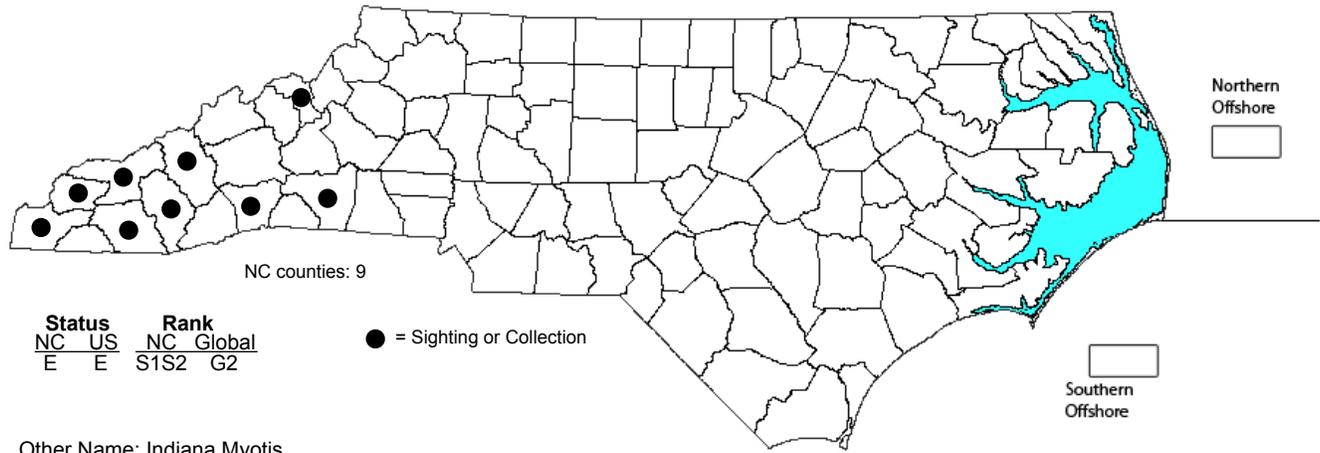
BEHAVIOR: Roosts singly or in small numbers, but never in sizable colonies. Forages well after dark.

COMMENTS: Until the 1980's, the species was thought to be limited in NC almost exclusively to the mountains, with an outlier record from Wake County (which has since been determined to be a specimen of Little Brown Bat). However, since then, many records have come from the central and eastern Coastal Plain. Extensive mist-netting in the Coastal Plain has provided most of these new records, and others have been captured roosting inside trees in swamps. In 2016 an individual was mist-netted in Bladen County, providing just the second known record for the southern half of that province. Similar mist-netting records came from Craven and Pender counties in 2017, and Carteret and Jones in 2018, further filling in "holes" in the southern Coastal Plain part of the range. Since then, there are now records south to the SC state line (in Columbus and Brunswick counties). Until around 2010, it was not considered to be rare or in trouble in the state. But, as it roosts in caves in winter, though in small numbers at any given site, White Nose Syndrome (in the mountain region) has been a serious factor in the decline in the species. In fact, on October 2, 2013, the U.S. Fish and Wildlife Service proposed the species for Federal Endangered status. It has since been Federally listed as a Threatened species. And, thus, the State status also became listed as Threatened. NatureServe had moved the Global Rank in recent years from G2G3 to a very rare G1G2, but has since (2022) returned the rank to a more reasonable G2G3. With 44 county records now in NC, and many new ones in the Coastal Plain in the last 5-6 years, the State Rank is suggested to be moved to S2S3.

STATUS: Native

LIST TYPE: Official

Myotis sodalis Indiana Bat



DISTRIBUTION: In NC, restricted to the mountain region, particularly in the southern half of the mountains. We are not aware of records yet for the northern counties (Alleghany, Ashe, Watauga, and Avery).

Ranges over much of the northeastern and east-central parts of the country, ranging mainly from the Appalachian Mountains west to MO.

ABUNDANCE: Strongly declining rangewide, owing to White Nose Syndrome losses. Rare in NC, as well as over its range. (It is a Federally Endangered species, and thus also is a State Endangered species as well.) Status is poorly understood in NC, as it roosts in trees in summer, and thus is very difficult to survey except with extensive mist-netting efforts. In summer, mainly known from the southwestern counties, where it might not be rare, but there are still relatively few records. In winter, very rare to rare, and declining, in caves.

SEASONAL OCCURRENCE: Presumably migratory to an extent, as there is a shift in roosting habitats from forests in summer to caves in winter. However, it is not clear if the cave-dwellers in winter are local bats or are individuals that moved south from farther north.

HABITAT: In summer, primarily in rich forested areas, generally close to creeks, over which they likely forage. Most roost in trees (such as clumps of leaves or behind loose bark). A few roost in caves at that season. However, in winter, essentially all hibernate in caves, with limestone caves (very rare in NC) favored. Winter habitat in NC is caves, but generally in fissure caves (in felsic rocks).

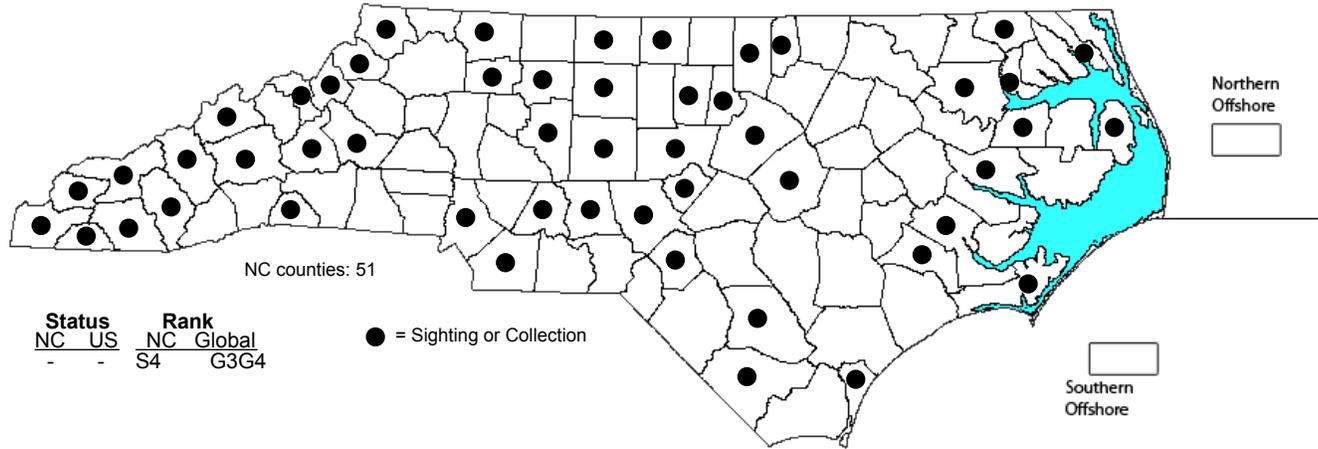
BEHAVIOR: They forage at night over forests and over creeks (in the warmer months). In winter, they roost in large colonies up to about 500 individuals. However, in NC, numbers are seldom more than 5-10 individuals, as the state lies at the far eastern edge of the range.

COMMENTS: There is considerable concern for the survival of the species, as it not only is rare, but as it also roosts strictly in caves, most of which have now been hit by White Nose Syndrome. Nearly all of the older NC records were of cave individuals in winter; however, recent mist-netting efforts in several far western counties during the warmer months have revealed the presence of the species in a wide array of forests. Thus, it could be somewhat widespread in summer in much of the mountains of NC, at least in the lower and middle elevations in the southwestern counties.

STATUS: Native

LIST TYPE: Official

Lasionycteris noctivagans Silver-haired Bat



DISTRIBUTION: In NC, it occurs over the entire state, but it is migratory and does not breed in much of the eastern half of the state. However, it is considered to winter statewide, though there are many gaps (likely not real) in the range maps.

Ranges over nearly all of the lower 48 states and extreme southern Canada.

ABUNDANCE: In summer, it is rather uncommon to perhaps locally fairly common in the mountains and western half of the Piedmont, but is scarce at that season eastward. In migration and in winter, it ranges across the entire state, but is still generally uncommon, as very few have been mist-netted in the winter months (where there has been some effort at sampling in the Coastal Plain at that season). Though there are about 17 "Research Grade" photos on the iNaturalist website (as of 2022), indicating it certainly is not rare, we do not have a feel for statewide abundance levels from other data sources (banding, museum collections, etc.). NatureServe has a Global Rank of only G3G4 instead of G4 or G5, indicating some global concern; the N.C. Natural Heritage Program State Rank of S4 seems appropriate, considering the numerous county records, but many or most records from NC on iNaturalist likely refer to migrants. Thus, the State Rank could be moved to S3S4, but leaving it at S4 is suitable, especially as a number of nearby states -- VA, TN, and KY -- also give the species a State Rank of S4 as well.

SEASONAL OCCURRENCE: Migratory, though seasonal patterns are not totally clear. Lee et al. (1982) state that it is a 'Common migrant and winter resident statewide. May occur as an uncommon summer resident from Winston-Salem west.'

HABITAT: Generally around wooded areas with permanent water, but forages mainly over water. It roosts in openings and crevices in trees, as well as in clumps of leaves. At times, they may roost in sheds and other buildings, though generally very close to forests. It does not inhabit caves.

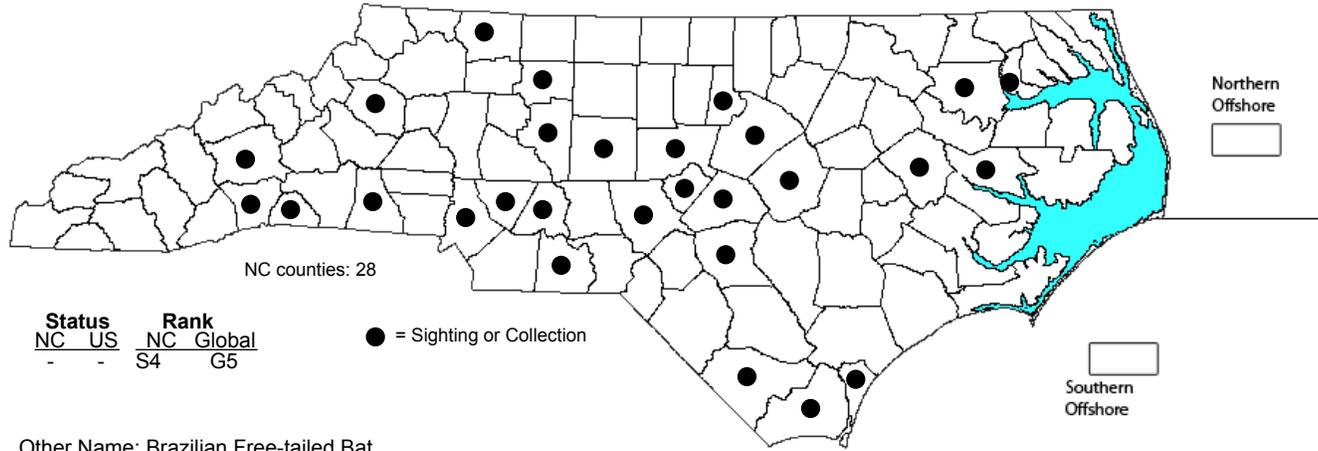
BEHAVIOR: This is a slow-flying bat that forages mainly over water during the hours of darkness. It does not roost in colonies and thus data are somewhat difficult to gather on the species.

COMMENTS: Though by no means a rare bat in the state, the fact that it is migratory, does not inhabit caves, and does not roost in colonies, makes it difficult to know the species well, even by bat specialists, and thus it is difficult to know about population trends in the state. Extensive mist-netting efforts east of the mountains have turned up very few individuals, though most such efforts have been in the warmer months (when the species may be mostly absent at that time of year). Nonetheless, there have been a few dozen recent records across the state, and it is clearly not in trouble here.

STATUS: Native

LIST TYPE: Official

Tadarida brasiliensis Mexican Free-tailed Bat



DISTRIBUTION: In NC, it was poorly known into the early 1980s (Lee et al., 1982), known then only from the southern Coastal Plain. However, it currently occurs over much of the Piedmont and Coastal Plain now. It has recently been recorded in the mountains, where known from at least two counties. However, there are still apparently just four county records from the central and northern Coastal Plain (Pitt and Beaufort to Bertie and Chowan), suggesting that the northward spread of the species has been more to the west, in the Piedmont and western Coastal Plain. However, there are many fewer people in the Coastal Plain to take photos of the species (such as for the iNaturalist website) than in the Piedmont.

Occurs over much of the southern half of the US, and far into Mexico. The range in the Southeast has been greatly expanding northward in the past few decades.

ABUNDANCE: Increasing fairly rapidly in NC. Currently, fairly common to even locally common in the southern Coastal Plain, and uncommon to locally fairly common elsewhere in the western Coastal Plain and parts of the Piedmont. Very rare but presumably will increase in the mountains, at least at lower elevations and/or in the southern counties. Why the species has presumably not greatly spread northeastern into most of the Coastal Plain is not clear, but as suggested above, it may be a measure of observation level as compared with the Piedmont. Though the range map might not quite suggest a State Rank of S4, as given by the N.C. Natural Heritage Program, the species is clearly increasing, and a number of the state records are of a few dozen individuals, roosting in buildings.

SEASONAL OCCURRENCE: Generally inactive in winter, though not known if it regularly migrates out of NC at that season. Primarily seen during the spring to fall period in NC, though there are a few winter records over the state.

HABITAT: The species roosts essentially only in buildings in NC, mainly in large ones that can support sizable colonies. Foraging habitat typically includes lakes, ponds, and other bodies of open water.

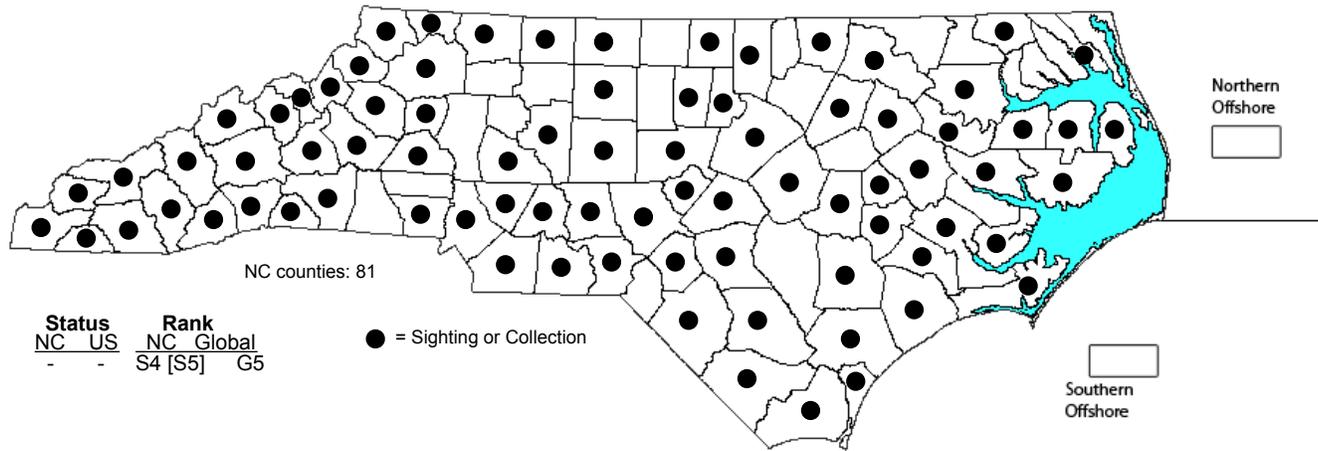
BEHAVIOR: They depart at night and forage mainly over and near bodies of water, higher up than most other bats. They roost in fairly sizable colonies in buildings.

COMMENTS: Though some references state that the species is declining over much of its range, such as in TX, it is clearly increasing and spreading northward in the Southeast. Nonetheless, this is certainly the most abundant bat in North America, and some colonies number over 10 million. As this species frequently roosts in buildings, it (along with the Big Brown Bat) is often considered as a pest and removed by exterminators or other people. As a result, we feel that the species is grossly under-reported to the website, and it likely has been found in most Coastal Plain and Piedmont counties by now, particular in the southern halves of these provinces.

STATUS: Native

LIST TYPE: Official

Lynx rufus Bobcat



DISTRIBUTION: It occurs statewide in NC, likely in all 100 counties.

Occurs almost throughout the lower 48 states and extreme southern Canada, far southward into the tropics; it is absent in some Midwestern and Great Lakes areas.

ABUNDANCE: Because the species is primarily nocturnal and is secretive, abundance is mostly based on tracks. Apparently fairly common in the mountains, generally uncommon in the Piedmont, uncommon to fairly common in the western Coastal Plain, and fairly common in the eastern Coastal Plain. It likely is most numerous on the Pamlico Peninsula and in the Dismal Swamp area, whereas it might be rare in parts of the west-central portion of the Piedmont. Note that the iNaturalist website contains photos for more than a third of the state's counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map). The species could easily be State Ranked as S5 instead of S4, as it is clearly not of conservation concern and is very widespread, though thinly populated, across the state.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Mainly in extensive forested habitats, both in lowlands and in uplands. Some edges and fields can be present, but the majority of the home range lies in forests, well away from man. However, they often forage in fields and brushy areas at night.

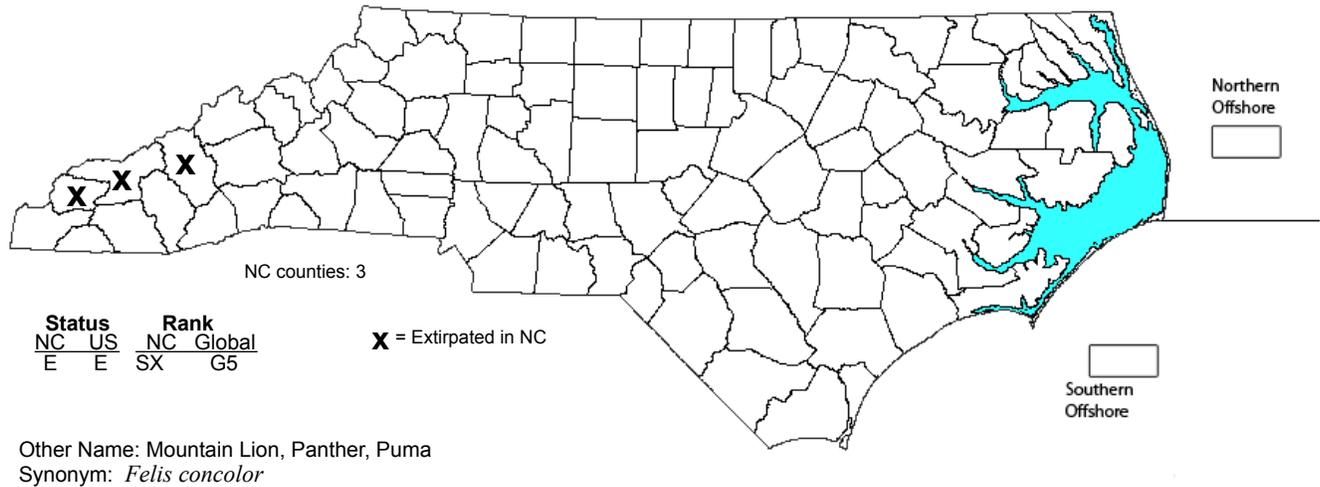
BEHAVIOR: Primarily nocturnal, but not unusual to see them about in twilight or very late afternoon, rarely during daylight. They tend to be quite secretive and shy, though at times can be seen walking along roads and wide trails, seemingly paying little attention to an observer. Even so, they tend to stay away from civilization, and are not often seen in residential areas.

COMMENTS: Numbers of Bobcats in the state seem to be holding up into the recent decades, despite the greatly increasing human population. They obviously are adaptable in their habitats, though still stay away from civilization, for the most part.

STATUS: Native

LIST TYPE: Official

Puma concolor Cougar



DISTRIBUTION: In NC, it apparently occurred statewide into the 1800's, as there are "Panther" place names scattered across the state. However, the species strongly declined over the past 150 years or more; the last likely valid records were in the 1880s [Lee et al. (1982)]. Unfortunately, there are no skulls or other parts of specimens that seem to reside in museum collections for 100% documentation that it occurred in the state, though there are historical reports of its presence here. Despite rumors of "Panther" sightings in the state into the 1980's, the few recent records were of known or presumed escaped or pet individuals. Most (if not all) agencies consider the species to be extirpated in NC as of the 21st Century.

Formerly occurred over most of North America. Currently, essentially limited to the western third of the continent, from the Rockies to the Pacific, though it occurs into Central and South America; a few still occur in southern FL.

ABUNDANCE: Former abundance in NC was not known. It is now presumably absent in the state, leaving FL as the only state east of the Mississippi River still having wild Cougars. Note that the Eastern Cougar (*Puma concolor cougar*) is both Federally and State listed as Endangered.

SEASONAL OCCURRENCE: Occurred year-round.

HABITAT: Formerly in NC likely occurred in extensive forests, including swamps and other wetlands. Over most of its range, it favors mountains and other rocky areas with forested cover.

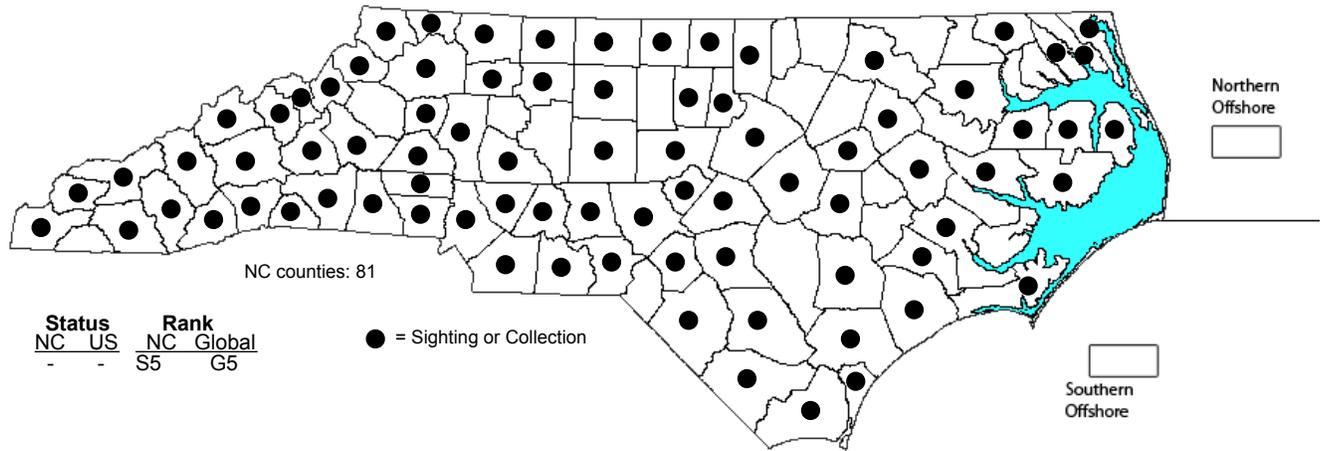
BEHAVIOR: It is strictly nocturnal in its activity.

COMMENTS: Sight reports still persist in NC into the 21st Century, but such reports are declining. Even photos would not be conclusive now, as escaped pets and zoo animals still occur from time to time.

STATUS: Extirpated

LIST TYPE: Official

Canis latrans Coyote



Synonym: *Canis lupus latrans*

DISTRIBUTION: In NC, now (2022) occurs over essentially all of the state, and presumably is present in all 100 counties. Some local introductions in the state are also documented and have helped to spread the species in the state.

Formerly, prior to the middle 20th Century, they occurred mainly from the middle parts of the continent westward to the Pacific Coast. By around 1980, Coyotes were still poorly known from NC, with relatively few records. However, the species has quickly spread to the Atlantic coast, and by about 2015 had spread to all NC counties.

ABUNDANCE: Increasing fairly rapidly in the state. Now, it is fairly common to common over most of the state, perhaps least numerous in the southeastern counties and on barrier islands. Coyote tracks are not difficult to find in many places, and roadkills are becoming more frequent, clear signs of an increase in the population in our state. (Details of abundance within various parts of the state are not well documented.) The N.C. Natural Heritage Program recently moved the State Rank to S5, a measure of how numerous it now is in the state. Note that the iNaturalist website contains photos for more than half of the state's counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: The species has spread eastward as a result of large-scale land-clearing, and thus they favor a mosaic of forested areas and farmlands and fields. Forests should have denning areas such as thickets, rocky places, and other dense cover. Thus, its habitat is rather similar to that of the Red Fox in the state.

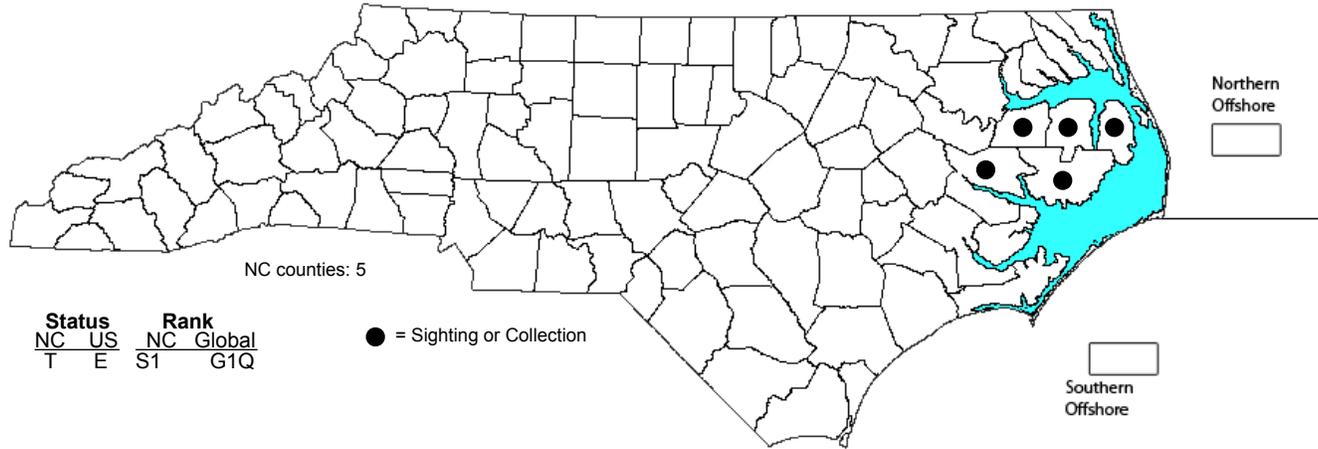
BEHAVIOR: Coyotes are nocturnal and crepuscular feeders, infrequently seen abroad during daylight hours, though typically seen in daylight slightly more often than are fox species. They hunt singly or as pairs, almost never in groups (in the East). Though their wailing, yapping calls are frequently heard in the West, such calling seems to be infrequent in the East.

COMMENTS: The spread of the species into NC and other Eastern states has been astonishingly quick. Prior to about 1990, people were lucky to see a live or dead Coyote in NC, but now roadkills can be seen a few times a year by observant biologists. Tracks are often found in dirt or mud, as well, by those knowledgeable about such animal signs.

STATUS: Native

LIST TYPE: Official

Canis rufus Red Wolf



Synonym: *Canis lupus rufus*

DISTRIBUTION: There had never been a documented record for our state prior to the mid-1980's; however, wolf biologists believe that historically it did occur in the eastern portion of the NC Coastal Plain. In the late 1980's, the U.S. Fish and Wildlife Service began a captive breeding and release program in Alligator River NWR, Dare County. A few individuals were radio-collared and released, and since then, the population expanded in "the wild", to over 100 individuals, helped along with additional releases from that area. The species now very sparingly ranges west to Washington County and to Beaufort County. In the 1990's, a small number were released across the state line in eastern TN, in Great Smoky Mountains NP; however, this population declined quickly, and remaining individuals were captured.

Historically, the Red Wolf occurred from eastern TX to at least coastal SC, presumably eastern NC, and perhaps as far north as PA.

ABUNDANCE: It has declined quite concernedly since about 2017. Numbers in the wild are now only perhaps two dozen individuals, and there is much concern about the future of the captive breeding/release program.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Favors extensive wetland forests and pocosins; nonriverine swamps are preferred. However, wolves often feed in adjacent fields and wooded edges.

BEHAVIOR: Red Wolves are nocturnal and crepuscular, though they can occasionally be seen during the day if it is dark or otherwise cloudy. They do not generally feed or occur in packs, though perhaps groups of 3-4 may be present. Usually when seen in NC, they occur as singles or at most two individuals.

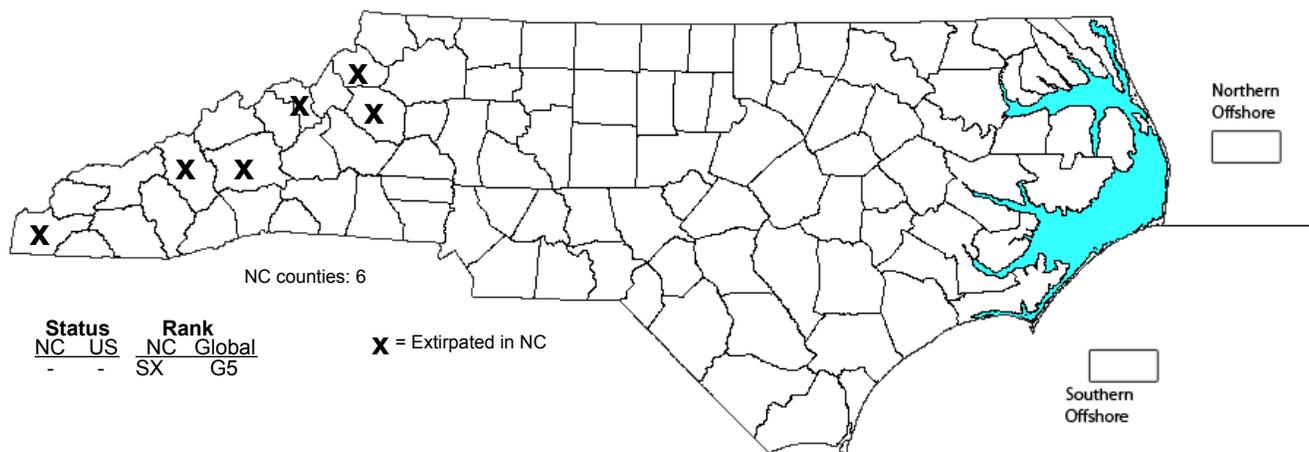
COMMENTS: The most recent checklist (Wilson and Reeder), from 2005, considers the Red Wolf the same species as the Gray Wolf, because of interbreeding and perhaps other factors. However, the website for that reference directs readers to more recent lists and classifications; both the IUCN and the U.S. Fish and Wildlife Service consider the Red Wolf as a full species (*Canis rufus*), and thus our mammal website now reverts back to considering the Red Wolf as a full species. Also, NatureServe considers it as a species, though with a Global Rank of G1Q (questionable taxonomy).

The population in eastern North Carolina has long been listed by the U.S. Fish and Wildlife Service as Endangered, but as an Experimental Population. The N.C. Wildlife Resources Commission, finally, around 2017, placed the species on the State Protected List, as Threatened.

STATUS: Native

LIST TYPE: Official

Canis lupus Gray Wolf



DISTRIBUTION: In NC, it has been extirpated since the latter decades of the 19th Century, but it possibly occurred into the early part of the 20th Century. It was definitely known from the mountains, and likely occurred over much or most of the state, based on various placenames, such as creek names.

Formerly occurred over much, if not most, of North America, except for some of the Southeastern states. Currently, it is found only in the northwestern part of the United States and in northern and western Canada.

ABUNDANCE: Extirpated in NC. Lee et al. (1982) state that the last official state record was in 1887, in Haywood County.

SEASONAL OCCURRENCE: Occurred year-round.

HABITAT: Mainly in remote, heavily forested areas, well away from man/civilization. Such areas were likely rocky, steep, and densely vegetated, though it presumably fed in fields and other open country, as well as in forests.

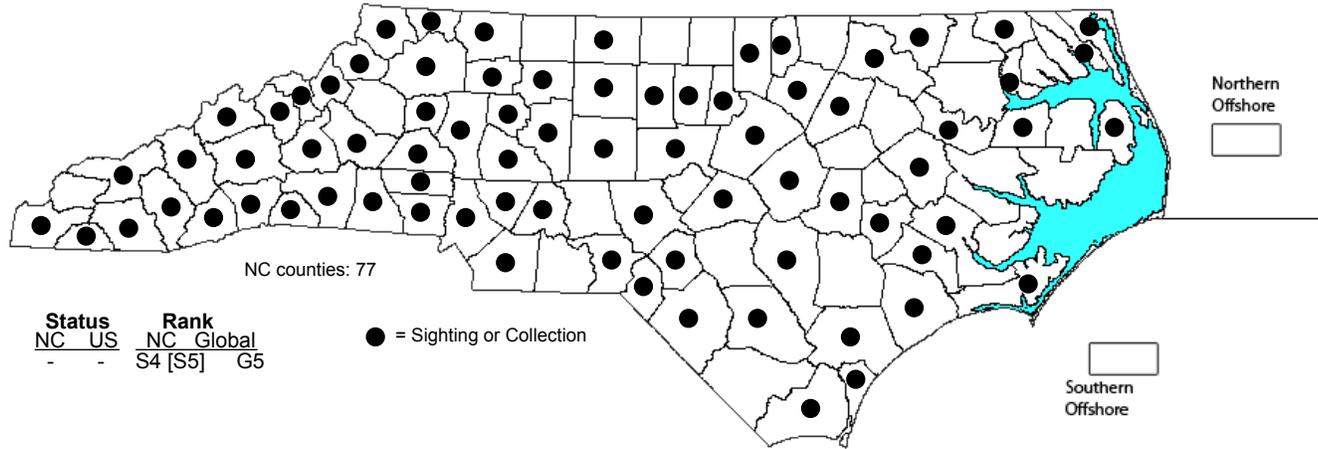
BEHAVIOR: Gray Wolves range in packs, averaging about six individuals. They feed mainly at night.

COMMENTS: Lee and Funderburg (1977) indicate that there was an unverified report of one killed in 1933.

STATUS: Extirpated

LIST TYPE: Official

Vulpes vulpes Red Fox



DISTRIBUTION: In NC, it occurs statewide, presumably being found in all counties.

One of the most widespread ranges of any North American mammal, ranging from Alaska and northern Canada south through most of the lower 48 states.

ABUNDANCE: Seemingly somewhat declining, at least in the mountains and Piedmont. Currently, it is fairly common in the mountains, uncommon to fairly common in the Piedmont, and uncommon to fairly common -- but apparently increasing -- in the Coastal Plain. It tends to be greatly outnumbered by the Gray Fox in most areas of the state. The species may have been absent during colonial times (1600's and 1700's), but through local stocking for hunting, and range expansion with the clearing of forests, it has expanded into the state in the past 300 years, and into all parts of the Coastal Plain in recent decades. Note that the iNaturalist website contains photos for at least a third of the counties in the state, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map). Though there might be some declines in the state, with known records for nearly 80 counties, the species should probably be given a State Rank of S5, or S4S5.

SEASONAL OCCURRENCE: Present and active year-round.

HABITAT: More of an open-country species than is the Gray Fox. Favors overgrown fields, clearcuts, hedgerows, and other brushy areas and forest edges; not normally within the interior of forests.

BEHAVIOR: The species is primarily crepuscular and nocturnal in its feeding behavior, and is infrequently seen during the daylight hours. As with the Gray Fox, it is quite shy and secretive for a fairly large mammal.

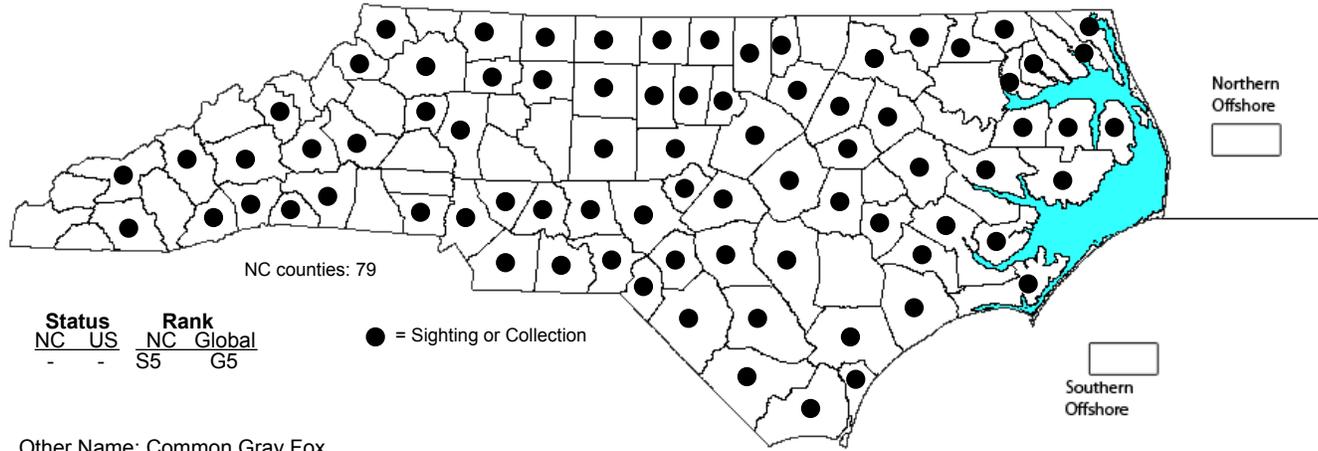
COMMENTS: Some mammalogists consider the Eastern populations to have been introduced from Europe, for fox hunting purposes, and thus they consider the species not to be native in NC and other states in the East. However, a fairly recent study (Statham et al., 2012) published in the Journal of Mammalogy stated in the abstract: "We found no Eurasian haplotypes in North America, but found native haplotypes in recently established populations in the southeastern United States and in parts of the western United States. Red foxes from the southeastern United States were closely related to native populations in eastern Canada and the northeastern United States, suggesting that they originated from natural range expansions, not from translocation of European lineages, as was widely believed prior to this study.... Although European red foxes translocated to the eastern United States during Colonial times may have contributed genetically to extant populations in that region, our findings suggest that most of the matrilineal ancestry of eastern red foxes originated in North America."

Red Foxes have greatly increased in the past several decades on coastal islands, and this species (as well as the Gray Fox) has been a detriment to beach-nesting birds. Records seem to be declining in the mountains and Piedmont, where it is greatly outnumbered by the Gray Fox.

STATUS: Native

LIST TYPE: Official

Urocyon cinereoargenteus Gray Fox



DISTRIBUTION: In NC, it occurs statewide, almost certainly in all 100 counties.

Occurs from extreme southern Canada nearly throughout the United States, south into Mexico.

ABUNDANCE: Generally common (to locally very common on some islands) throughout the Coastal Plain and Piedmont, at least for a moderately large mammal. Less numerous in the mountains, though at least fairly common in the lower elevations, but uncommon in the higher mountains, and rare to absent above 4,000 feet. It is often quite numerous on large barrier islands. Note that the iNaturalist website contains photos for at least a third of the counties in the state, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Occurs year-round, and active at all seasons.

HABITAT: Generally within extensive forests, or forests mixed with brushy fields and clearcuts. Wooded areas can be wetlands or uplands, but bottomland forests are preferred. The forests should have moderate to dense cover, such as rock outcroppings or thickets. They forage in forests as well as in fields, and will forage around wooded residential areas, as well.

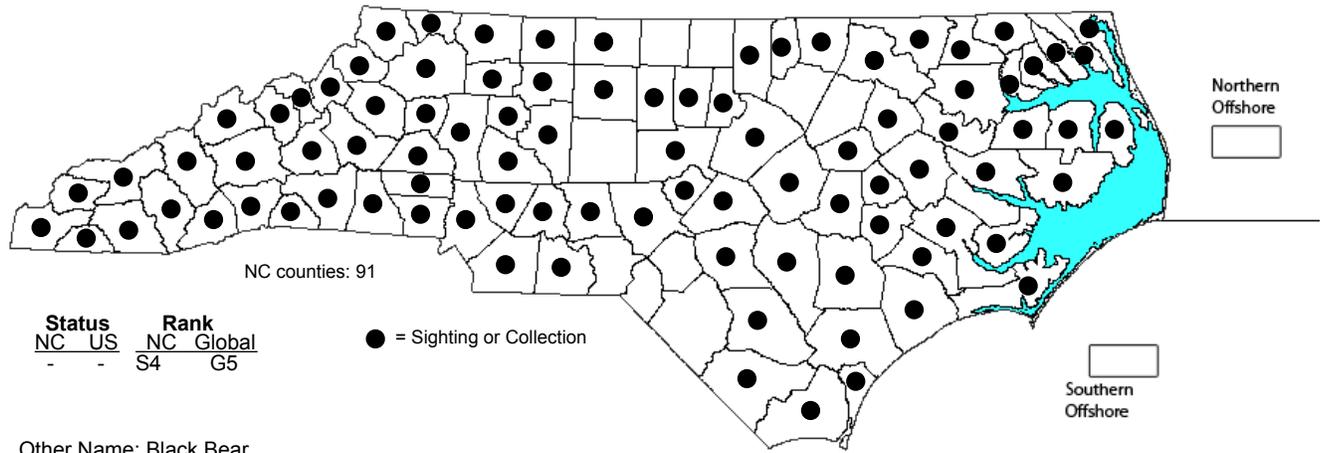
BEHAVIOR: The species is primarily nocturnal in its activity, and is not often seen by the public during daylight hours.

COMMENTS: Gray Foxes have apparently increased in the state in recent decades, as they are seemingly adapting to wooded residential areas. They are more frequently seen than Red Foxes, even though the latter species occurs in more open country than does the Gray Fox. Sadly, it is not unusual to see road-killed Gray Foxes anywhere in the state, even on city streets (in residential areas).

STATUS: Native

LIST TYPE: Official

Ursus americanus American Black Bear



DISTRIBUTION: In NC, bears have a bimodal distribution (not obvious from the range map) -- resident essentially only in the mountains and the lower Coastal Plain. Though it occurs throughout the mountain province, in the Coastal Plain it is found mainly in the eastern third of the province, inland very rarely to the lower Roanoke River floodplain, the lower Neuse River floodplain, the Bladen Lakes (Carolina bay lakes) area, and the Waccamaw River floodplain, but only sparingly in the Lumber River floodplain. Records for the Sandhills region, much of the western Coastal Plain elsewhere, and practically all of the Piedmont are of strays or transients, though it likely is a resident in the South Mountains and perhaps the Brushy Mountains.

Occurs over most of North America, from Alaska to Newfoundland, south into Mexico. However, over this range it is found mainly in mountainous areas, as well as on the south Atlantic Coastal Plain.

ABUNDANCE: Uncommon to locally common in much of the lower Coastal Plain, though scarce away from extensive conservation areas. Very rare in most of the upper half of the Coastal Plain. Absent to very rare transient or "wanderer" through nearly all of the Piedmont. Various uncommon to locally common in the mountains, most numerous in extensive forested areas, such as Great Smoky Mountains NP. Note that the iNaturalist website contains photos for at least a third of the counties in the state, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map). Though there are records for over 90 counties in the state, it is a resident in only half of these, and the State Rank of S4 seems more suitable than S5.

SEASONAL OCCURRENCE: Bears frequently hibernate in the winter in the mountains, and thus are seldom seen during that time. They can be active in the Coastal Plain all year, denning in thickets or other dense, evergreen cover. Even so, they are less active in winter than at other seasons in that region.

HABITAT: Bears favor extensive forested areas, of various kinds. In the mountains, bears are mostly found where there is hilly/rocky topography and with much evergreen shrub cover. In the Coastal Plain, they are most numerous in extensive pocosins and nonriverine swamps, less so in riverine floodplains. They also occur in extensive pine stands, such as pine plantations, as long as there is a dense shrub and understory cover.

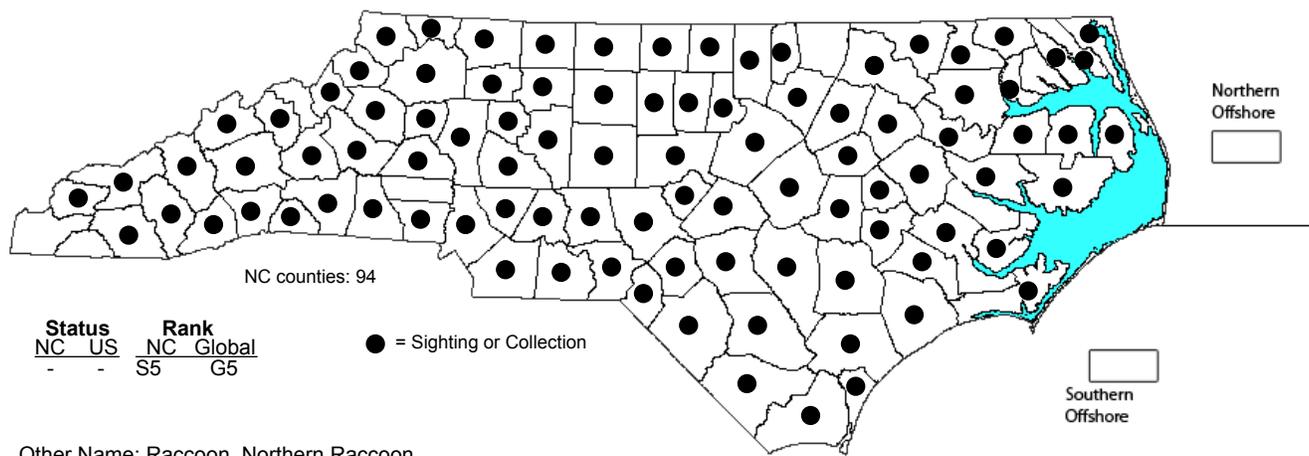
BEHAVIOR: Bears are active at all times of the day, though they prefer crepuscular conditions. They forage on a wide variety of plant and animal matter, favoring berries for the colder months. They are most often seen along logging roads and jeep tracks, or along field margins, and are not normally seen inside forests (though that is where they spend most of their time).

COMMENTS: During historical times, bears ranged across all of the state, but with civilization, clearing of forests, and uncontrolled hunting, bears disappeared from the Piedmont and upper Coastal Plain. The Coastal Plain range continued to shrink into much of the 20th Century, as large areas of pocosins and nonriverine forests were cleared for agriculture and pine plantations. However, bears have started to adapt to such pine stands, and populations are now increasing in the Coastal Plain.

STATUS: Native

LIST TYPE: Official

Procyon lotor Common Raccoon



DISTRIBUTION: Occurs throughout NC, and certainly present in all 100 counties.

Essentially throughout the lower 48 states and southern Canada, south into Mexico.

ABUNDANCE: Raccoons are abundant in the Coastal Plain, slightly less so in the Piedmont (i.e., very common), and generally common in the mountains. Note that the iNaturalist website contains photos for more than half of the state's counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map).

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Raccoons are usually found near water, mainly fresh water -- swamps, lake and pond margins, canals, marshes, and estuary edges. They range into wooded residential areas, even in places well away from wetlands. However, in most areas they are not found in dry habitats.

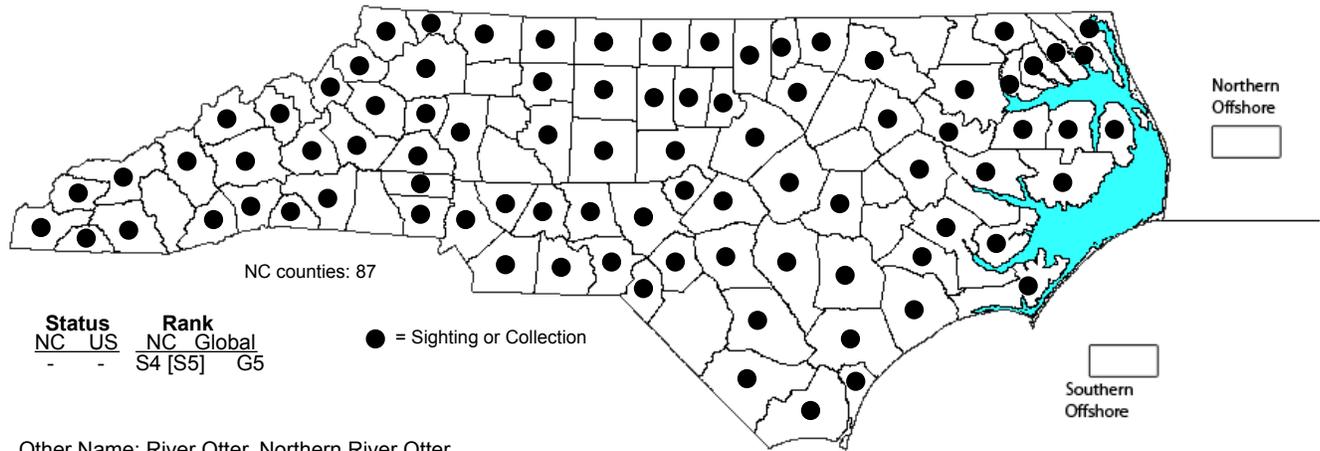
BEHAVIOR: Primarily nocturnal, but at times seen during the day, mainly in cloudy weather. They are usually seen close to water, such as along shores, on mudflats, in ditches and canals borders, marshes, etc. In residential areas, they often raid garbage cans and even take food left out for pets.

COMMENTS: Raccoons have certainly increased across their range, and in NC, in recent decades. Though predators such as Coyote have increased in that period, the increase in open water areas such as beaver ponds and an increase in garbage dumps, residential areas with food, and other sites with food have helped the adaptable Raccoon expand its numbers.

STATUS: Native

LIST TYPE: Official

Lontra canadensis North American River Otter



Other Name: River Otter, Northern River Otter
Synonym: *Lutra canadensis*

DISTRIBUTION: In NC, it occurs across the entire state, and presumably occurs in all 100 counties now. New county records have been accumulating in the mountains in the past one or two decades; the known range in that province was rather spotty in the last century.

Occurs over most of North America, from Alaska to Newfoundland, and south to FL, TX, and CA; however, it is absent now in much of the southern plains and the desert region.

ABUNDANCE: Otters formerly were found primarily in the Coastal Plain, where they can be fairly common to locally common around estuaries, lower portions of rivers, large creeks, and canals -- in the Tiedwater area and eastern Coastal Plain. Farther inland, they are increasing and now often fairly common in the remainder of the Coastal Plain and in the eastern Piedmont, though only locally uncommon farther westward. During historical times, it was more widespread, but it had declined greatly in the 20th Century, though it is making a comeback in many places. Note that the iNaturalist website contains photos for at least a third of the counties in the state, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map). Owing to its presence now in at least 87 counties (as of 2022), the State Rank should be moved to S5.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Otters, as is well known, are strictly in habitats associated with water, primarily fresh, but also in brackish and rarely salt water situations. Favored habitats are lakes, large ponds, canals, and edges of estuaries.

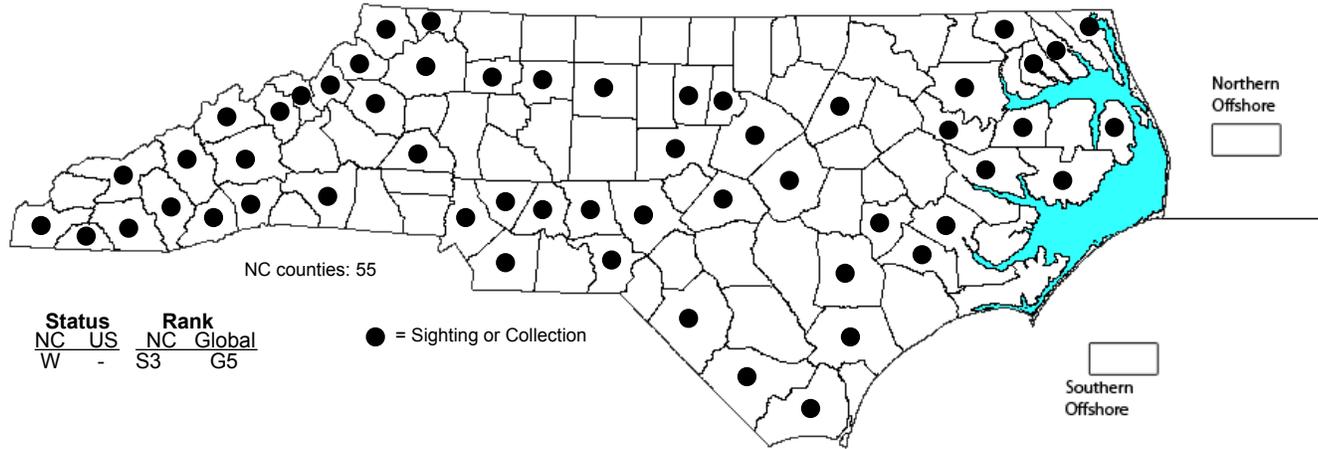
BEHAVIOR: Otters spend most of their time in shallow water, but at times come on land, primarily to move to new ponds or canals. They forage in the water. They are active in both day and night, but are most active near dawn and dusk.

COMMENTS: Otters are among the most enjoyable mammals for the public to observe, as they are infrequently seen, and they are often curious, as well as quite energetic/active. The increase in reservoirs, farm ponds, and beaver ponds in the past few decades has probably resulted in a turnaround in numbers, and otters are likely on the increase now in the state.

STATUS: Native

LIST TYPE: Official

Mustela frenata Long-tailed Weasel



DISTRIBUTION: It occurs (or better stated "occurred") essentially throughout NC, though there is a disturbing lack of records for a number of Piedmont and Coastal Plain counties. Fortunately, only one mountain county (Graham) seems to lack a record.

Nearly throughout the lower 48 states, except in the far southwestern deserts; also in southern Canada, and southward into Mexico.

ABUNDANCE: Almost certainly declining, based on the paucity of recent records. Despite it perhaps occurring in all 100 counties of the state, it is scarce and very difficult to observe. Uncommon in the mountains, and essentially rare (if not even very rare) now in the Piedmont and Coastal Plain. There are very few recent records from east of the mountains, including just one on the iNaturalist website from these provinces. The fact that most counties in the Piedmont and Coastal Plain have their most "recent" record based on Lee et al. (1982) indicates the strong decline in numbers east of the mountains. It is considered as a Watch List species by the N.C. Natural Heritage Program.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Generally within forests, or along and near their edges; also occurs in brushy areas, but unlike the Least Weasel, does not generally occur in extensive open areas. Infrequent in wetlands.

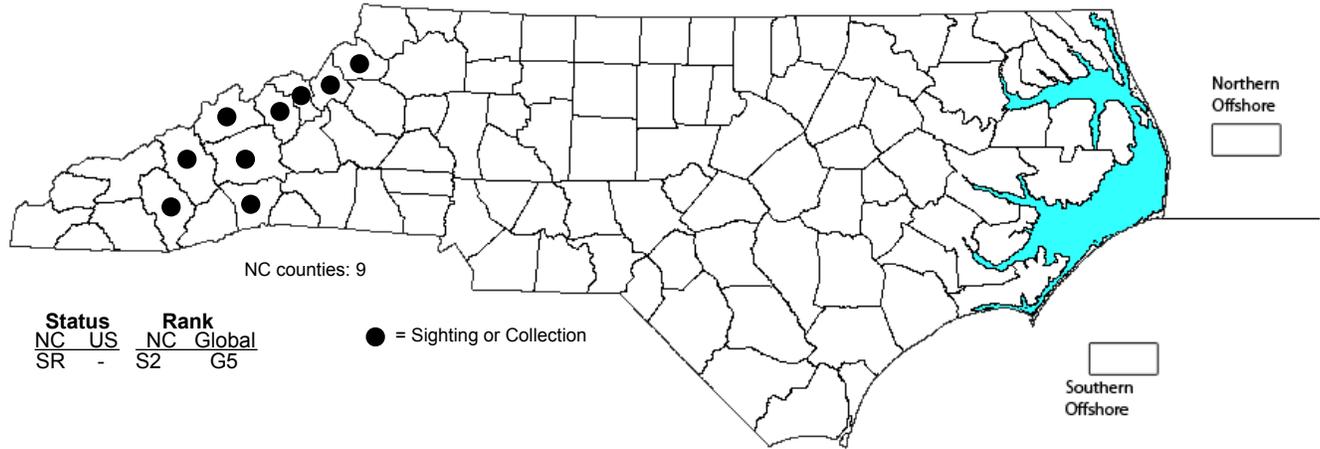
BEHAVIOR: Very active, both day and night, but seldom seen because of its secretive nature and presumably small numbers. Swims fairly well.

COMMENTS: For a species that occurs from high mountains to the coastal areas in the state, the species is poorly known by most people, and few are seen alive. Even roadkills are seldom noted. The obvious decline of the species is suspected to be related to an increase in its predators, such as Coyotes and foxes, over the past few decades. The current State Rank of S3 might even be too liberal (optimistic), and S2S3 might now be more accurate. Whether it should be moved from the program's Watch List to its Significantly Rare list is debatable, but it certainly is worth thought.

STATUS: Native

LIST TYPE: Official

Mustela nivalis Least Weasel



DISTRIBUTION: In NC it is strictly found in our mountains. Even so, records are known down to 1,600 feet (Lee et al. 1982); thus, it is not a resident of just the higher mountains in the state.

Occurs over most of Canada and Alaska, southward only to the northern 48 states. The range does extend southward into most of the Appalachians.

ABUNDANCE: One of the most poorly known mammals in the state, with fewer than 20 records known. Thus, it is presumed to be rare south to Jackson County; might be absent in counties west of Jackson, though it ought to occur in Macon and Swain counties. There has been a handful of recent records for Buncombe County, though this may be correlated with the much greater human population there than in other mountain counties (for spotting and photographing these secretive animals).

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Mostly in open, upland areas, such as fields and brushy places, and wooded borders/edges; perhaps also in marshes or bogs. Not typically found in extensive or deep forests.

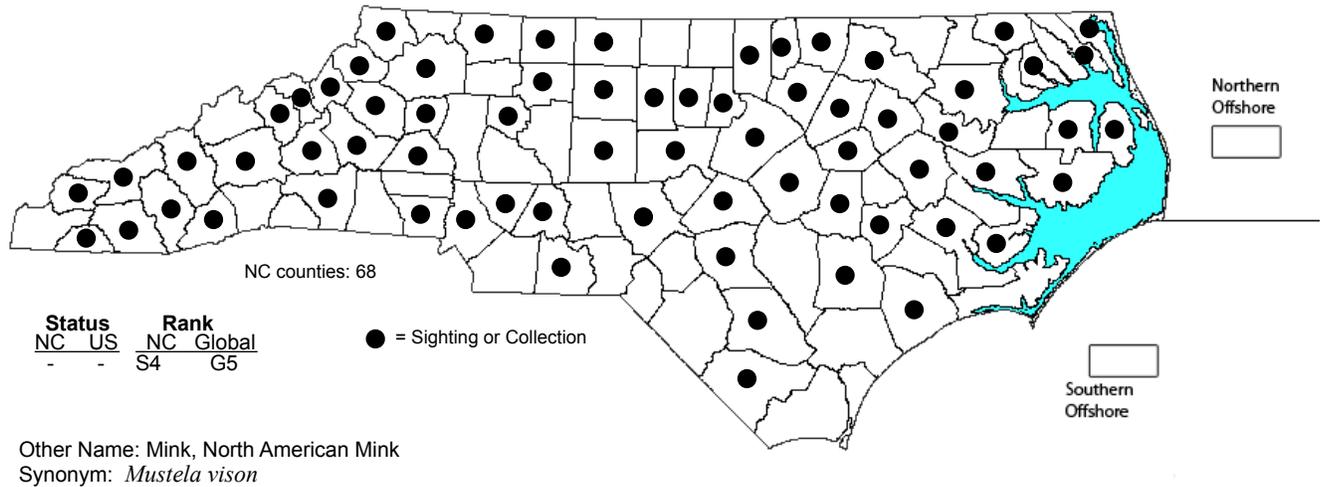
BEHAVIOR: The Least Weasel is a very active and agile mammal, quickly darting into cavities and tunnels and other crevices. It is apparently mostly nocturnal, though weasels can be active during the day. Because of their very small size, they are very secretive, and few people have seen a live Least Weasel in the state.

COMMENTS: This species is probably undergoing a decline in the state, as there have been few records in the past 20 years. Though habitat loss is not likely a problem, the increase in its predators, such as foxes and Coyotes, may be at least partly responsible for its scarcity now. It is certainly rare enough to be State listed as Special Concern or possibly Threatened, but as it is a furbearer species, it cannot legally be State listed, and thus it continues to be tracked as just Significantly Rare by the N.C. Natural Heritage Program.

STATUS: Native

LIST TYPE: Official

Neovison vison American Mink



DISTRIBUTION: In NC, it occurs essentially statewide, though there are very few records for the extreme southern Coastal Plain.

Occurs over most of the North American continent, north of Mexico, though it is absent over portions of some Southern states.

ABUNDANCE: This is not a scarce species in the state, but it is infrequently seen, and roadkills are also infrequent. Thus, it is best stated to be uncommon over most of the state, though fairly common at least locally in some northern coastal areas. Seemingly rare in the southeastern counties .

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Minks are well-known to be semi-aquatic, and generally occur very close to lake and pond shores, river/creek margins, swamps, and even estuaries. They also occur in marshes. They are seldom seen in upland situations.

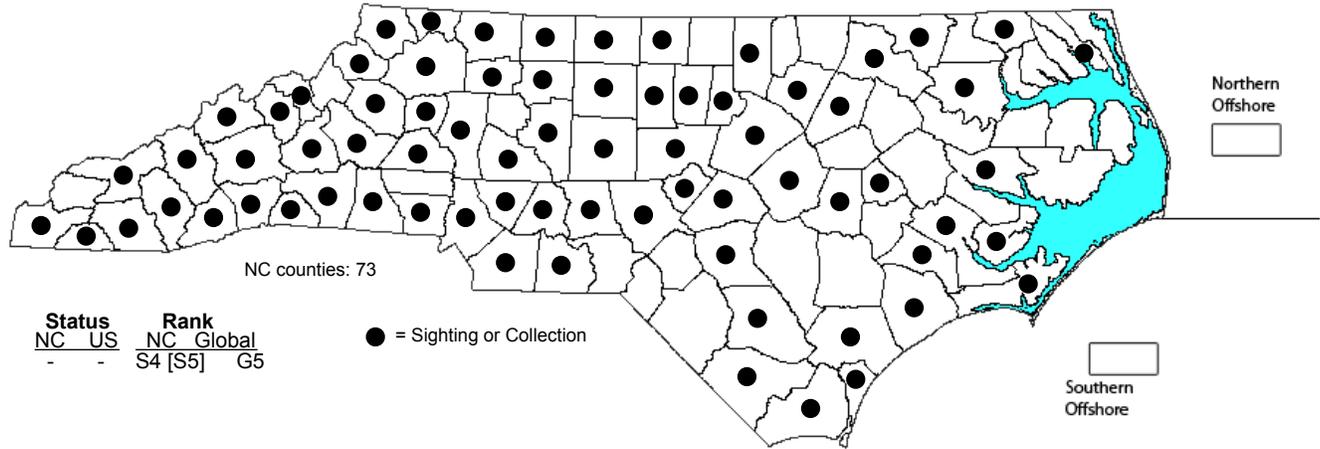
BEHAVIOR: They are mostly nocturnal, though they can be occasionally seen during the day. They swim quite well.

COMMENTS: Because of their mostly nocturnal habits, Minks are certainly more numerous than most people would assume. Even so, observations are infrequent, though the iNaturalist website does have between 35-40 photographs that are considered to be "Research Grade" (as of early 2022).

STATUS: Native

LIST TYPE: Official

Mephitis mephitis Striped Skunk



DISTRIBUTION: In NC, it currently ranges throughout the mountains, nearly throughout the Piedmont, and sparingly in the northern half of the Coastal Plain (but mainly in counties near the Virginia line). Prior to the 1980's, it occurred southeastward to the southern half of the Coastal Plain, north to Johnston and Beaufort counties. However, it declined steeply in recent decades in the Coastal Plain, and until recently it was essentially extirpated from the province and the southeastern corner of the Piedmont. However, it is making a comeback, and it has been found in some northern Coastal Plain counties (south to Beaufort, Jones, and Greene counties) and in the northeastern Piedmont; however, it seems to be absent over most of the Coastal Plain now.

The most widely distributed skunk, ranging from the Pacific to the Atlantic, covering nearly all of the coterminous 48 states and southern Canada.

ABUNDANCE: This is a common medium-sized mammal across most of its overall range; many are killed on roads. In NC, it is relatively common in the mountains, fairly common in the foothills and western Piedmont, mostly uncommon in the central and eastern Piedmont, and rare to uncommon in the northern Coastal Plain. It appears to be absent over most of the Coastal Plain now. The species is clearly increasing in the northeastern Piedmont and adjacent northern Coastal Plain, for unknown reasons. Note that the iNaturalist website contains photos for the many of the state's mountain and Piedmont counties, and the editors have not taken the time to update the map with "Photo" records/documentation unless the county had previously no known records (white on the map). There are, indeed, many recent photos from the southern half of the mountains, but none from the southern half of the Coastal Plain, corroborating the present-day "absence" of skunks from this southeastern part of the state. The State Rank can probably be moved from S4 to S5 by the N.C. Natural Heritage Program, especially considering that the much rarer Eastern Spotted Skunk currently has a rank of S3, and all adjacent states rank it as S5.

SEASONAL OCCURRENCE: Occurs year-round, and it is not migratory (in elevation).

HABITAT: The Striped Skunk occurs in a variety of forested and field habitats, mainly in a mosaic of such habitats. Rocky and other upland forested areas are favored; it seldom occurs in floodplains and other wetlands. It regularly occurs in wooded or semi-wooded residential areas, more so in the mountains than well downstate.

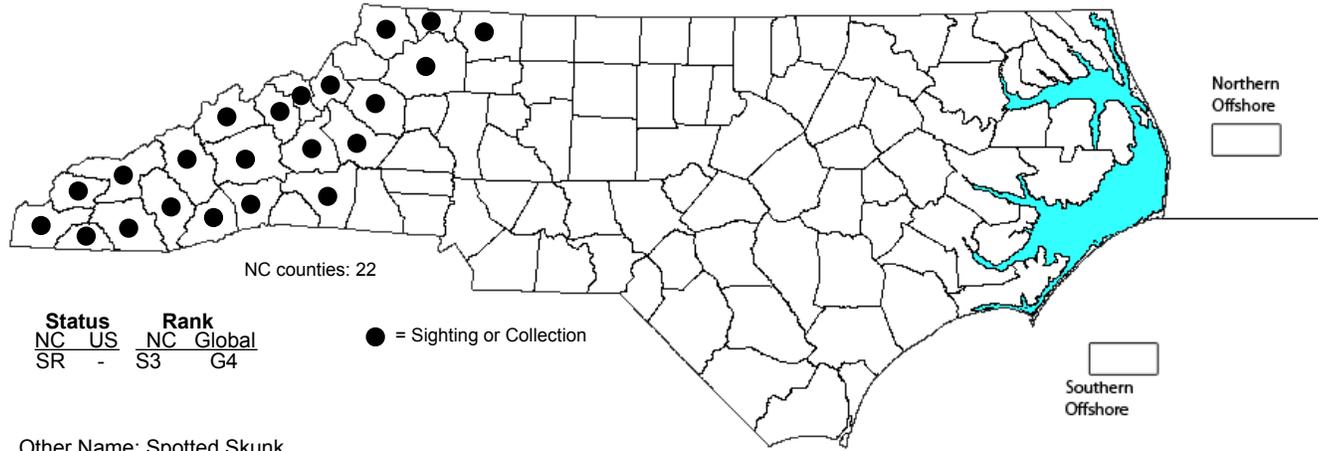
BEHAVIOR: Strictly nocturnal, and thus rarely seen except as roadkills.

COMMENTS: This species undergoes widespread and somewhat mysterious die-offs, and then local increases. Lee et al. (1982) "assume that various diseases periodically eliminate skunks over sizable portions of their range". For example, range maps in Lee et al. (1982) and other books indicate that it occurs throughout the Piedmont, but it has been nearly absent from well-studied Wake County for several decades, though it is now returning in small numbers.

STATUS: Native

LIST TYPE: Official

Spilogale putorius Eastern Spotted Skunk



Other Name: Spotted Skunk

DISTRIBUTION: In NC, it is strictly limited to the mountains, where it occurs from VA to SC and GA; there are apparently no records from below the Blue Ridge Escarpment, except for a recent sighting in Surry County just west of I-77 in the foothills. However, it has a wide altitudinal range in the mountains, though apparently favors the higher elevations.

Occurs throughout the central portion of the continent, eastward to PA and southward into FL. However, it is generally absent in the Piedmont and Atlantic Coastal Plain of most states.

ABUNDANCE: The species is not common within its fairly large range, and in NC it is now generally rare to uncommon, and likely is declining. Lee et al. (1982) found it widely distributed, and "relatively common" in certain habitats. In recent decades, records have been slow to accumulate, and it seems to be less numerous now than in the early 1980's. However, wildlife cameras have added quite a few recent records in the past few years -- not necessarily signaling a population increase, but at least there are now better ways of "observing" nocturnal animals than in earlier years. Many of the wildlife camera photos have been posted to the iNaturalist website, though there is a clustering of them in Haywood County (and no photos north of that county). Thus, it is likely rarest in the mountains in our northern counties.

SEASONAL OCCURRENCE: Occurs above ground-year round and presumably does not show altitudinal changes.

HABITAT: This species favors a mix of forests and fields, especially where the forests are rocky or have other den sites -- as does the Striped Skunk (in a different genus). Hardwood or mixed forests are probably favored over coniferous ones. Where there are cliffs or talus slopes, the species might be more numerous than elsewhere. The species also occurs around sheds, barns, and other structures, as long as there are denning places.

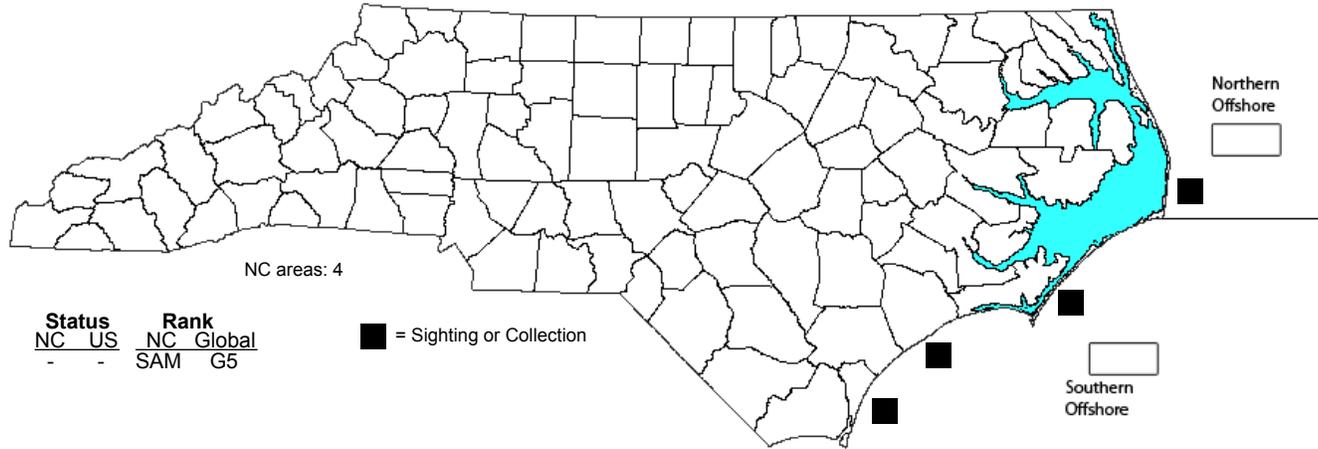
BEHAVIOR: The species is strictly nocturnal, and thus is seldom seen (except as roadkills).

COMMENTS: The relative scarcity of recent records has sparked the N.C. Natural Heritage Program to track the species as Significantly Rare, starting in 2012. One biologist remarked that ever since Coyotes have been seen in his local area in Buncombe County in the past 5-10 years, sightings of Spotted Skunks have markedly declined. Thus, one can surmise that the great increase of Coyotes across the mountain region has sparked this skunk's decline, as skunks are preyed upon by these canines. Thankfully, the considerable usage of fixed wildlife cameras has captured a number of recent photos and videos of this species, and that program has moved the State Rank to a less rare S3, though still keeping records for it.

STATUS: Native

LIST TYPE: Official

Cystophora cristata Hooded Seal



DISTRIBUTION: In NC, sparingly in coastal waters. We are aware of five strandings in 2001 (all at one time?), and one in 2006, as well as two specimen records (one from 1944). There are two NC specimens in the USNM database, one from Dare County in 2001 and another with poor data (no year or county given -- only 'North Banks Beach', a non-existent place name).

Occurs in the far north Atlantic and the Arctic oceans, normally ranging south to about Nova Scotia. Strays occur farther south in winter, very rarely to NC.

ABUNDANCE: Rangewide, uncommon to fairly common, but not as numerous as some other northern Atlantic seals. In NC waters, apparently casual to very rare, with only a few known records of strandings.

SEASONAL OCCURRENCE: Very odd. Though one would presume the species to occur mainly in winter or early spring, as NC lies beyond the normal extent of the winter range, nearly all records are for late summer and early fall! One was found alive on 19 August 2001 at Fort Fisher. Another was a live stranding on 15 September 2006, at Wrightsville Beach (photo on the UNC-W stranding website). The NCSM database has a collection of one from 17 September 1944, and the USNM specimen is from 10 August, without a year given. However, there is a specimen record for 27 March.

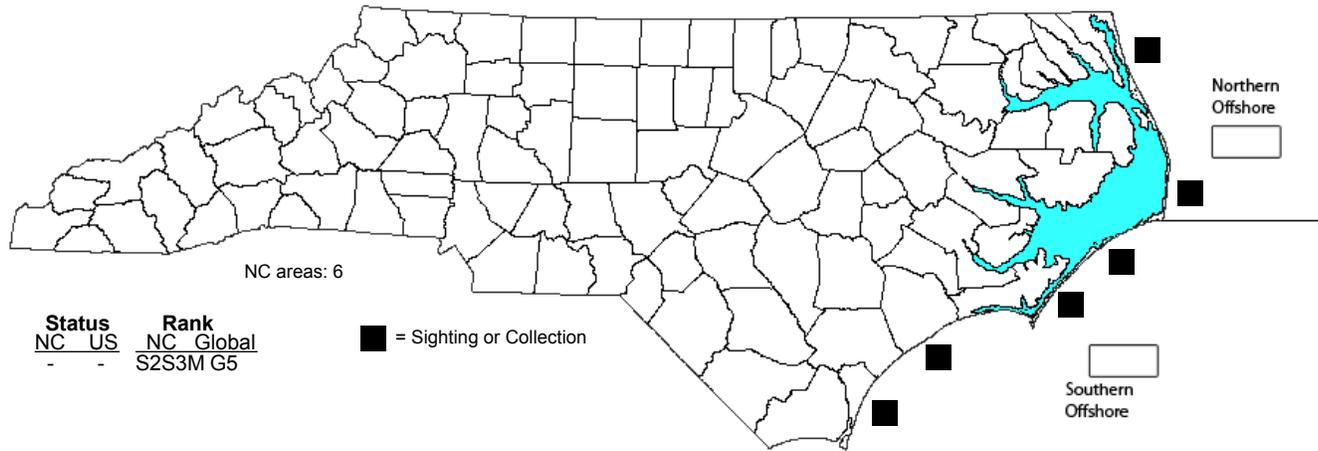
HABITAT: Normally, in cold waters, usually near ice.

COMMENTS: This is a highly migratory species, though moving from one area to the next in Arctic waters, to stay near ice. Males can inflate air sacs on the top of their nose to form a large hood-like structure. The number of NC records (at least four) from late summer and early fall seems most unusual for such a cold-water species.

STATUS: Native

LIST TYPE: Official

Phoca vitulina Harbor Seal



DISTRIBUTION: In NC, strictly along the coast and inshore ocean. This is the only "expected" seal to occur in NC waters.

Occurs along both the north Atlantic coast and the eastern Pacific coast, unlike most other seals (which are generally found only in the Atlantic or the Pacific, but not both). It ranges south in the Atlantic regularly at least to NY, and essentially annually to NC and SC.

ABUNDANCE: Quite common within its range. In NC, it seems to be increasing, despite global warming, and is being seen essentially each winter. It is rare to uncommon along the coast south to Oregon Inlet, and rather rare to Cape Hatteras; quite rare south of this cape. As many as 23-24 individuals were seen inside Oregon Inlet during the winter of 2011-2012; most were resting/basking on sandbars.

SEASONAL OCCURRENCE: A winter visitor to NC waters, with some straggling into spring.

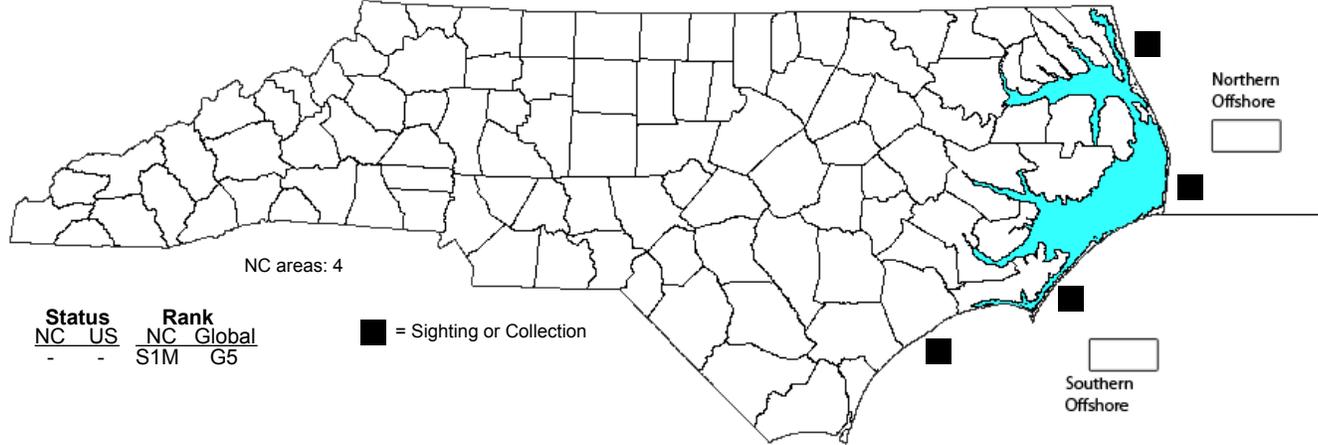
HABITAT: Cold to cool inshore waters, often near rocks in the main part of the range. In NC, not unusual to see on sandbars and other areas of sand, mainly at Oregon Inlet, but also on Cape Point at Cape Hatteras. At times seen foraging inside inlets.

COMMENTS: NOAA recorded 54 individuals of this species stranding on the NC coast from 2002-2009, far more than the other three species of seals combined have stranded. Thus, a seal seen in NC waters is assumed to be this species unless otherwise documented.

STATUS: Native

LIST TYPE: Official

Pagophilus groenlandicus Harp Seal



DISTRIBUTION: In NC, strictly in coastal waters, presumed to occur mainly from Cape Hatteras northward.

Occurs in the far northern Atlantic Ocean, and in the Arctic Ocean, normally ranging as far south as the Canadian Maritimes, but regularly straggling southward in winter to the mid-Atlantic states, including NC.

ABUNDANCE: Common to very common in its range; numerous enough to sustain heavy losses to people clubbing young for their white coats for the fur industry. In NC, in recent years a rare straggler in the cooler months, mainly to the northern half of the coastline. The NOAA website indicates 7 Harp Seal strandings along the NC coast, from 1996 (one) to 2006. Since 2006, there have been a report of four strandings in the winter of 2010-2011, plus another seen on 9 March 2009. The USNM database (2021) shows one specimen record for the state -- Currituck County in 1999. However, the iNaturalist website has about 8 photos of Research Grade, all from Currituck and Dare counties -- since 2018. Thus, there have been at least 18 records for the coast since 1996; we know of no state reports prior to 1996.

SEASONAL OCCURRENCE: Presumed to occur almost strictly in winter into early spring, as this and all other seals in the north Atlantic are at or near the southern end of their ranges in NC waters.

HABITAT: Cold waters.

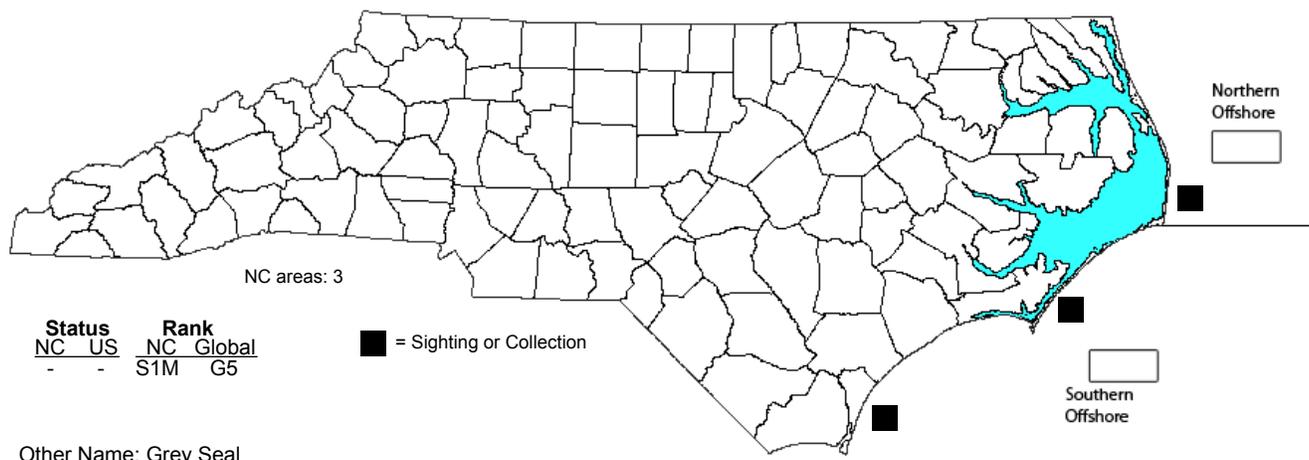
BEHAVIOR: The species is highly migratory, in large groups, but essentially within the far north Atlantic, in search of food; individuals in NC waters tend to be singles (presumably).

COMMENTS: This is the best known of the Atlantic seals, owing to the publicity of the controversial hunts of the pups for their all-white fur. However, in the mid-Atlantic states, the species is not nearly as familiar as is the Harbor Seal, the only regularly occurring one in this region. A photograph of a live and hopefully healthy adult was taken at a beach in Dare County in early 2017.

STATUS: Native

LIST TYPE: Official

Halichoerus grypus Gray Seal



DISTRIBUTION: In NC, there are a handful of records of strandings along the coast, mostly north of Cape Hatteras.

The northern part of the North Atlantic Ocean, from the Canadian Maritimes north to Newfoundland, and moving southward in winter into cool waters off the northeastern states, sparingly as far south as NC.

ABUNDANCE: Increasing in its range, and generally fairly common to common. In NC waters, currently a rare winter visitor, in the colder months, south to Cape Hatteras, and single records south to Bogue Banks (Carteret County) and Carolina Beach (New Hanover County). Prior to about 1997, apparently not known from NC. First record was likely between 1997-2000, as NOAA reported one NC stranding within that time period. Since then, NOAA reports about 8 additional strandings in NC, through 2009. There is another report of a stranding on 17 March 2011 (at Kitty Hawk), and a very recent one in mid-May, 2013 at Carolina Beach. On the other hand, the USNM database (2021) contains only one specimen record for the state. However, the iNaturalist website contains 8 photos of Research Grade, in 2018-2019, all from Dare County; a few may well refer to the same beached animal.

SEASONAL OCCURRENCE: Primarily during the colder months -- winter into spring, as this represents individuals dispersing southward in the middle of winter.

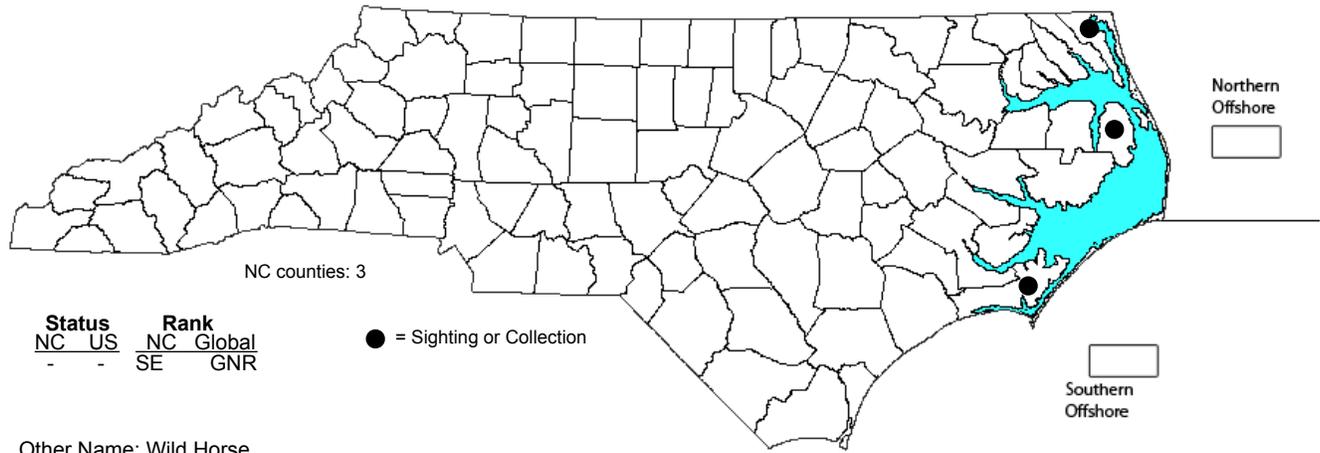
HABITAT: Cold waters, in the inshore ocean.

COMMENTS: We are unable to locate records of Gray Seal along the NC coast or in NC waters prior to the very late 1990s. As this species appears to be increasing within its range, it is no surprise that strandings were apparently unknown along our coast in nearly all of the 20th Century. This is the largest of the Atlantic seals, and it is often considered as a "pest" by fisherman because it competes for fish and damages fishing nets.

STATUS: Native

LIST TYPE: Official

Equus caballus Feral Horse



DISTRIBUTION: In NC, Feral Horses, which have been present along the coast for several hundred years, now are limited essentially to Currituck Banks, from Southern Shores (in northern Dare County) north to the VA line, and to the Beaufort area -- Rachel Carson sanctuary, and parts of Cape Lookout National Seashore (Shackleford Banks).

Originally from North America, horses migrated to Asia across the Bering Land Bridge that connected North America to Siberia. About 10,000 years ago, horses became extirpated/extinct in North America, perhaps mainly due to hunting pressure. They were introduced back into North America by settlers in the late 15th Century, and on many other later occasions. Most "wild horses" now occur on public lands in the western United States.

ABUNDANCE: Numerically, quite rare, with populations of several dozen each in Currituck and Carteret counties.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Essentially only on coastal islands, where somewhat open -- dunes, grasslands, and marsh edges, sparingly into openings in maritime shrub or forests. They also range onto lawns, where present.

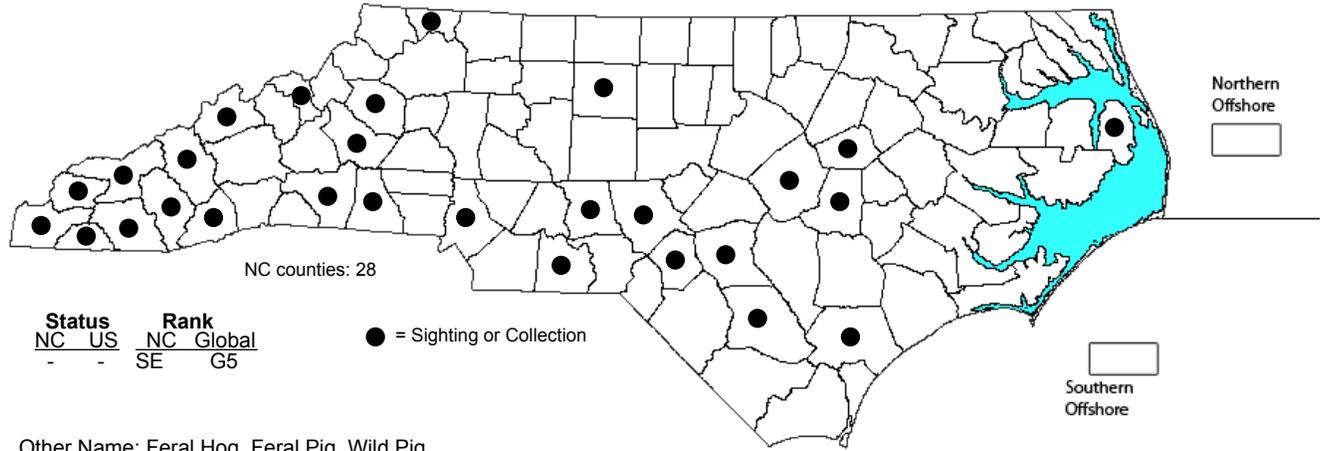
BEHAVIOR: Active during the day. They occur in small to moderate herds, up to a dozen or more individuals. They do considerable damage to native plants by their grazing in marshes and in grasslands.

COMMENTS: Though the public, in general, supports the continued existence of these feral animals along the coast, conservation/management agencies and officials have tried unsuccessfully to have the horses removed from various nature preserves, as they do some impact to native species. However, Federal and State laws require the continued maintenance of a minimal number of individuals.

STATUS: Introduced

LIST TYPE: Official

Sus scrofa Wild Boar



DISTRIBUTION: In NC, it was introduced to a handful of sites in the southern mountains, for hunting purposes, and some escaped from a private hunting preserve around 1920 in Graham County. Also widespread over much of the Coastal Plain, mostly in larger floodplains (at least in the Cape Fear and the Neuse). Scarce over most of the Piedmont and the northern mountains. The range map (below) is presumably quite incomplete, though all iNaturalist website photos have been included (as of early 2022). It is presumed to be more widely present in the Coastal Plain, though the Piedmont and mountain portions might be somewhat more realistic -- scarce in the northern and central portions of those provinces.

An introduced species, found at scattered areas over the United States, mainly in the Coastal Plain from VA to TX, and in CA.

ABUNDANCE: Locally common to very common, and a major pest, along several Coastal Plain floodplains, less numerous in upland areas. Locally common also in the Great Smoky Mountains National Park and some other areas in the southwestern mountains. Thankfully rare over the remainder of the state.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Most numerous and widespread in rich, moist habitats, especially bottomlands, less so in swamps. Also numerous in the mountains in rich forested habitats, such as cove forests and northern hardwood forests. They often move downslope to lower elevation habitats in winter.

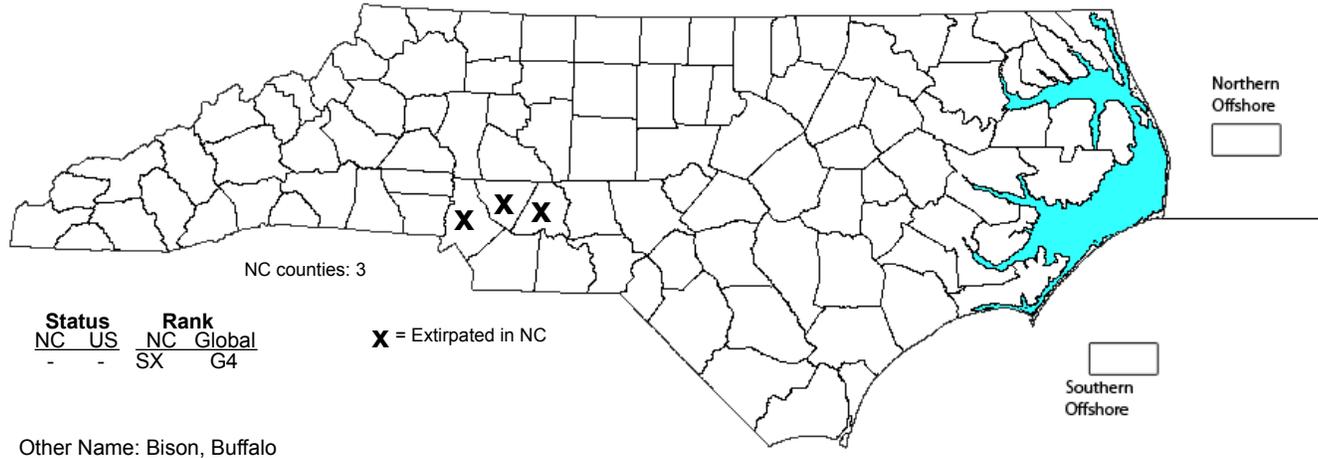
BEHAVIOR: The Wild Boar is most active at night, but they can often be seen during the day, especially in winter. They feed by rummaging in the soil, often turning up moist or rich soil areas, looking for roots and tubers, though they feed on a wide variety of plant and animal material. They often occur in small packs, up to six or more individuals; these are mainly females and young.

COMMENTS: As is true for most non-native species, the Wild Boar is a major pest, as it not only competes with native species for food, but it also tears up the native herb layer in many places, especially in natural areas, as it often favors such highly diverse sites. Thankfully, efforts are being made to trap and kill these animals, and it is a game animal. Populations in the state are descended from two types: 1) domestic hogs that have gone feral, and 2) wild pigs, typically referred to as European or Russian boar, imported to hunting preserves (Webster et al., 1985).

STATUS: Introduced

LIST TYPE: Official

Bison bison American Bison



DISTRIBUTION: In NC, bison formerly occurred in the western half of the state, at least to the central Piedmont, if not in the eastern Piedmont. The species disappeared from the state by 1765 (Lee and Funderburg 1977). Because museums do not have collection material to positively document county records of bison in the state, the county map below is based mainly on natural history writings from several centuries ago -- probably before counties and their boundaries were named and mapped.

Formerly occurred over most of North America, but now limited to the Great Plains northward into Canada.

ABUNDANCE: Extirpated in NC. Even within the overall range, it is absent in most areas, and limited mainly to protected parks and other reserves.

SEASONAL OCCURRENCE: Occurred year-round.

HABITAT: In NC, bison occurred in open woodlands, presumably in fairly level topography. Natural wildfires, plus grazing by bison and other large herbivores, likely kept forested areas more open than they are today. Thus, the species presumably occurred over much of the central and western Piedmont, especially in flatlands in the southern Piedmont (Cabarrus, Stanly, Mecklenburg, etc., counties).

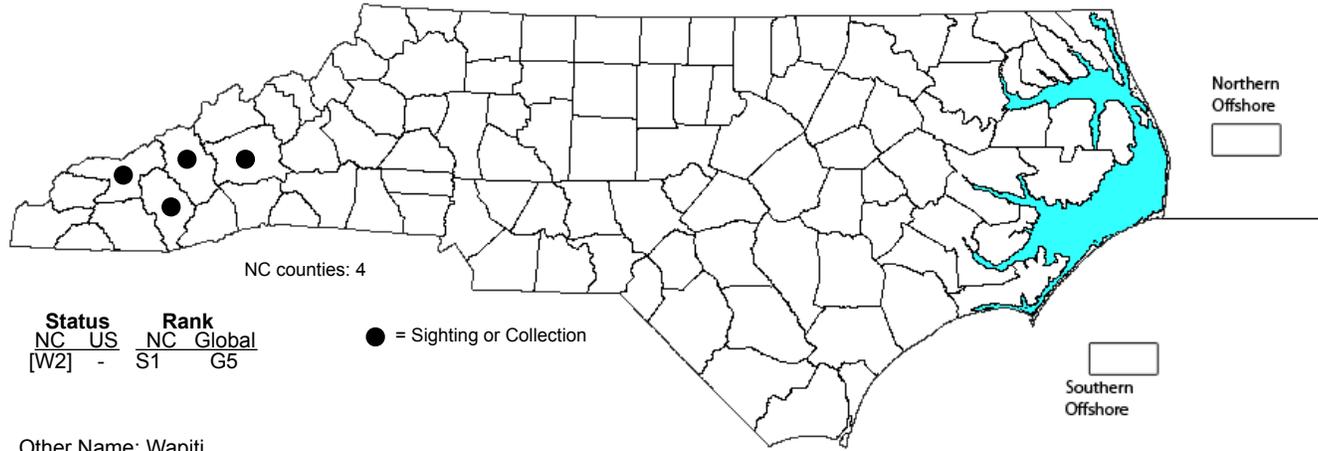
BEHAVIOR: In the Great Plains, bison graze in large herds, though the behavior in NC is probably not well known. Lee et al. (1982) state that the eastern bison "lived in small scattered herds and did not dominate its habitat as did the plains-dwelling form".

COMMENTS: Sometimes, one way to determine the historical range of a species is to look at geographical place names. Thus, the presence of Dutch Buffalo Creek, Irish Buffalo Creek, and other "Buffalo" creeks and place names is almost surely indicative of former inhabitation by the American Bison, called "Buffalo" by most people.

STATUS: Extirpated

LIST TYPE: Official

Cervus elaphus Elk



Other Name: Wapiti
Synonym: *Cervus canadensis*

DISTRIBUTION: It formerly occurred in the NC mountains and probably the northwestern Piedmont -- based mostly on place names, such as Banner Elk, Elk Park, Elk River, etc. In 2001, the National Park Service (NPS) started a re-introduction project in the southeastern portion of Great Smoky Mountains NP, mainly in and near the Cataloochee Valley. This population is highly monitored, and the NPS makes every effort possible to keep the elk within the national park boundary. However, individuals have wandered well away from this area into a few adjacent counties, mostly to the east. There are iNaturalist photos from areas east to Buncombe and Madison counties and south to Henderson and Jackson counties. The editors have accepted a few of these photos, but without more detail on location within these counties, it is best not to map them.

Formerly occurred over the majority of the United States and western Canada, east to most Atlantic states. The species became extirpated during the 1800's essentially east of the Rockies, mainly owing to hunting.

ABUNDANCE: The former abundance of the species in NC and the East is not known. The re-introduced population has fared rather well, and as of 2011 numbered about 140 individuals. This number has likely increased in recent years, and recently the N.C. Wildlife Resources Commission (NCWRC) estimated between 150-200 individuals now in the state. It had been placed by the NCWRC onto the State Special Concern list soon after the species was re-introduced, but by 2020 the species was removed from such State protection. However, because numbers are still quite low (low hundreds), it seems best that the species be placed on at least the N.C. Natural Heritage Program's Watch List.

SEASONAL OCCURRENCE: Occurs year-round; not seasonal in occurrence or appearance in the park.

HABITAT: Historically, Elk may have occurred around the margins or near grassy balds and other natural openings, though sleeping and breeding presumably in forested cover. In the national park, individuals spend the day inside forests, resting during the day, and emerge to feed in fields and along other openings very late in the day and at night.

BEHAVIOR: Elk occur in herds for most of the year.

COMMENTS: Viewing of Elk in Great Smoky Mountains NP is a popular activity; many people drive the road through Cataloochee Valley, particularly late in the day, to watch for Elk coming out of the forests into the fields. Park visitors are not allowed to leave the roadsides to go into the fields or forests in this portion of the park.

Around 2017, the NCWRC proposed an Elk hunting season in NC, by permit only. As of early 2022, such an Elk season has not been enacted. In the past several years, the Elk was removed from the NC Protected Species List, as Special Concern -- likely in preparation for an upcoming permit-only hunting season. Thus, it now has no legal State protection (by the NCWRC).

STATUS: Native

LIST TYPE: Official

Odocoileus virginianus White-tailed Deer



DISTRIBUTION: In NC, it occurs across the entire state, in all counties, though it is likely absent on a few islands.

The White-tailed Deer occurs over nearly all of the United States and southern Canada, except for most of the far western states and the Southwest.

ABUNDANCE: Very common to abundant across the state, especially for such a large mammal. It is so numerous that it can sustain hundreds of thousands being harvested annually by hunters. In fact, it is often considered as a pest, at least in some areas.

SEASONAL OCCURRENCE: Occurs year-round, easily visible at any time of year.

HABITAT: Generally in forested areas for sleeping, breeding, and some foraging. However, it moves into fields, yards, and other open areas to forage at night. Deer favor bottomland hardwoods, but most any forest will suffice, at least with moderate to somewhat dense cover of shrubs and understory trees, and a moderate herb layer (for food).

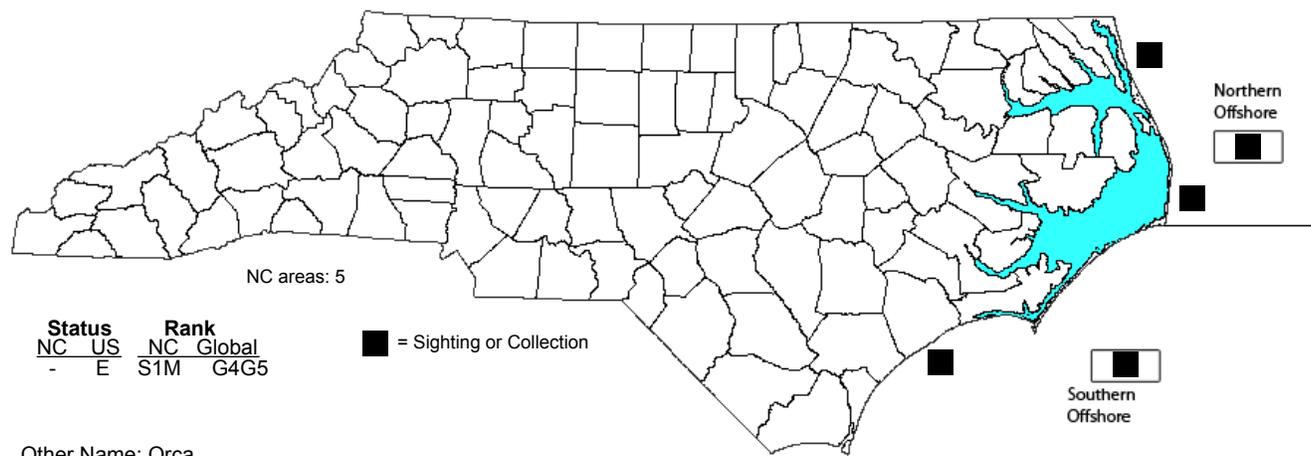
BEHAVIOR: Primarily crepuscular and nocturnal in their foraging and other activities, typically resting in cover during the day.

COMMENTS: White-tailed Deer need no introduction. Most people see them weekly or monthly, at least if they live or drive in the country, especially driving at night. Deer are notorious for over-browsing herbaceous and low woody vegetation in some parks and other protected areas, causing local extirpations of plants and certainly impacting small animals that feed on herbaceous vegetation or use such vegetation and shrubs for cover. Deer also are pests in yards and gardens, eating plants in yards.

STATUS: Native

LIST TYPE: Official

Orcinus orca Killer Whale



DISTRIBUTION: As it ranges over a wide range of waters, it can and does occur off the entire NC coast.

Worldwide in all oceans, from the Arctic ice pack to the tropics, to Antarctica. However, it is rare in the north Atlantic, especially so along the coast of the eastern US.

ABUNDANCE: Though locally common in some areas of the range, notably in the northeastern Pacific, it is rare in the north Atlantic. Likewise, this is a very rarely seen marine mammal in NC waters, seldom seen on boat trips, even well offshore. There was a recent observation (and video) of a pod of Killer Whales off Oregon Inlet in 2011. The Smithsonian National Museum of Natural History mammal collections database (2021) lists just one stranding record for NC, in 1926. Thus, the species has certainly declined in western Atlantic waters in the past several decades, as search efforts along the beaches for strandings have greatly increased in the past few decades years.

SEASONAL OCCURRENCE: Presumably occurs year-round. The only stranding reported in Webster et al. (1995) seems to be in March. The pod mentioned above was also seen in March.

HABITAT: Highly varied around the globe, but most numerous fairly close to shore, at least in the northeastern Pacific, and possibly also in the Atlantic. Thus, perhaps more likely to occur in NC waters over the Continental Shelf than beyond the Continental Slope. However, much more information is needed.

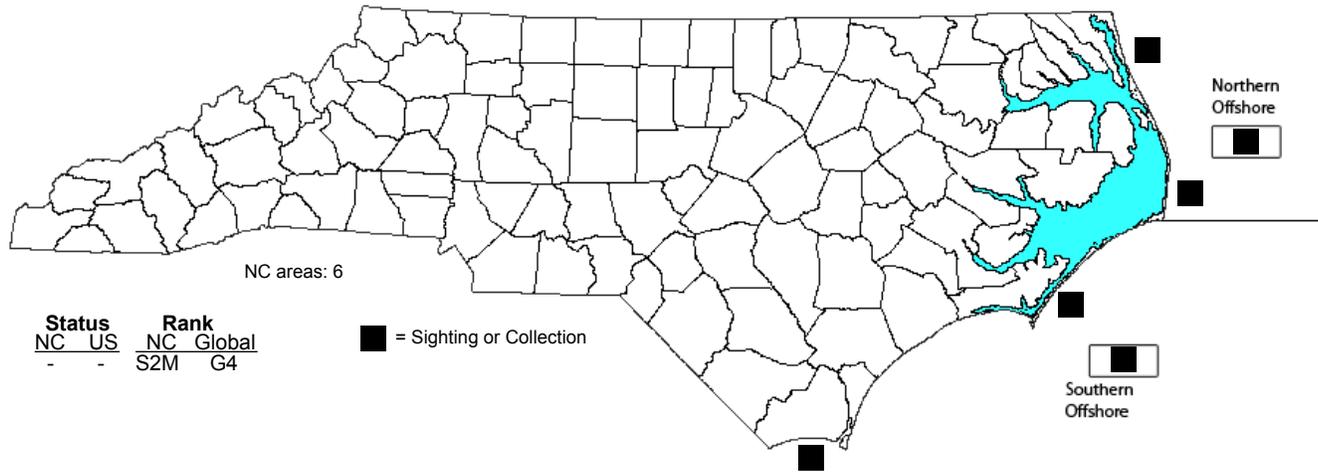
BEHAVIOR: This species occurs strictly in fairly small pods, which are family groups. They are quite animated, with much leaping out of the water, and with spectacular chases of prey, often true whale species. (Reminder -- the Killer Whale is a dolphin, not a whale.) They are not afraid of boats, and they can be approached fairly closely, on those rare occasions off the NC coast when they are encountered.

COMMENTS: Spotting a Killer Whale in NC waters is quite a rare event. In fact, it is so scarce that it is poorly known here. Because it is easily recognized from ships and boats offshore, the fact that there are so very few observations in NC waters, especially in recent decades, indicates a clear decline in numbers (as with the North Atlantic Right Whale).

STATUS: Native

LIST TYPE: Official

Steno bredanensis Rough-toothed Dolphin



DISTRIBUTION: In NC, presumed to occur throughout the ocean from VA to SC. Though there are stranding records for just four of the eight coastal counties, these include our most northerly (Currituck) and most southerly (Brunswick) counties.

Occurs in oceans around the world, but generally in tropical or subtropical waters, north to about VA or MD.

ABUNDANCE: Rather uncommon within its range overall, and also generally rare off the NC coast. Though 15 stranded along the NC coast up to 1995 (Webster et al., 1995), 12 stranded in August, likely a single mass stranding. The Smithsonian National Museum of Natural History mammal collections (2021) lists only six stranding records for NC.

SEASONAL OCCURRENCE: Probably year-round, as the stranding dates are scattered around the calendar. For example, the stranding dates in the NMNH database occur in January, August, and October -- no obvious seasonal pattern.

HABITAT: This species favors deep waters, meaning mostly beyond the Continental Slope. It clearly favors warm waters, as the northern end of its range is roughly in VA or MD waters.

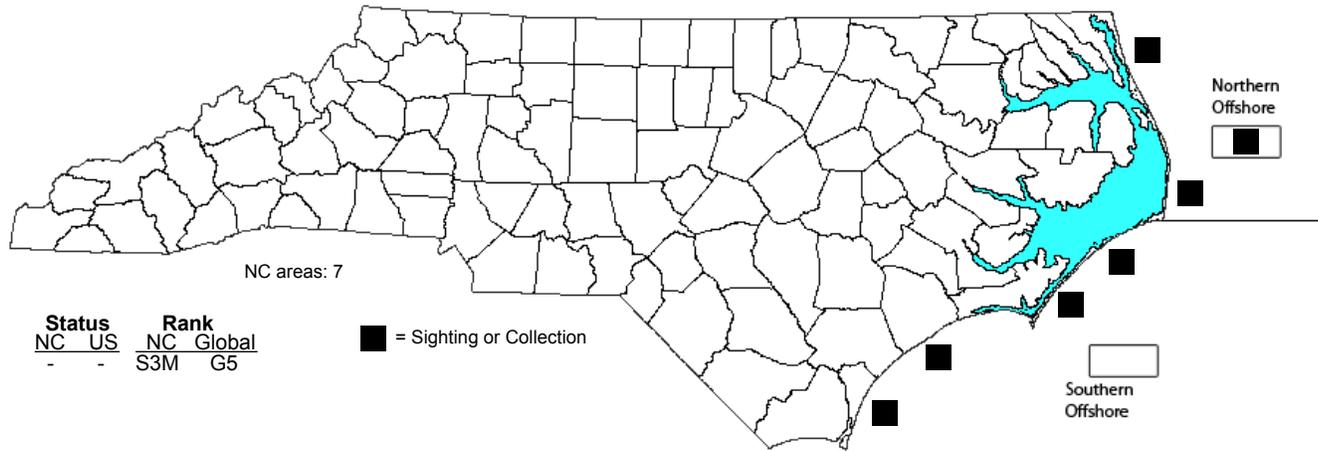
BEHAVIOR: Not overly agile in terms of leaps out of the water; normally seen skimming the surface. Occurs in small to moderate-sized groups, such as 10-20 individuals.

COMMENTS: The Rough-toothed Dolphin is monotypic, and no other dolphin has the conical head with no crease or obvious beak, rendering it somewhat easy to identify, if seen well. They also can be quite scarred, relatively unusual for a small dolphin. Much is still to be learned about this species, as offshore sightings are still rather infrequent over the range.

STATUS: Native

LIST TYPE: Official

Stenella coeruleoalba Striped Dolphin



DISTRIBUTION: Presumably occurs over the length of the NC offshore zone, as there are stranding records for six of the eight coastal counties. Apparently it occurs mostly from Cape Hatteras northward, according to the NOAA website; for example, there is no record from Brunswick County, as of 2021. Most sightings are far offshore, beyond the Continental Slope.

Occurs in all of the world's oceans, but favors warm waters. It occurs over the length of the Atlantic Ocean.

ABUNDANCE: A common species across its range. Though seldom seen offshore in NC waters, it has stranded often -- 20 strandings through 1995 in NC (Webster et al., 1995). The Smithsonian National Museum of Natural History mammal collections database (2021) lists a surprising 46 stranding records for NC. Best considered as "likely uncommon" -- at least far offshore -- in NC waters.

SEASONAL OCCURRENCE: Presumably occurs year-round, as it is not considered to be strongly migratory. Of the 20 strandings listed in Webster (1995), none were from July, August, or September, but it certainly is present in those months though perhaps farther offshore. The 46 strandings in the NMNH database cover nearly all months of the year, but there are relatively few in summer and early fall.

HABITAT: Generally in deep waters from the Continental Slope and farther to sea, mainly in warm waters.

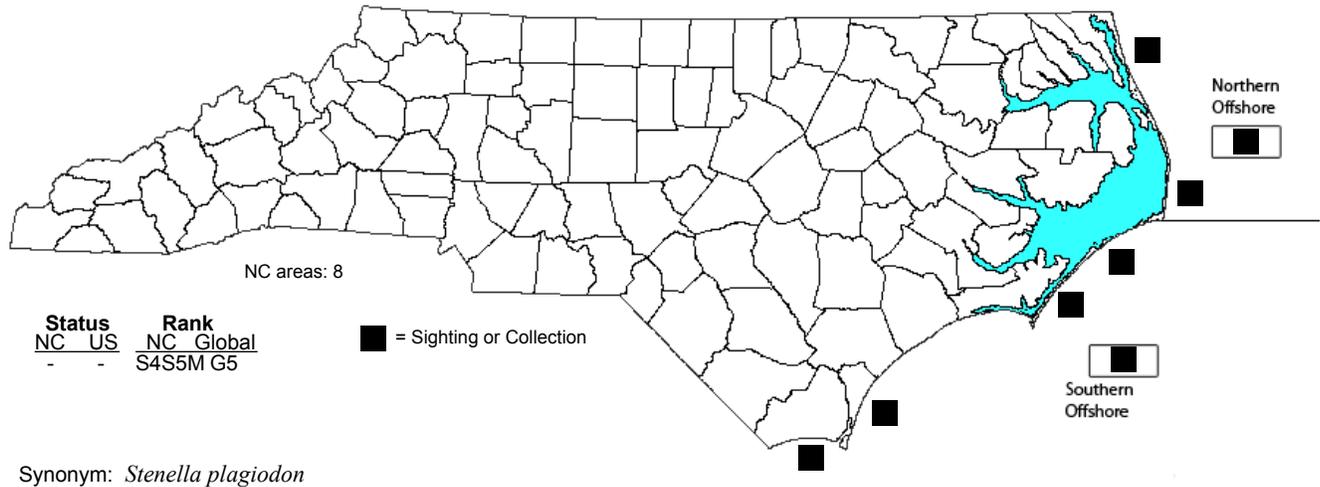
BEHAVIOR: This species also twists and rotates in the air when it jumps out of the water, but not as spectacularly as does the Spinner Dolphin. It occurs in often quite large groups, from 30 to several hundred.

COMMENTS: Sightings from pelagic trips are rare, considering that the species is supposedly quite common, and it has stranded often. Perhaps it indeed does occur mainly in the deeper waters far off the northern half of the state's coast, where fewer boats traverse.

STATUS: Native

LIST TYPE: Official

Stenella frontalis Atlantic Spotted Dolphin



DISTRIBUTION: Present in the ocean all along the NC coast. Strandings have been recorded from six of the eight coastal counties.

Most of the warmer waters of the world's oceans, north in the Atlantic to ME and Nova Scotia.

ABUNDANCE: A common to abundant dolphin in its range, and equally common to at times very common off the NC coast, mainly in warmer waters of the Gulf Stream, less so farther offshore. It is often more frequently seen than the Common Bottlenose Dolphin on boat trips, though the latter is clearly the most abundant cetacean in our waters. The Smithsonian National Museum of Natural History mammal collections (2021) lists 45 stranding records for NC, plus another two as '*Stenella frontalis*'.

SEASONAL OCCURRENCE: Year-round, as it is not seasonally migratory. As of 1995, there had been 25 strandings along the NC coast (Webster et al., 1995), covering most months of the year. The 45 strandings reported in the NMNH database also are fairly well spread out across the year.

HABITAT: Unlike most of the state's dolphins, this species prefers the "shallower" inshore waters, mainly over the Continental Shelf. Its status beyond the Continental Slope is not well known, and perhaps the majority of the spotted dolphins at these depths are Pantropicals.

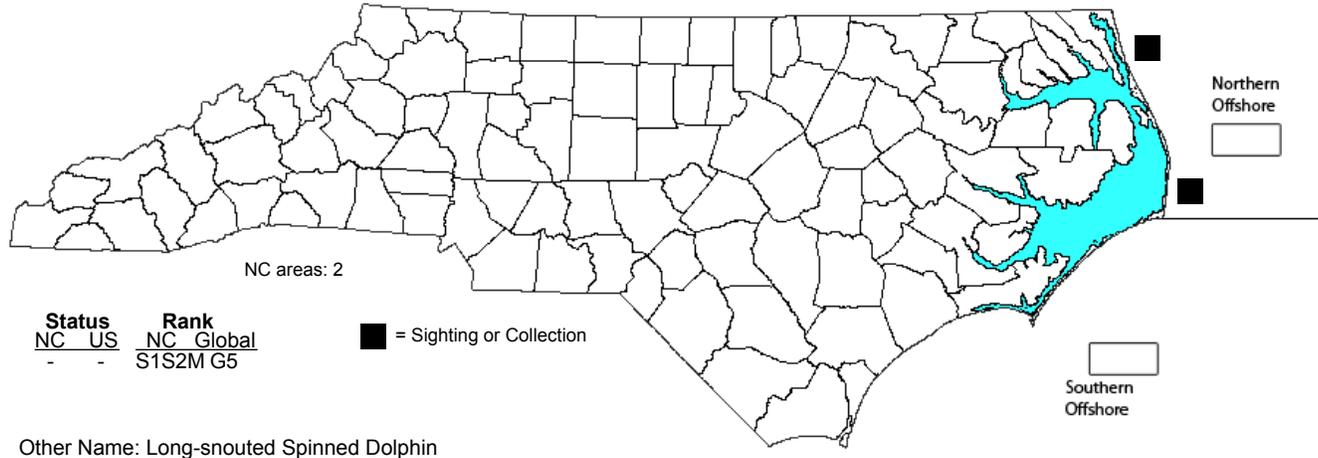
BEHAVIOR: This is a medium-build dolphin, but it is quite agile and frequently is seen leaving the water for its dives (more so than does the Bottlenose Dolphin). It also often comes to boats to bow-ride, where observers can see the spots and the pale blaze or wedge below the dorsal fin. It travels in smaller groups than most other dolphins, mainly 10-25 individuals.

COMMENTS: The two spotted dolphin species -- Pantropical and Atlantic -- are easily confused, as the amount of spotting is quite variable; some Atlantics can look spotless. On many pelagic trips to the Gulf Stream, observers can expect to see a few individuals of this species, and often a few dozen or more can be seen.

STATUS: Native

LIST TYPE: Official

Stenella longirostris Spinner Dolphin



DISTRIBUTION: In NC waters, presumed to occur from NC to SC, from the Gulf Stream and beyond. However, the known strandings are just for the northern half of the coast -- Currituck and Dare counties.

This is another dolphin that occurs in oceans worldwide, in tropical to warm temperate waters.

ABUNDANCE: A common species within its overall range. In NC waters, it is very rarely noted, and is at best called rare. For example, Webster et al. (1995) noted that only two Spinner Dolphins had stranded along the NC coast; the NOAA website mentions two more that stranded on the NC coast in 2001. The Smithsonian National Museum of Natural History mammal collections (2021) lists just seven stranding records for NC.

SEASONAL OCCURRENCE: The known stranding records all fall between early December and mid-late March, clearly suggesting its main occurrence in NC waters is during the winter and spring seasons only. Should occur throughout the year, but as all strandings are for the cooler months, and from the cooler waters of the state -- i.e., only from Currituck and Dare counties, this species is certainly not a warm-water species along or close to the NC coast, despite a global range that says otherwise.

HABITAT: Occurs in deep, warm waters, mainly beyond the Continental Slope, at least elsewhere in its range, but in NC seems to be found mostly in the cooler waters.

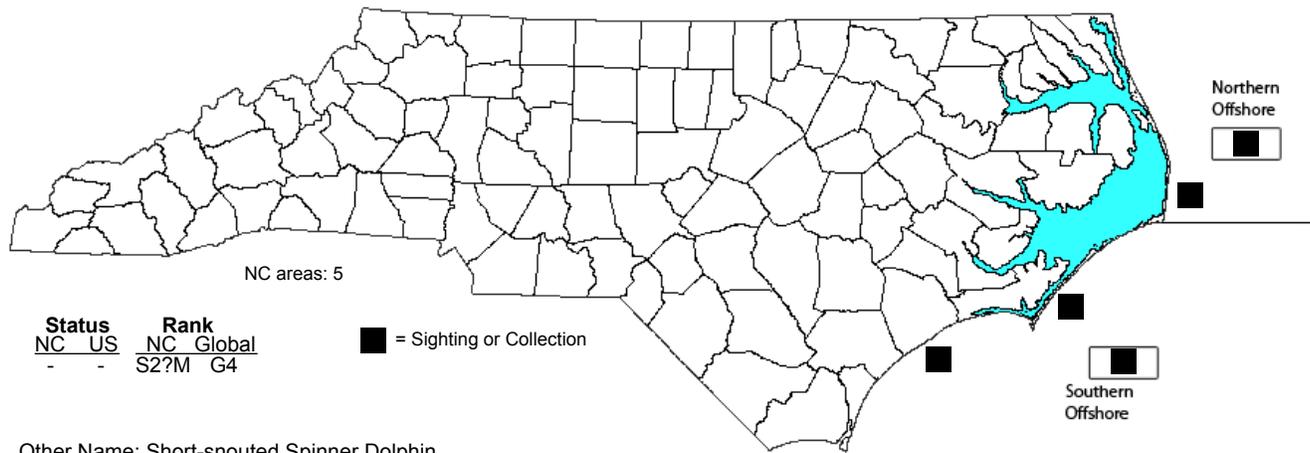
BEHAVIOR: This is a long and slender dolphin, and it is well known to perform remarkable spinning launches from the water, twisting on its long axis several times before hitting the water. They occur in large groups, often with other species.

COMMENTS: Despite this being a common and well-known species over much of its range, it is hardly ever seen on boat trips off NC, perhaps because it occurs in such deep waters. This deep-sea range might be a reason for the very few strandings.

STATUS: Native

LIST TYPE: Official

Stenella clymene Clymene Dolphin



DISTRIBUTION: In NC waters, distribution is not well known, but likely occurs from VA to SC, at least in the Gulf Stream and beyond.

Only in the Atlantic Ocean and the Gulf of Mexico, and in the Atlantic only in warmer waters, north to about NJ.

ABUNDANCE: Probably rare or poorly known; first reported only in the 1990's in the state. The NOAA website indicates four sightings off the NC coast in recent years, plus a stranding on the NC coast in August 2004. The Smithsonian National Museum of Natural History mammal collections (2021) lists three stranding records for NC -- in Carteret County in 1999, Dare County in 2000, and in Onslow County in 2004. A group of 120 or more was seen off Cape Hatteras on a birding trip on 10 August 1998; photo on the Ocean Wanderers website. A group of 40 was seen off that cape on a boat trip on 25 May 2003; photo on the Seabirding website.

SEASONAL OCCURRENCE: Probably year-round, as the species is apparently not strongly migratory. However, most of the records seem to be during the "summer" months; however, one stranding in the NMNH database is for 28 November (2000).

HABITAT: Occurs in warm waters, in the Gulf Stream or farther to sea; probably not found in the cool Labrador Current.

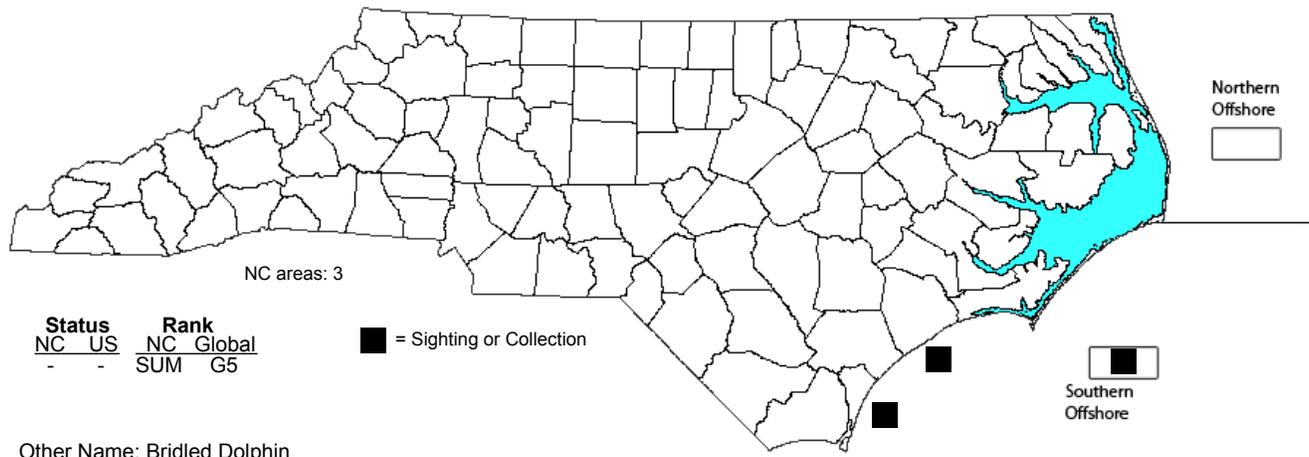
BEHAVIOR: This is a relatively short, chunky dolphin with a short snout. Despite that, it is very active and often jumps completely out of the water so that its dark saddle below the dorsal fin can be seen. It occurs in groups of 30-100 or more. One group in NC contained at least 120 individuals.

COMMENTS: This species might not really be rare off NC, because it occurs far offshore. Perhaps the species is increasing, as there are a good handful of records now, all in the past 20 years. Webster et al. (1995) reported no strandings of Clymene Dolphins in NC, through 1995; however, the above websites do list several more recent strandings.

STATUS: Native

LIST TYPE: Official

Stenella attenuata Pantropical Spotted Dolphin



DISTRIBUTION: Assuming that sightings from research vessels are correct, the species essentially occurs only far offshore in NC waters, beyond the Continental Slope. The few known records off NC are beyond 100 miles from the coast, plus two beach strandings (Onslow and New Hanover counties).

Occurs worldwide in tropical and subtropical waters, apparently north to at least MA.

ABUNDANCE: Considered to be common to abundant in its range, which is typically quite far offshore. In addition to the several reports above, the only other information that we could find relating to its occurrence in NC waters was on the NOAA website, which states that from 1995-1996, 15 Pantropical Spotted Dolphins were stranded between North Carolina and Florida (NMFS unpublished data). Also, the Smithsonian National Museum of Natural History mammal collections (2016) lists one stranding record for NC -- in Onslow County. Despite such strandings, it is believed that healthy individuals remain far offshore (essentially beyond the Continental Slope), where its abundance there is unknown. Considered extremely rare within 100 miles of the NC coastline.

SEASONAL OCCURRENCE: Probably occurs year-round, as spotted dolphins are not strongly migratory. The date of the Onslow County stranding was 2 April 2002.

HABITAT: This is a species of deep offshore waters, occurring farther from shore than does the Atlantic Spotted Dolphin, though presumably the ranges overlap. Like that species, Pantropicals favor warm waters.

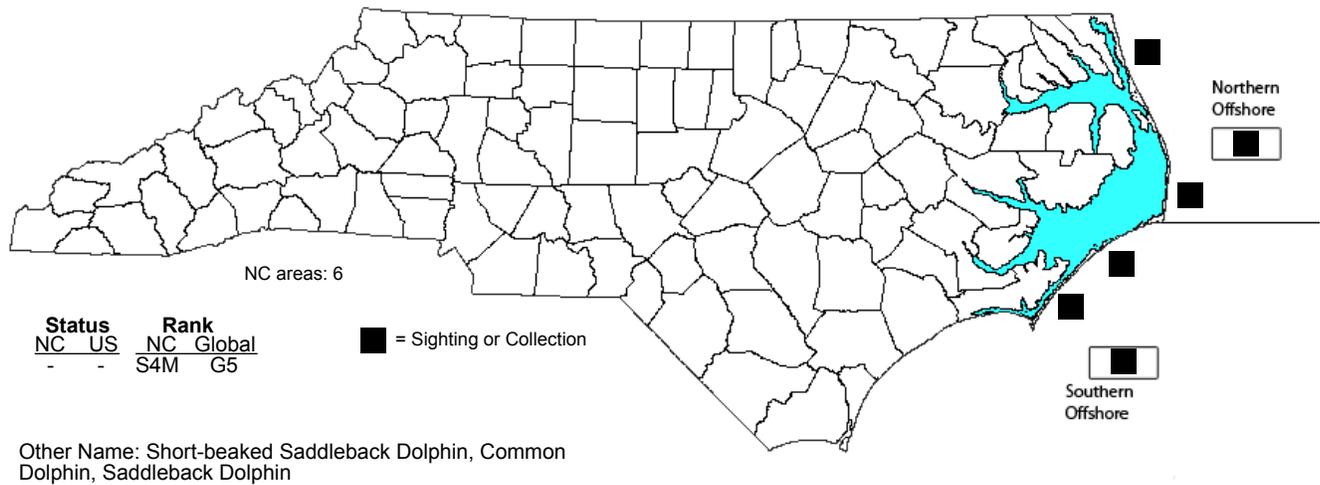
BEHAVIOR: This species occurs in very large groups, often 100 to 1,000 individuals. Like almost all *Stenella* dolphins, they are very active and often leap out of the water.

COMMENTS: This species was confused with Atlantic Spotted Dolphin for most of the 20th Century, and they are still easily confused, especially when young. The fact that most websites seem to lack specific data on the species is disconcerting. Webster et al. (1995) did not list any strandings for this species in NC as of 1994 or 1995, as opposed to 25 for Atlantic Spotted Dolphin. That suggests that Pantropical is either quite rare in NC waters, or at least is quite rare fairly close to shore. At any rate, much more information about its occurrence in NC waters is needed -- though we must assume that nearly all spotted dolphins within about 50-100 miles of the NC shore are Atlantic Spotted, and that nearly all seen more than 100 miles from shore are Pantropical Spotted (as depicted by locations of sightings off the Eastern coast of the US, in the NOAA publication).

STATUS: Native

LIST TYPE: Official

Delphinus delphis Short-beaked Common Dolphin



DISTRIBUTION: In NC waters, it occurs from VA to about Cape Lookout, off the coast; however, it is scarce to nearly absent off the southern half of the coast. The southernmost stranding record is for Carteret County, with none at all along the southern 40% of the coastline.

Though this species is found worldwide in temperate and tropical waters, in the Atlantic off the east coast of the US it seems to prefer the more temperate zone, and is seen more often from Cape Hatteras northward than it is off the southern half of the coast.

ABUNDANCE: Common within its overall range. However, in NC waters, fairly common to at times common, and that mainly north of Cape Hatteras. Rare in the warmer months and in warmer waters. The Smithsonian National Museum of Natural History mammal collections (2021) lists 63 stranding records for NC, all from Carteret County northward.

SEASONAL OCCURRENCE: The NMNH database lists 63 strandings, all between November and June, with the great majority from February to April. Thus, it is very rare to nearly absent in summer and most of the fall, and present mainly in the latter part of winter into early spring.

HABITAT: Seems to favor temperate (cooler) waters off NC, and not often seen in the warm Gulf Stream waters. Fairly deep waters are preferred; not normally seen close to shore.

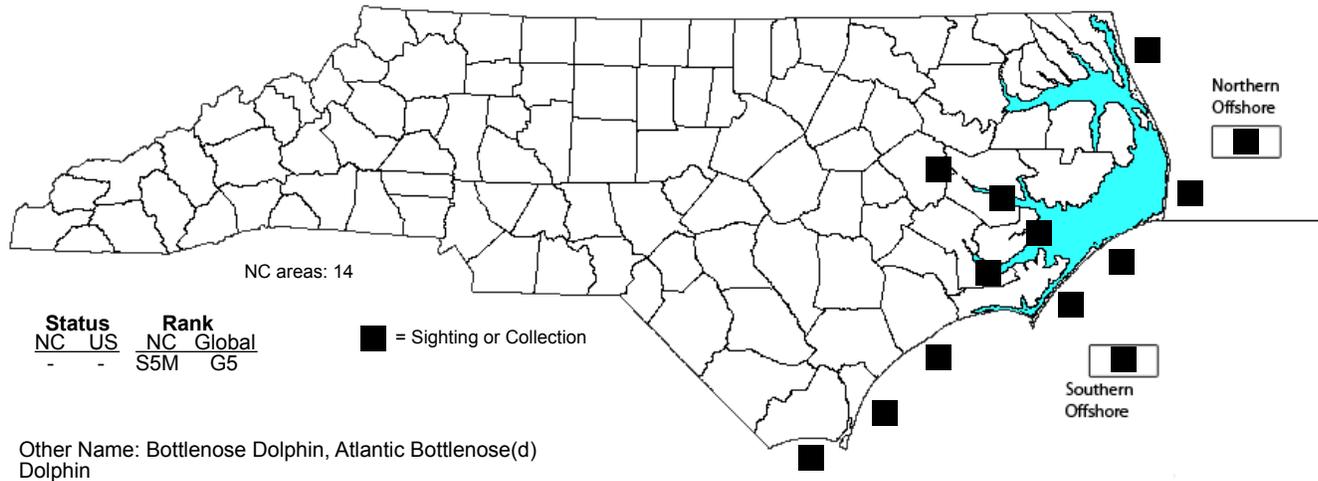
BEHAVIOR: This is a very active and lively species, often coming to boats to bow-ride, and individuals are often seen leaping completely out of the water, so that the hourglass pattern and amber-colored patch on the side of the animal can be seen. Groups of several dozen dolphins are normal.

COMMENTS: This is a very familiar dolphin in states north of NC, but in our waters it is seen much less often than Common Bottlenose Dolphins and Atlantic Spotted Dolphins. Winter boat trips seem more reliable for seeing them than those in the warmer months. At times, 100 or more can be seen on a single boat trip, especially out of Oregon Inlet.

STATUS: Native

LIST TYPE: Official

Tursiops truncatus Common Bottlenose Dolphin



DISTRIBUTION: In NC, occurs in the Atlantic all along the coastline and far offshore; at times enters estuaries. By far the most widely distributed cetacean in NC waters, and the only dolphin species likely to be seen from shore. There are separate populations/forms found "inshore" and "offshore", with an apparent gap between them.

Found worldwide in temperate and tropical waters.

ABUNDANCE: Very common to abundant in our waters, both close to shore and well offshore. Clearly the most numerous cetacean in NC waters from the Continental Shelf to the coastline. The Smithsonian National Museum of Natural History mammal collections (2014) lists approximately 1,718 stranding records for NC, by far the most for any cetacean species.

SEASONAL OCCURRENCE: Occurs year-round in our waters. There are numerous stranding records for all 12 months, with more in the winter perhaps owing to pregnant or nursing females or young with females at that time of year.

HABITAT: Occurs both inshore, easily seen from the coastline, and far offshore, with an apparent gap between them. Favors warm waters.

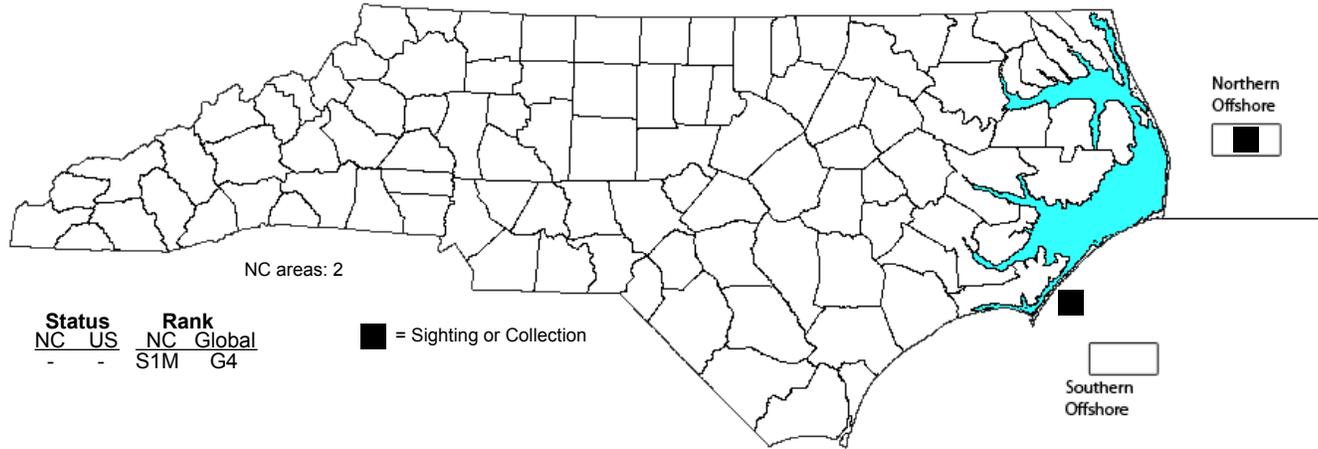
BEHAVIOR: Bottlenose Dolphins are quite active, though they are not quite as agile as some species, because they are somewhat stocky. Leaps completely out of the water are not as frequent as with many other dolphins. Groups are fairly small, typically only 10-25 individuals, instead of many dozens to hundreds like those in other genera.

COMMENTS: This is the most familiar oceanic species of mammal in North America, frequently seen by laypersons from shore. On offshore boat trips, numbers can be matched or exceeded by Atlantic Spotted Dolphins, but Bottlenose Dolphins are typically seen on most trips. A few biologists believe that the two populations or forms might represent separate species, but most probably do not share that belief.

STATUS: Native

LIST TYPE: Official

Lagenodelphis hosei Fraser's Dolphin



DISTRIBUTION: In NC, known from one offshore record (at least), about 50 miles off Cape Hatteras, between the cape and the VA line; as well as one stranding record.

A species of tropical and subtropical waters worldwide, but in North America found mainly in the Gulf of Mexico and around the West Indies. Very poorly known off southern Atlantic portion of the US coast, but might be regular far offshore.

ABUNDANCE: One of the less known dolphins off the US coast, and considered to be rare to uncommon in many areas, but locally common in others around the globe. However, as it occurs in very large groups and in deep offshore waters, total numbers might not be overly rare. In NC, assumed to be very rare, if not casual/accidental. The Smithsonian National Museum of Natural History mammal collections (2021) lists one stranding record for NC, on 12 March 1993.

SEASONAL OCCURRENCE: The only offshore record that we are aware of is a group of over 1,000 individuals, seen in mid-August 2005, by persons on a research vessel. The stranding was in mid-March.

HABITAT: Deep waters far offshore; strictly in warm waters. Bowers et al. (2004) state that it usually occurs in waters over 3,000 feet (500 fathoms) deep.

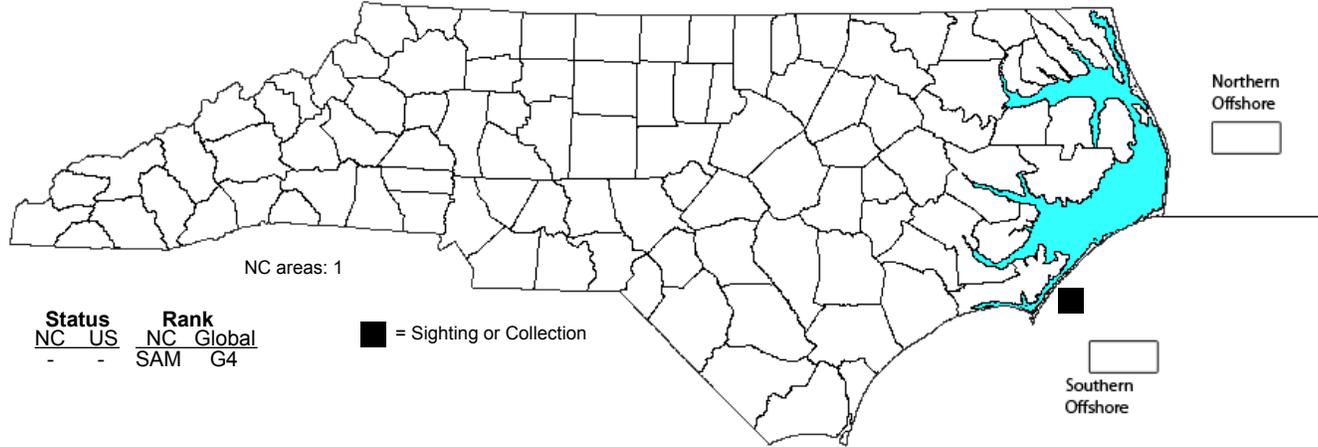
BEHAVIOR: Can occur in extremely large groups -- as many as 1,000 or more. It is a fast and active swimmer, supposedly wary of boats.

COMMENTS: Researchers on the RV Odyssey, moving northward well off NC, reported and photographed this species; one photo appears on the RV Odyssey website. The species was seen at the time with a large flock of Melon-headed Whales, another very rare and poorly known species off our coast. Thankfully, Fraser's Dolphin is fairly well-marked, as it has a moderately thick black band along the midline, from the face toward the tail, and it has a very short beak.

STATUS: Native

LIST TYPE: Official

Lagenorhynchus albirostris White-beaked Dolphin



DISTRIBUTION: Accidental in NC. Known only from a recent stranding in Carteret County.

A North Atlantic species, found west to Labrador and south to New England; occurs mainly over the Continental Shelf.

ABUNDANCE: Though numerous and often common in the North Atlantic, with a range not dissimilar to that of the related Atlantic White-sided Dolphin, the White-beaked Dolphin does not occur or stray as far south -- especially as there are at least 10 strandings of Atlantic White-sided Dolphins in NC. Must be considered as an accidental stray in the state, though to be looked for in cold offshore waters in the winter or spring seasons.

SEASONAL OCCURRENCE: The single state record is from the surprisingly late date (in winter/spring) of 16 April 2015.

HABITAT: Cold or cool waters, primarily found over the Continental Shelf in its North Atlantic range.

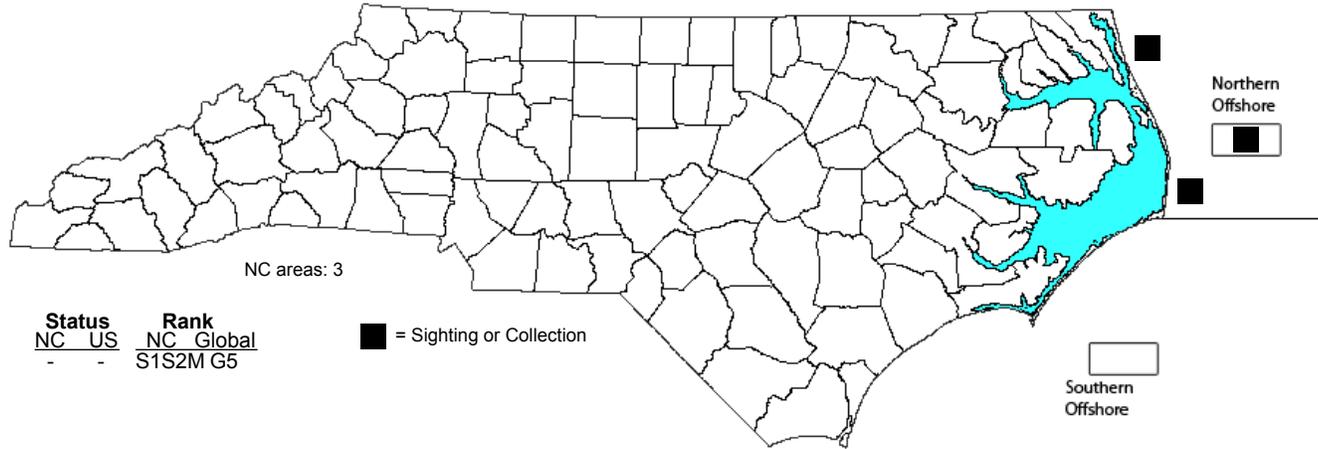
BEHAVIOR: Known to frequently bow-ride and do acrobatic leaps, though a chunkier species than Atlantic White-sided Dolphin and thus not as acrobatic as that species. Typically occurs in groups of 5-30 individuals.

COMMENTS: Keith Rittmaster found the live male White-beaked Dolphin on Sand Dollar Island, between Carrot Island and Shackleford Banks, within Back Sound, in 2015. It was euthanized and is now a museum specimen (MME 18714). Details of this remarkable record are found in: Hairr, J. (2016). White-beaked dolphin found near Beaufort - a species heretofore undocumented from the shores of North Carolina. *The Maritimes* 5(2): 12-13.

STATUS: Native

LIST TYPE: Official

Lagenorhynchus acutus Atlantic White-sided Dolphin



DISTRIBUTION: Most likely in NC in the Labrador Current inshore of the Gulf Stream, north of Cape Hatteras. There are no known records yet for counties south of Dare.

Fairly restricted for a cetacean -- only in the northern Atlantic Ocean, south regularly to about MD or VA, and sparingly at least to NC.

ABUNDANCE: Though common to abundant in much colder waters, it appears to be very rare to rare in NC waters, as the species lies at the far southern end of the species' range. It has been recorded from the state only fairly recently. Not known from the state as of 1982 (Lee et al., 1982). However, there were two strandings reported as of 1995 (Webster et al., 1995), both in April. The Smithsonian National Museum of Natural History mammal collections (2021) lists 9 stranding records for NC, all between 1987 and 2008. The NOAA website reports a total of 10 strandings of the species along the NC coast from 2004 - 2008, which probably are nearly the same records as on the NMNH site. Thus, records are increasing, though we do not have data on offshore sightings (i.e., whether live populations are increasing).

SEASONAL OCCURRENCE: The 9 stranding records in the NMNH database all fall in the late winter and spring period -- February to May. As this is a northern species, ranging normally south to the mid-Atlantic states (MD and VA), it is assumed to occur in NC waters almost solely in winter and lingering into spring.

HABITAT: Cold to cool waters only, though offshore range in NC is apparently not known.

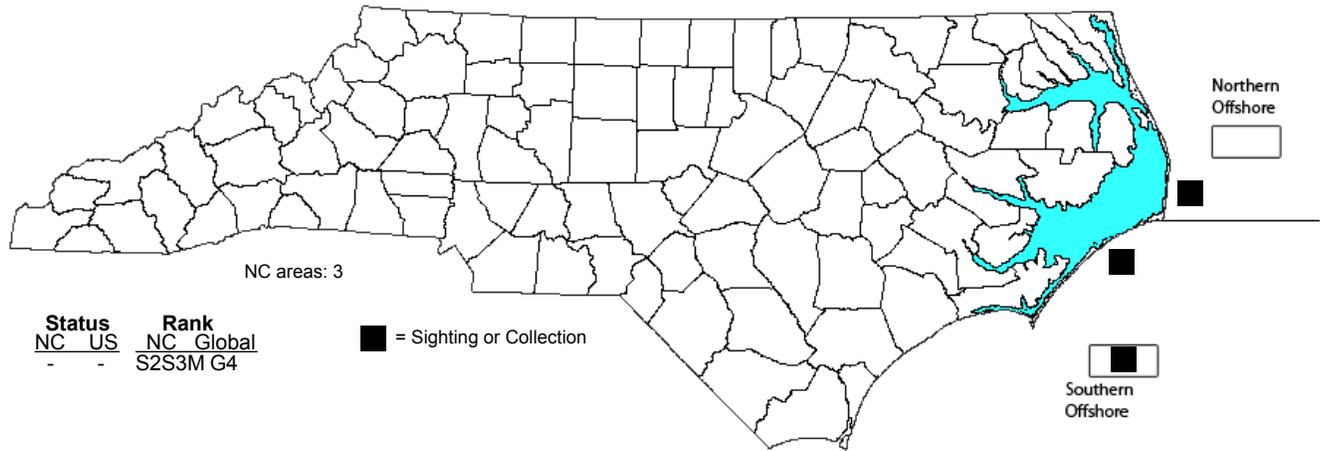
BEHAVIOR: The species is acrobatic and at times jumps out of the water, and thus the distinctive amber-yellow blaze on the side of the trunk, behind the dorsal fin, can often be seen. As with nearly all dolphins, the species often occurs in fairly large groups.

COMMENTS: The species is very poorly known in NC in offshore waters, likely because relative few vessels are looking for cetaceans in colder waters. Considering that 10 individuals stranded over a 5-year period recently (at least one each year), the species must not be overly rare here, at least near the VA border in the winter and early spring.

STATUS: Native

LIST TYPE: Official

Pseudorca crassidens False Killer Whale



DISTRIBUTION: In NC, almost certainly occurs throughout the oceanic range of the state, from VA to SC.

Found in oceans around the world, favoring warmer waters.

ABUNDANCE: In NC waters, generally rare to occasionally uncommon. It is surprising that NC had just a single stranding reported prior to 1995 (Webster et al., 1995), considering that it is seen on scattered boat trips into deeper waters. The Smithsonian National Museum of Natural History mammal collections (2021) lists just two stranding records for NC.

SEASONAL OCCURRENCE: Most records seem to be from the warmer months. The two stranding records of the NMNH database are for July and September, and the one from NCSM is in July, which suggests a seasonal occurrence that favors warm waters or the warm season, as there are no strandings yet for the winter or early spring. Thus, it may well migrate southward during the cooler months.

HABITAT: Warmer waters, generally in deeper waters, and thus not seen on most boat trips.

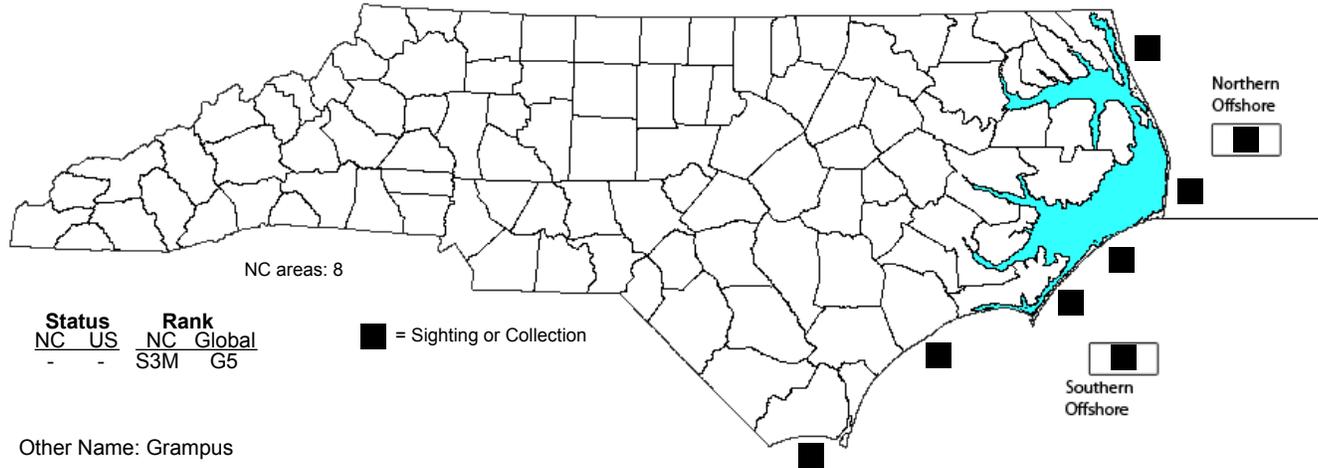
BEHAVIOR: Occurs in sizable groups, usually one or two dozen, but can be seen in groups over 100 individuals. Fairly active for a large dolphin (it is not a whale, despite the name), and at times can leap out of the water, though usually it stays close to the surface.

COMMENTS: Though it is monotypic, it is quite similar in appearance to several other dolphins. Both pilot whales are somewhat similar in being all black/blackish in color and have no beak. Pygmy Killer Whale and Melon-headed Whale are similar in shape but have white around and on the lips (not that easy to observe at sea). As a result, the species can be overlooked as pilot whales, or left unidentified because of similarity to other species, and thus be under-reported.

STATUS: Native

LIST TYPE: Official

Grampus griseus Risso's Dolphin



DISTRIBUTION: In NC, undoubtedly occurs from VA to SC well offshore. There are stranding records for six of the eight coastal counties in the state.

Occurs worldwide, mainly in warmer and deeper waters, but all along the US coast.

ABUNDANCE: In NC waters, uncommon to occasionally fairly common. Not one of the more scarce species of dolphins in NC waters, and there are numerous records, with a handful of them being of 10 or more individuals seen. The Smithsonian National Museum of Natural History mammal collections (2021) lists 36 stranding records for NC.

SEASONAL OCCURRENCE: Occurs offshore at all seasons. The 21 strandings up to 1995 (Webster et al., 1995) are fairly evenly scattered around the calendar. The 36 NMNH strandings also are from around the calendar, though there are no records yet in most of July and in August. It is apparently not strongly migratory.

HABITAT: Mainly from the Continental Shelf and farther to sea. Favors warmer waters rather than cool or cold waters.

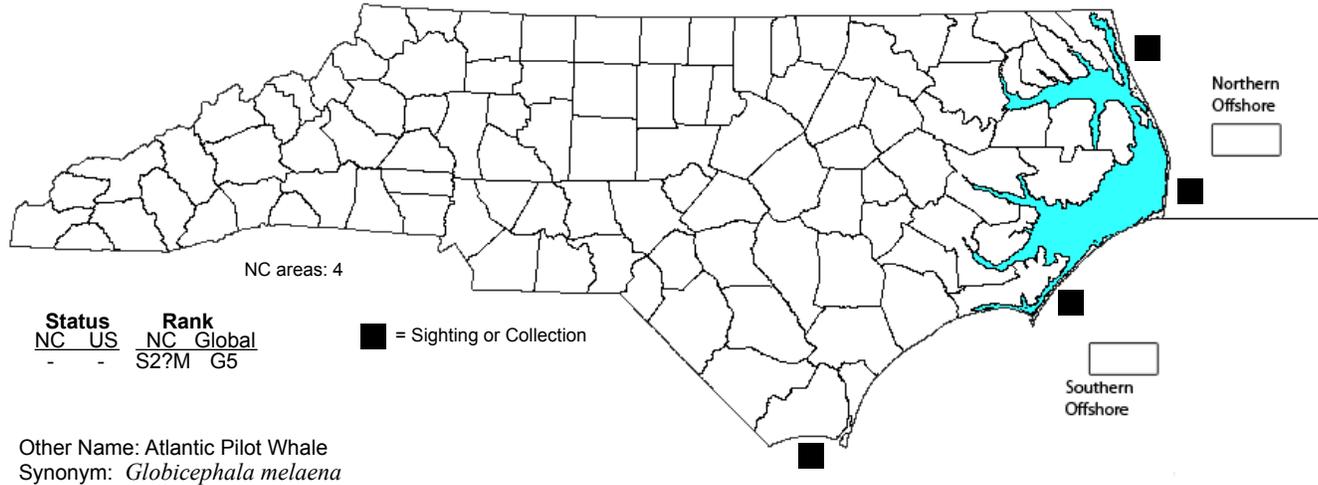
BEHAVIOR: Occurs in groups, usually of 25 or more. A fairly active dolphin, though seldom seen jumping completely out of the water like many or most of the *Stenella* dolphins.

COMMENTS: The species is monotypic and is quite different in appearance from other cetaceans in our waters. It has a high/tall dorsal fin (often shark-like), and older males are usually heavily scarred. Body coloration can be fairly pale, especially on the head.

STATUS: Native

LIST TYPE: Official

Globicephala melas Long-finned Pilot Whale



DISTRIBUTION: Mainly found in NC waters north of Cape Hatteras, in the cooler Labrador Current waters, but certainly occurs farther out to sea where waters are more moderate. There are stranding records for just four of the eight coastal counties in the state.

Mainly in the north Atlantic Ocean, but a separate population occurs in the Southern Hemisphere. Not in the north Pacific. Ranges in the Atlantic south to NC and SC.

ABUNDANCE: Though common to abundant in the Atlantic, in NC waters seems to be poorly known and not nearly as well known as the Short-finned Pilot Whale, in part because of their similarity of appearance and in part because fewer boats/vessels are at sea during the cooler months or in the cooler waters. Very seldom reported at sea in NC, perhaps because of identification difficulties. Tentatively called rare in NC waters, south to Cape Hatteras, and very rare southward. The Smithsonian National Museum of Natural History mammal collections (2016) lists 10 stranding records for NC.

SEASONAL OCCURRENCE: Probably occurs off NC all year. Of the 10 strandings in NC up to 1995 (Webster et al., 1995), eight were in March-April, and singles were in July and November. The 10 stranding records in the NMNH database (as of 2021) span most of the year, but there are none for December or January. This seems odd, as it is thought to be more of a cold-water species, yet we have no known strandings in early to mid-winter.

HABITAT: Cool to medium temperature waters, as opposed to the warm waters of the Gulf Stream. Not well documented is the distance from shore the species favors off NC.

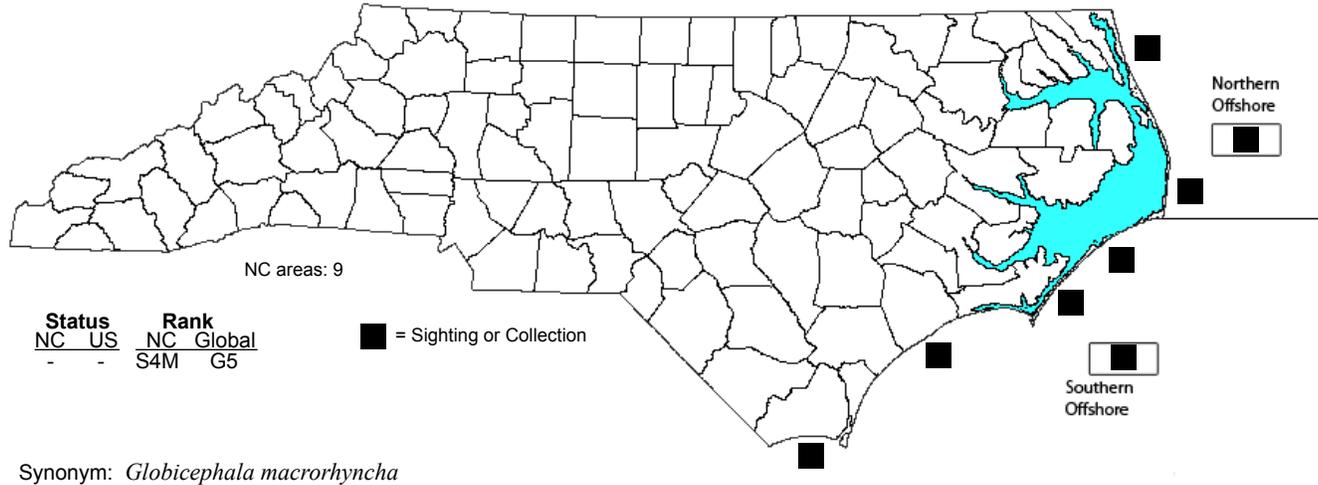
BEHAVIOR: Similar to that of the Short-finned Pilot Whale, this species occurs in pods of several dozen or more, swimming slowly at or near the surface, with little diving.

COMMENTS: Except for the longer flippers, the species is difficult to separate at sea from the Short-finned Pilot Whale. Like that species, despite its apparently large numbers, the IUCN considers it as a Data Deficient species. The two pilot whale species are actually dolphins (Family Delphinidae) and not whales.

STATUS: Native

LIST TYPE: Official

Globicephala macrorhynchus Short-finned Pilot Whale



DISTRIBUTION: Present throughout NC waters offshore, though mainly in warmer waters, and thus perhaps scarce in inshore waters north of Cape Hatteras (in the Labrador Current). There are records for seven of the eight coastal counties in the state.

Subtropical and tropical oceans/waters around the globe. In the Atlantic, occurs mainly north to NJ.

ABUNDANCE: In NC waters, numerically fairly common to common; however, as it occurs in often large groups, it can be missed on many boat trips. The species is one of the more numerous cetaceans off the NC coastline, exceeded in numbers by the Common Bottlenose Dolphin but perhaps as numerous or more so than Atlantic Spotted Dolphin. The Smithsonian National Museum of Natural History mammal collections (2021) lists 72 stranding records for NC, though around 30-35 represent two mass strandings (15 January 2005 -- Dare County, and 12 October 1973 -- Carteret County).

SEASONAL OCCURRENCE: Webster et al. (1995) found a statistical difference in seasonal strandings of the species along the NC coast, with more in the cooler months; of the 18 stranded, all but three were between December and May. The 72 NMNH strandings (as of 2021) are from most months of the year, except none for September. However, these stranding dates seem odd, as the species is frequently seen offshore in the warmer months. Likely, the species is probably resident all year in our waters, as it is not known to be strongly migratory.

HABITAT: Warmer waters, generally in the Gulf Stream and farther out to sea.

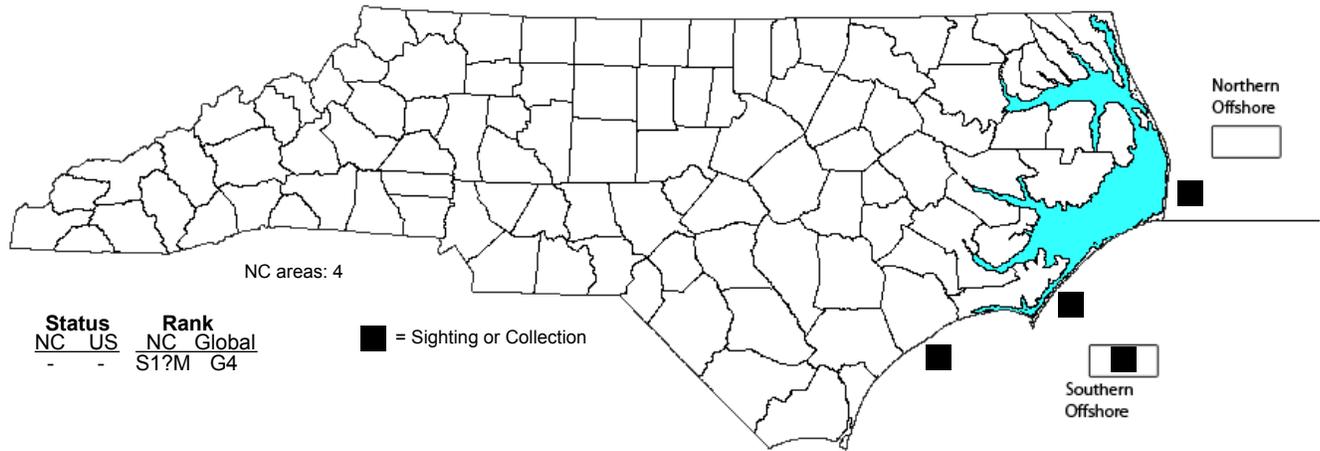
BEHAVIOR: Sluggish for a fairly small cetacean. It does not emerge far out of the water like some smaller species, but is seen mostly moving slowly, in pods of 20 or more, fairly horizontally at and near the water surface.

COMMENTS: The species is easily confused with the closely related Long-finned Pilot Whale, which favors cooler waters. Considering its relative abundance, the IUCN lists the Short-finned Pilot Whale as Data Deficient. Note that the two pilot whales are actually dolphins (Family Delphinidae) and not true whales.

STATUS: Native

LIST TYPE: Official

Feresa attenuata Pygmy Killer Whale



DISTRIBUTION: We are aware of at least three reports/records for NC -- a report of a group of six individuals seen during a 1992 vessel survey, off Cape Hatteras, in waters over 1,500 meters deep (Hanson et al., 1994), and two strandings, one each in Dare and Carteret counties.

Tropical and subtropical (i.e., warm) waters around the world, but most common in the Southern Hemisphere. In the United States, mainly off the southeastern and Gulf coasts, north to SC.

ABUNDANCE: Thought to be rare across its range. Presumably very rare in NC waters, as the species ranges northward mainly to SC, and sparingly to NC. The Smithsonian National Museum of Natural History mammal collections (2014) lists two stranding records for NC.

SEASONAL OCCURRENCE: Unknown. However, there are strandings for 30 May (1998) and 22 October (1982). Not known to be strongly migratory, and thus it might occur in NC waters for much or most of the year, though perhaps more likely in the warmer months.

HABITAT: Mainly in deeper waters (Continental Slope and farther at sea). Not well known off the US coast.

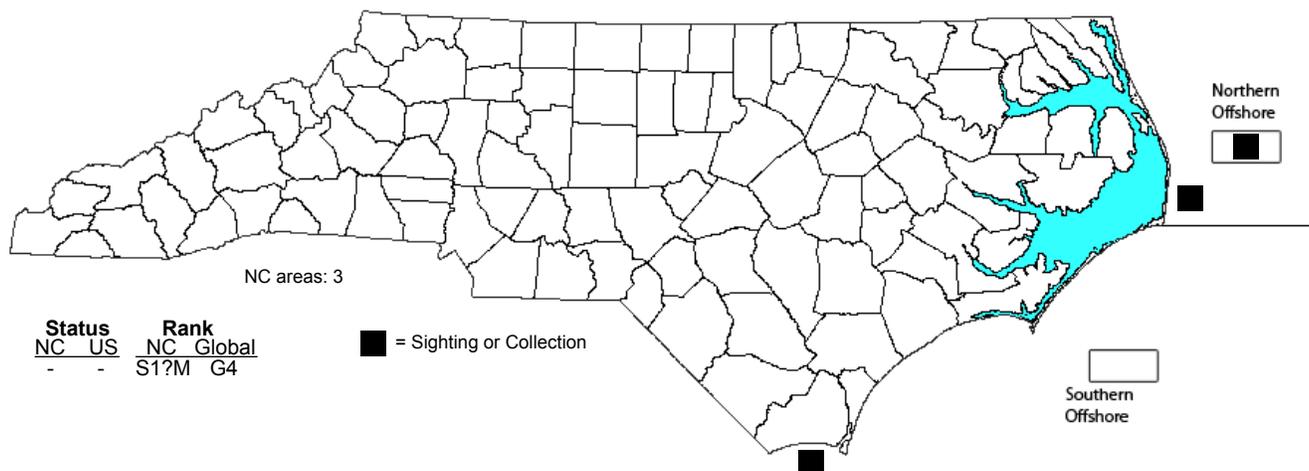
BEHAVIOR: The species can occur in small groups, reportedly an average of about 25 individuals in a group.

COMMENTS: Not surprisingly, the IUCN considers this to be a Data Deficient species. Not only does it seem to be relatively rare, but it can be easily confused with the Melon-headed Whale. Note that the Pygmy Killer Whale, False Killer Whale, Killer Whale (Orca), the two pilot whales, and Melon-headed Whale are dolphins and not whales, despite the common name.

STATUS: Native

LIST TYPE: Official

Peponocephala electra Melon-headed Whale



DISTRIBUTION: The only known offshore report (to us) from NC is from fairly deep (2000 m = 333 fathom) waters, between Cape Hatteras and the VA state line (about 50 miles from the cape). There are two stranding records for the state.

Tropical and subtropical waters worldwide. In the Atlantic, it ranges north regularly apparently only to FL, and sparingly to SC and NC, with at least one record from MD waters.

ABUNDANCE: Not well known, but believed to be uncommon across its range. In NC waters, presumably very rare, with only three records available. The offshore report was of 'several hundred melon-headed whales' (PBS website; 'The Voyage of the Odyssey', dated 15 August 2005). The Smithsonian National Museum of Natural History mammal collections (2016) lists two stranding records for NC.

SEASONAL OCCURRENCE: The three records known to us are: one stranded on 23 July 2006 at Bald Head Island (photo on the UNC-Wilmington stranding website); one stranded at Pea Island on 10 May 2008; and from mid-August (a few days before 15 August) in 2005, as seen from the Odyssey, a research vessel. A photo of the head of one animal of the group was presented on the website. As it is a warm-water species, and as NC lies at the northern edge of the range, sightings might be expected more often from June or July into September.

HABITAT: Warmer oceanic waters, apparently from the Continental Shelf and farther to sea.

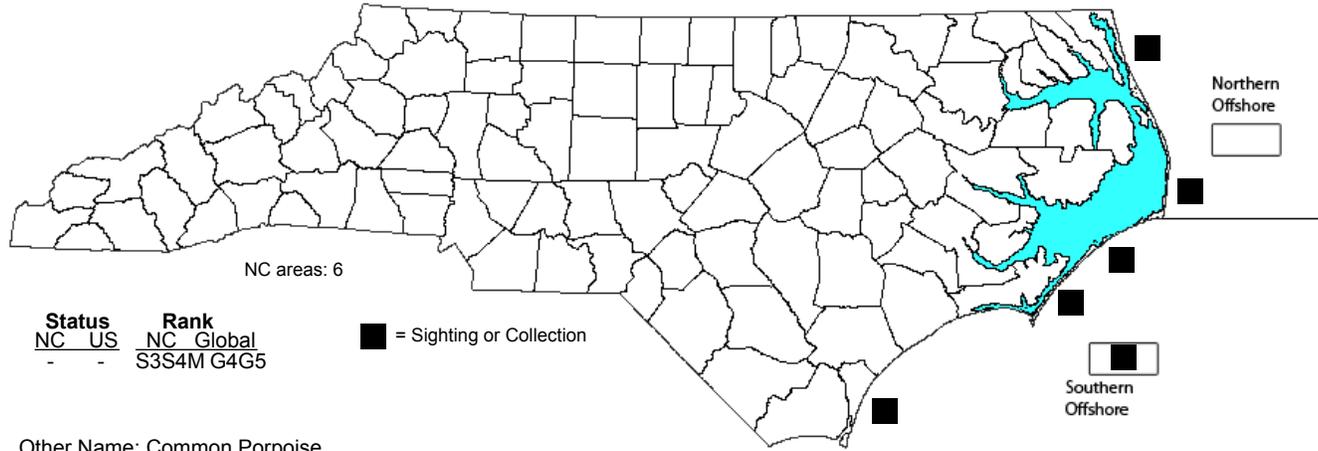
BEHAVIOR: The offshore report above, plus perusal of the literature, indicates that the species often travels in very large groups, of 100 or more, and frequently with Fraser's Dolphins (as was this particular group).

COMMENTS: Though the Melon-headed Whale is perhaps not overly well known, the IUCN has no conservation status for it, likely because it occurs in large pods and thus might not be overly uncommon in terms of total numbers. It would be no surprise if there are additional reports/records for the state, as there are numerous trips to the warm offshore waters made during the summer months. Making reporting of the species difficult is the close resemblance of it to the Pygmy Killer Whale, even though that species is in a different genus (*Feresa*).

STATUS: Native

LIST TYPE: Official

Phocoena phocoena Harbor Porpoise



DISTRIBUTION: In the state, essentially found only in the colder waters of the Labrador Current, south to Cape Hatteras. There are a very few stranding records south of Cape Hatteras, including as far south as New Hanover County.

Colder waters of the Atlantic, Pacific, and even the Arctic oceans. On the Atlantic, ranges south regularly only to NC.

ABUNDANCE: Fairly common as strandings, but quite rare as seen offshore from ships or boats -- with very few such sightings. The Smithsonian National Museum of Natural History mammal collections (2021) lists 92 stranding records for NC, among the most for any species in the state other than Common Bottlenose Dolphin. Nearly all strandings are for Dare and Currituck counties, and thus not uncommon north of Cape Hatteras (though seldom seen alive from boats), but very rare southward.

SEASONAL OCCURRENCE: There were 77 strandings along the NC coast through 1995 (Webster et al., 1995) -- all from January to May, with the highest number in March. The NMNH strandings (92) are remarkably all from January to early June, peaking in March; there are none in fall or early winter. This is a migratory species, ranging south to our state, only in midwinter and into spring, before heading back northward.

HABITAT: Cold waters inshore of the Gulf Stream. Although it perhaps might be regular offshore within a few miles of shore, it is presumably not seen from shore because of its very small size.

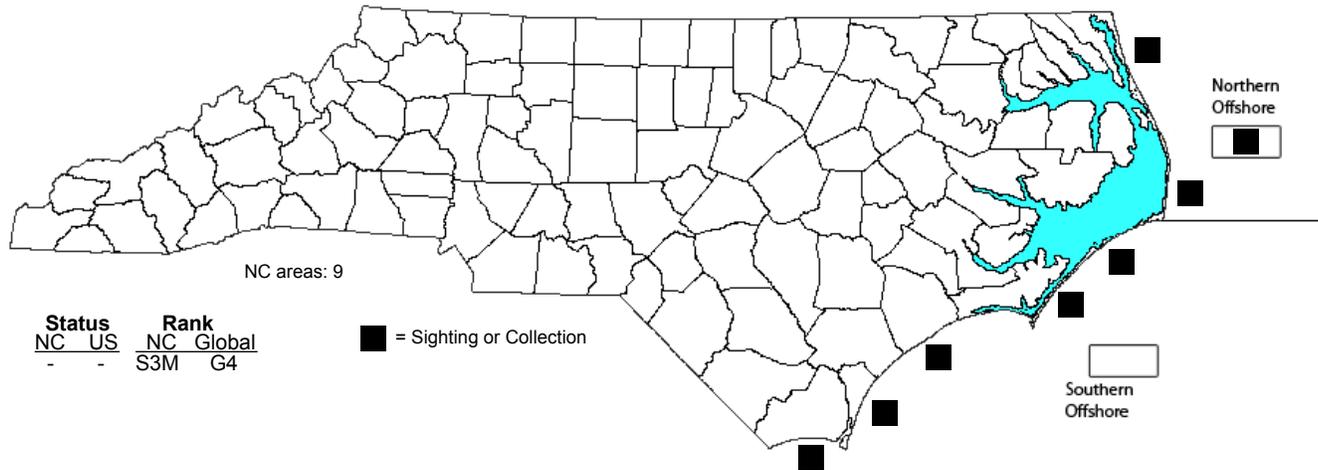
BEHAVIOR: The species is only about 5 feet long, and thus when it makes a 'dive' or roll at the surface, often all one sees is the large, triangular dorsal fin and only a small part of the body.

COMMENTS: This was the second-most frequent stranding species in the Webster et al. (1995) compilation, as well as in the NMNH database, far behind Common Bottlenose Dolphin. This suggests that the Harbor Porpoise is not uncommon in our waters in winter or early spring, though it is seldom seen because of its small size. Some porpoises are taken accidentally in fishing gill nets. Note that this species and the Dall's Porpoise of the Pacific Coast are the only true porpoises (family Phocoenidae) in North American waters; all other species called 'porpoises' by the public are actually dolphins (in the family Delphinidae).

STATUS: Native

LIST TYPE: Official

Kogia breviceps Pygmy Sperm Whale



DISTRIBUTION: In NC, limited mainly to the Gulf Stream and waters farther offshore. It has been documented from all eight coastal counties in the state.

Warmer waters of the world, in the Atlantic mainly north to the northern states (off MA and ME).

ABUNDANCE: Best considered as uncommon in NC waters (based on strandings), but poorly known across its range and in NC. Certainly not a rare species in NC, and might actually be fairly common, based on it being one of the more frequently stranded cetacean species in NC. Abundance as compared with the very similar Dwarf Pygmy Whale is not clear, but both are very seldom reported on offshore trips. However, this species has stranded much more frequently than the Dwarf; the Smithsonian National Museum of Natural History mammal collections (2021) lists a remarkable 63 stranding records for NC.

SEASONAL OCCURRENCE: Strandings through 1995 (Webster et al., 1995) were rather frequent -- with 48 individuals found on beaches, in all months except for June. The NMNH database has stranding records for all 12 months, with slightly more in August and September. Thus, the species is a resident in NC waters and occurs throughout the year.

HABITAT: Warmer waters far offshore -- the Gulf Stream and beyond. Though there are numerous strandings, many or more represent females giving birth or with young.

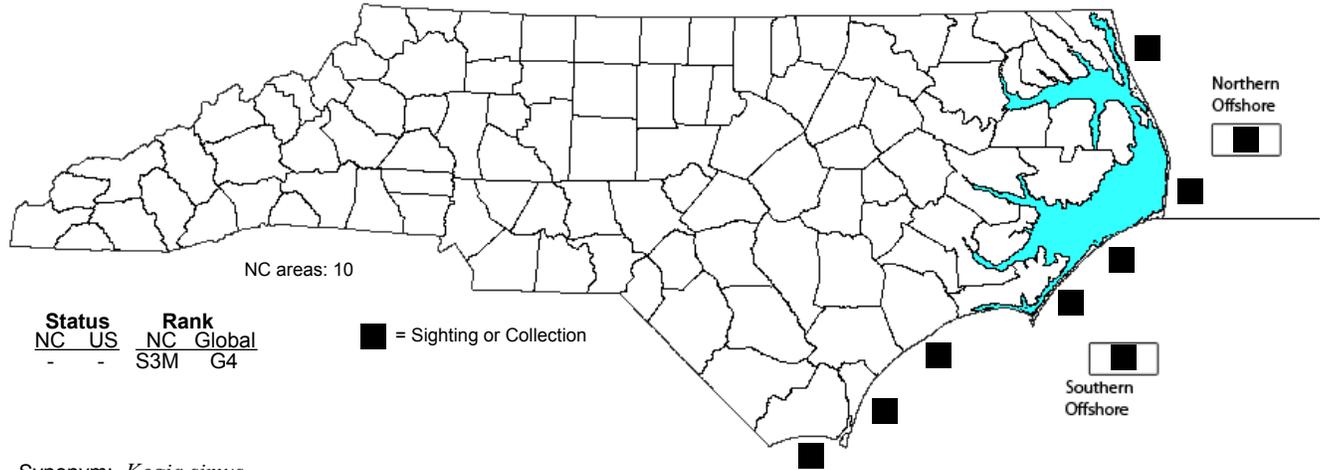
BEHAVIOR: As with the Dwarf Sperm Whale, it rests on the water surface with the back exposed, from the snout to the small dorsal fin, and thus can look like an overturned surfboard!

COMMENTS: This species is considered as Data Deficient by IUCN, as is the very similar Dwarf Pygmy Whale. The Pygmy is larger than the Dwarf and has a smaller dorsal fin.

STATUS: Native

LIST TYPE: Official

Kogia sima Dwarf Sperm Whale



Synonym: *Kogia simus*

DISTRIBUTION: Because it favors warm waters, the NC range is most likely from off Oregon Inlet south to the SC line, and thus likely is very scarce in the cool waters inshore of the Gulf Stream. Seen essentially in deeper waters, and not expected to be seen alive inshore of the Continental Slope. It has been documented from all eight coastal counties in NC.

Found worldwide, but limited mainly to warmer waters. In the Atlantic, found north mainly to the Gulf Stream, but sparingly toward the Canadian Maritimes.

ABUNDANCE: Appears to be slightly less numerous than the very similar Pygmy Sperm Whale (based on stranding occurrences), but still seems to be uncommon and poorly known throughout its range owing to few being seen on offshore trips. The Smithsonian National Museum of Natural History mammal collections (2021) lists at 35 NC stranding records.

SEASONAL OCCURRENCE: Through 1995, there were 12 known strandings along the coast (Webster et al., 1995). Oddly enough, as it is considered a warm-water species, the records occur from September through April; there were no strandings in the four months from May through August! However, Webster et al. (1995) suggest that the strandings might be mostly of females giving birth, or of female/young strandings. Backing up this seasonal pattern, the more all-encompassing NMNH database has nearly all of its 35+ stranding records from November to July, with a peak in March. (There are several probable records for August and September.) Thus, it is clearly scarce off the state in the summer and fall months.

HABITAT: Deeper waters of the Gulf Stream are preferred.

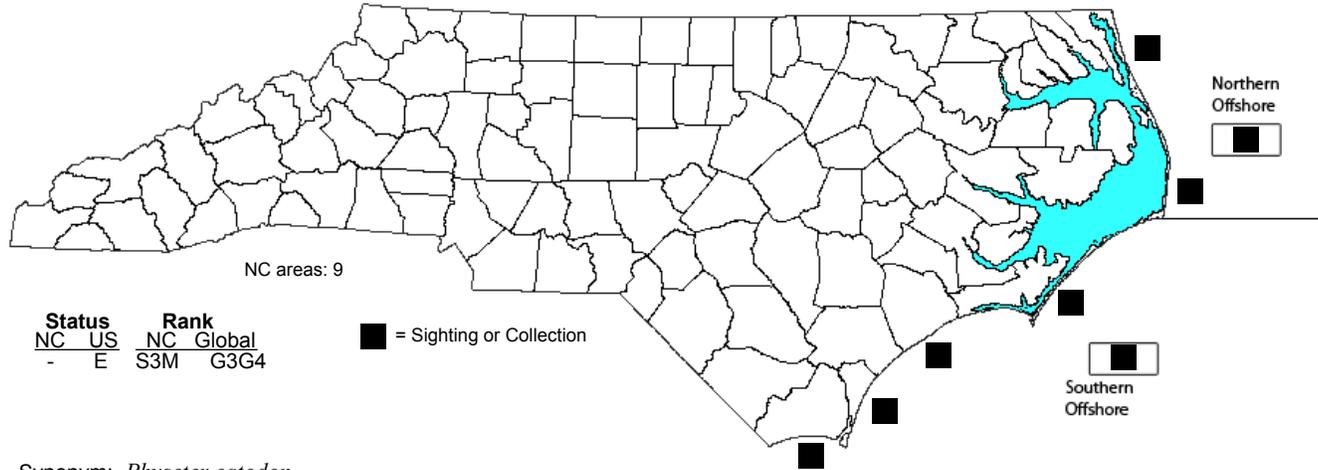
BEHAVIOR: Both species of *Kogia* whales, when resting at the water surface, show the top of the front half of the body, from snout to dorsal fin; thus, they look like overturned surfboards!

COMMENTS: The Dwarf Pygmy Whale was not described until 1966, and thus records and sightings for most of the 20th Century, probably even well after the description, were considered to be Pygmy Sperm Whales. The Dwarf has a slightly larger (taller) dorsal fin, but otherwise is quite similar to the larger Pygmy. Not surprisingly, the IUCN considers both species as Data Deficient.

STATUS: Native

LIST TYPE: Official

Physeter macrocephalus Sperm Whale



DISTRIBUTION: Found off NC from VA to SC. There are stranding records for seven of the eight coastal counties in the state.

Found in oceans around the world, including the Atlantic from Arctic waters to the tropics.

ABUNDANCE: Uncommon -- fairly common for a large whale -- off the coast, usually well out of sight of land; very seldom seen from shore. Of the large whales in our waters, this is the most frequently seen one from boats/ships, particularly so in the warmer months. The Smithsonian National Museum of Natural History mammal collections (2021) lists only six stranding records for NC.

SEASONAL OCCURRENCE: Through 1995, there were 16 strandings in NC (Webster et al., 1995), spanning the entire year, with only June, October, and December lacking records. The NMNH database contains stranding records scattered all year. More offshore observations are for the warmer months, though this could be in relation to the number of trips at that time of year. Not obviously migratory like so many other large species.

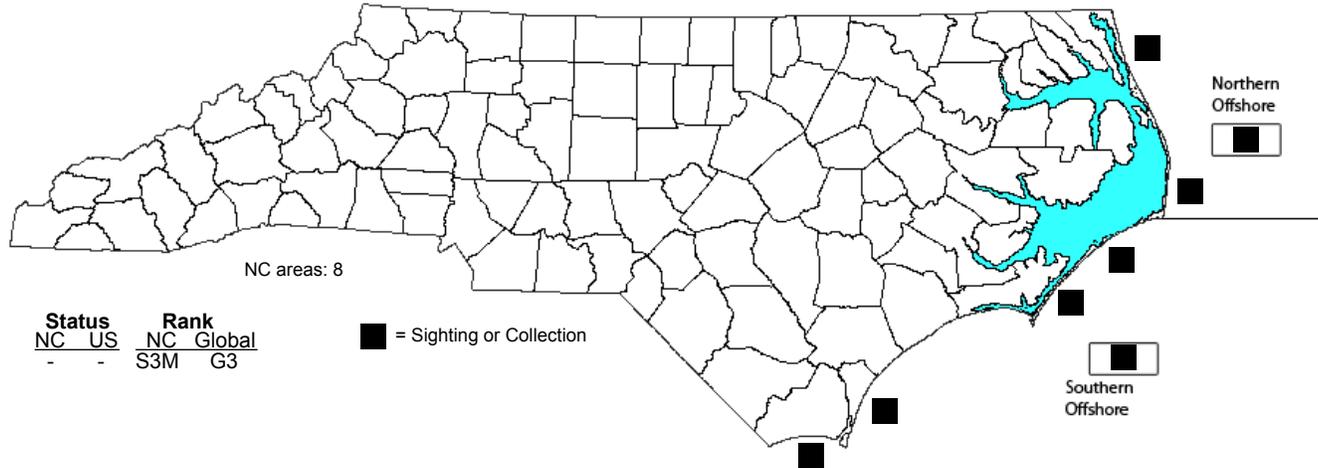
HABITAT: Mainly in deeper waters, from the Continental Slope to farther at sea.

COMMENTS: This is most common of the "great whales" around the world, despite being listed by the U. S. Fish and Wildlife Service as an Endangered species. Numbers have been estimated at around 1.5 million individuals. This species is normally easily identified by its huge blocky head and by the blow, which angles to the left.

STATUS: Native

LIST TYPE: Official

Mesoplodon europaeus Gervais' Beaked Whale



DISTRIBUTION: Presumed to occur off the entire NC coast. There are stranding records for six of the eight coastal counties in the state.

Atlantic Ocean, northward only to about MA; thus, found essentially only in the warmer waters of the Atlantic.

ABUNDANCE: Rare, as seen on offshore trips, but apparently not rare in true numbers well offshore. There are more strandings in NC of this species -- 19 as of 1995 (Webster et al., 1995) than of the other two *Mesoplodon* species. The Smithsonian National Museum of Natural History mammal collections (2021) lists 47 stranding records for NC. Pelagic observations gathered by Brian Patteson over roughly 20 years has indicated that this is the most frequently seen, or identified, *Mesoplodon* species in our waters, though -- more often than not -- the majority of individuals of this genus have to be left unidentified.

SEASONAL OCCURRENCE: The many strandings as of 1995 are for all months except for July, August, and December. The NMNH strandings are rather evenly spread throughout the year, except for an absence in February. Thus, it occurs in NC waters throughout the year.

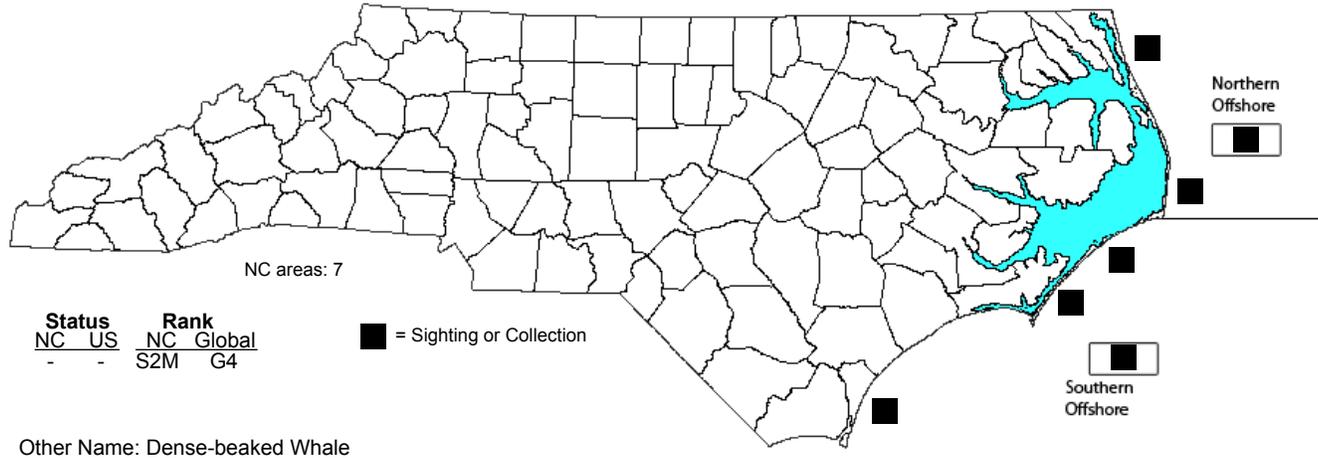
HABITAT: This beaked whale is possibly an inshore ocean species, considering its many strandings and relatively few offshore sightings. Habitat -- depths at which it typically occurs -- is thus uncertain.

COMMENTS: Gervais' Beaked Whales are infrequently identified at sea, in part because they lack overly distinctive field marks. Though *Mesoplodon* whales are not overly rare as a group in NC waters, getting good looks at them are difficult, as nearly all field marks are on the face/jaw, and not on the dorsal fin or dorsal half of the body. The IUCN considers it to be a Data Deficient species.

STATUS: Native

LIST TYPE: Official

Mesoplodon densirostris Blainville's Beaked Whale



DISTRIBUTION: Assumed to occur off the entire NC coast from VA to SC, though there are stranding records for just four of the eight coastal counties.

Occurs worldwide in oceanic waters. Occurs in the Atlantic from the Maritimes well south into the West Indies, and into the Gulf of Mexico.

ABUNDANCE: Apparently rare, and very seldom identified on trips offshore. As of 1995, there had been nine strandings in NC (Webster et al., 1995). The Smithsonian National Museum of Natural History mammal collections (2021) lists 18 stranding records for NC.

SEASONAL OCCURRENCE: The strandings (through 1995) are for January, February, March, June, and July. The NMNH strandings are from January through March, and June through September, plus one in November -- suggesting that the species might well be present all year off our coast, despite no known records for several months of the year.

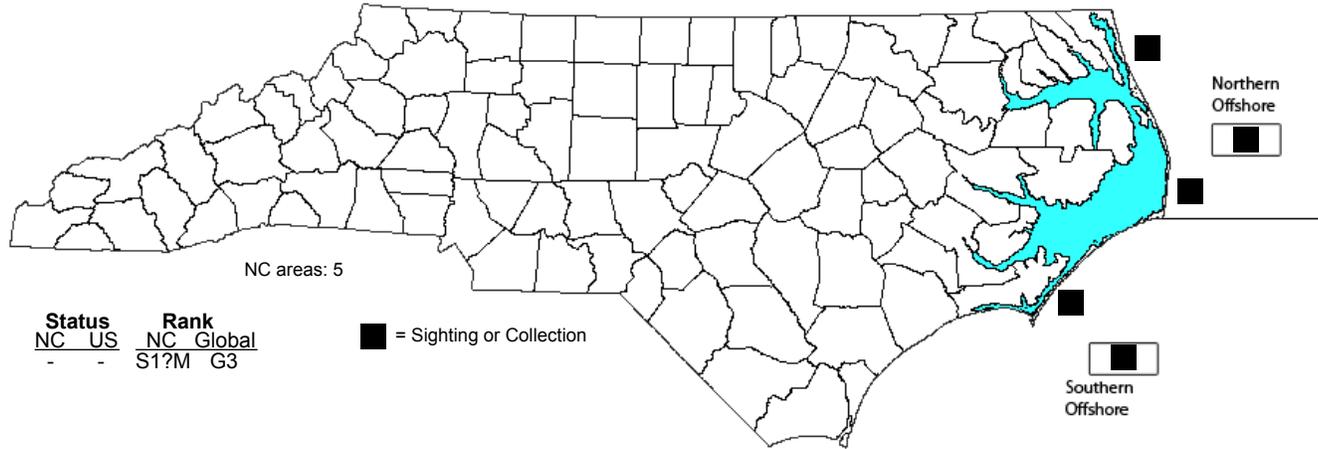
HABITAT: Generally well offshore, probably in deeper water such as beyond the Continental Shelf.

COMMENTS: The Blainville's can be identified by the highly arched jaw. Unfortunately, most of the Mesoplodons observed at sea do not give a good enough view for observers to be certain of identification; most are left as "Mesoplodon sp.". The IUCN considers the Blainville's Beaked Whale as Data Deficient, as it does for nearly all Mesoplodon species around the globe.

STATUS: Native

LIST TYPE: Official

Mesoplodon mirus True's Beaked Whale



DISTRIBUTION: In NC, presumably occurs in the ocean from VA to SC. However, there are stranding records for only three of the eight coastal counties, and none south of Carteret County (i.e., the southern coastal region).

Primarily the Atlantic Ocean (not in the Pacific); ranges from Canada to the Bahamas.

ABUNDANCE: Very rare to possibly rare; the rarest of the three NC *Mesoplodon* species in terms of strandings, and presumably the rarest also in absolute numbers. As of 1995, there were two strandings in NC, once each in March and July (Webster et al., 1995). The Smithsonian National Museum of Natural History mammal collections (2021) lists only three stranding records for NC. Brian Patteson (pers. comm.) has never reliably identified this species on his 1,000+ trips offshore, and he believes that most or all reported sightings of True's Beaked Whales represent misidentified Gervais' Beaked Whales.

SEASONAL OCCURRENCE: The three strandings in the NMNH database are from July, August, and October. The photo record is from late May. Probably occurs in very small numbers throughout the year, but certainly much more stranding data needed.

HABITAT: Deeper waters of the ocean, likely beyond the Continental Shelf; almost certainly has not been seen (alive) within a few miles of shore.

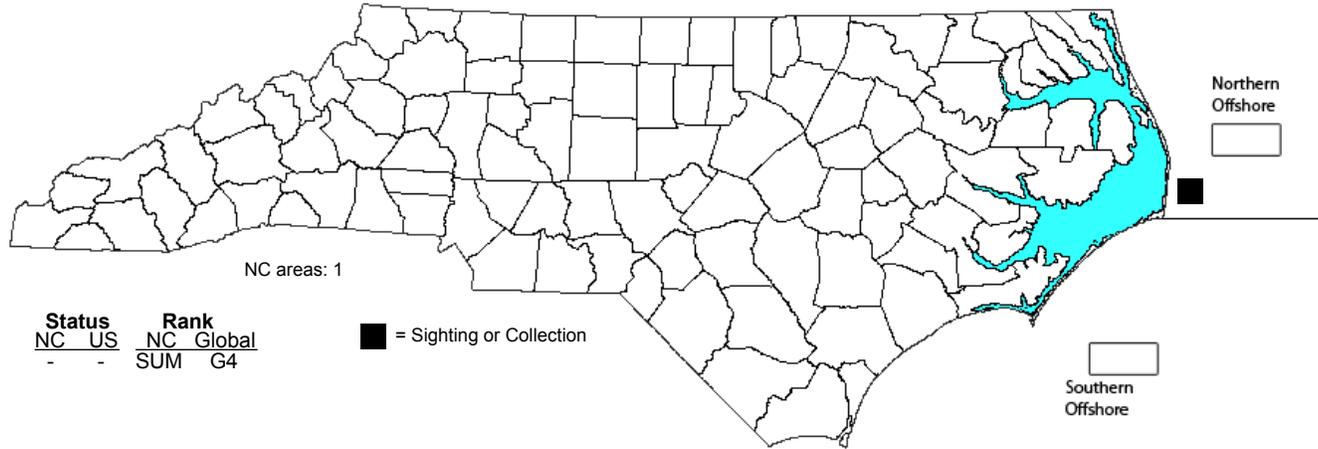
COMMENTS: As with nearly all *Mesoplodon* whales, the IUCN considers the species as Data Deficient. True's Beaked Whale is very difficult to separate at sea from other *Mesoplodon* species, especially Gervais'. Most *Mesoplodon* individuals observed at sea have to be left as unidentified, as so little of the animals are typically exposed to the viewers on a boat or ship.

The species was first described in 1913 by Frederick W. True from an adult female that had stranded on the outer bank of Bird Island Shoal, Beaufort Harbor, North Carolina, in July 1912.

STATUS: Native

LIST TYPE: Official

Hyperoodon ampullatus Northern Bottlenose Whale



DISTRIBUTION: In NC, only one definite record, a stranding in Dare County in 1994. However, there are three observational reports in offshore waters. Considered an accidental or casual stray, well to the south of the usual range.

Found only in the northern Atlantic Ocean, south regularly to about Newfoundland, and in winter south to NY.

ABUNDANCE: Accidental in NC, with just one definite record. Fairly common to perhaps common in the main part of its range, and fairly easy to observe.

SEASONAL OCCURRENCE: More likely to stray into NC waters in winter or very early spring. However, the only known state record was of one stranding on 27 October 1994. The Smithsonian's National Museum of Natural History database (2016) lists three records as '*Hyperoodon ? ampullatus*'; these are for 30 May 1994, 26 July 1982, and 16 May 1981.

HABITAT: Strongly favors cold waters.

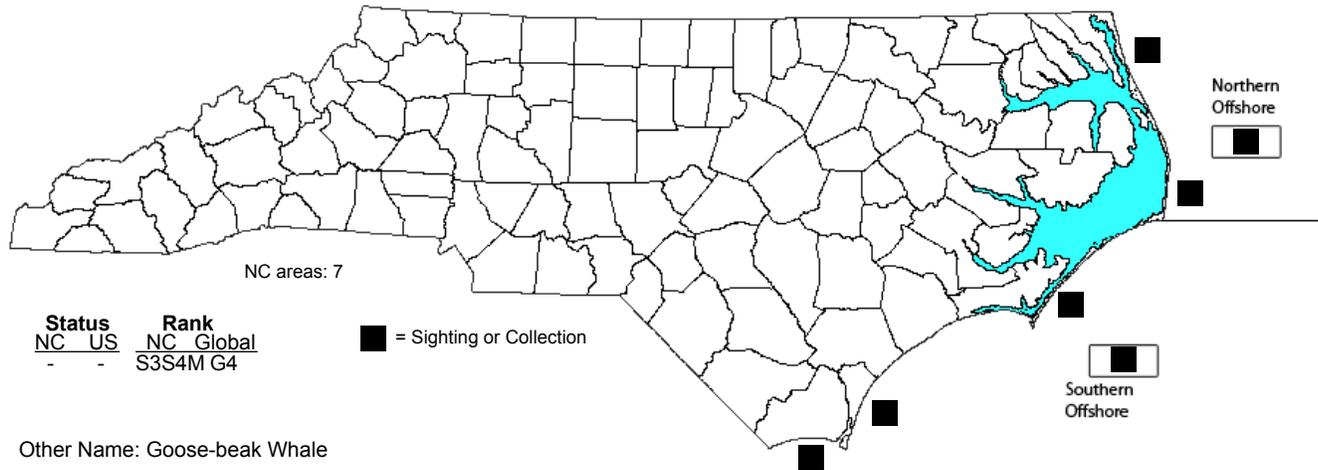
BEHAVIOR: Typically occurs in fairly small groups, up to about 10 individuals. It is considered to be rather curious of boats. Considerably easier to observe than most other beaked whale species.

COMMENTS: This species has been heavily impacted by commercial whaling operations; though such operations have ceased in the past few decades, it still has not recovered from former numbers. There are photographs reported for the 1982 and 1994 reports, but as the NMNH database lists the species with a '?', it appears these are not confirmed. As a result, these three reports from offshore are not added to the website and shown on the range map.

STATUS: Native

LIST TYPE: Official

Ziphius cavirostris Cuvier's Beaked Whale



DISTRIBUTION: In NC, presumed to occur all along the coastline and offshore. Strandings recorded from five of the eight coastal counties. Seldom or never seen (alive) from shore, but with numerous sightings in the vicinity of the Continental Slope.

Occurs in oceans worldwide.

ABUNDANCE: Uncommon to locally fairly common. Frequently seen in the vicinity of "The Point" ESE of Oregon Inlet. It is, by far, the most often seen of the beaked whales (family Ziphiidae) in the state, though this might be due to its much larger size and more easily identifiable marks than for the Mesoplodon species. Despite the fact that sightings off the coast are not rare, the Smithsonian National Museum of Natural History mammal collections (2021) lists only 5 stranding records for NC.

SEASONAL OCCURRENCE: As of 1995, there had been four strandings -- April (2), July, and December. The NMNH database shows most strandings between April and July, with singles in October and December. These data suggest that it is more numerous off our coast in the warmer months, as there are no stranding records from January through March.

HABITAT: Deeper offshore ocean, apparently quite scarce over the Continental Shelf.

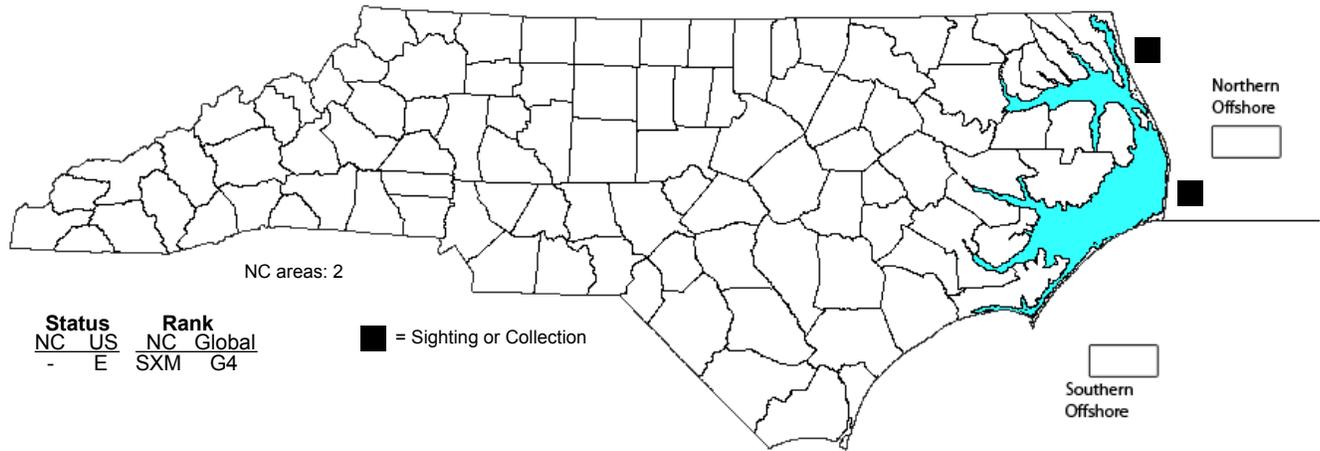
BEHAVIOR: This large beaked whale occurs in small groups, typically no more than seven to ten individuals in a pod. References consider the species to be wary of boats.

COMMENTS: Males can be quite pale on the head, and older males are rather whitish-headed, as well as frequently scarred. Unlike other "beaked whales", numbers of greater than 10 individuals can be seen in NC waters on some pelagic trips. In fact, the species might be more easily seen on boat trips off NC than off any other Eastern state.

STATUS: Native

LIST TYPE: Official

Eschrichtius robustus Gray Whale



DISTRIBUTION: In NC, presumably occurred up and down the state, likely inshore and perhaps well offshore. Thought to be extirpated in NC waters and North Atlantic waters, for over two centuries; however there is a specimen at the Smithsonian museum from Corolla (Currituck County) of a freshly dead juvenile, in 1976, and another old carcass in Dare County in 1978. There is also a collection at the NC Museum of Natural Sciences (NCSM 4005) dated as "16-3-1987", though the record is of a skull (of an animal that could have died a few centuries earlier). There were confirmed photos from Namibia (in Africa) in 2015. Thus, there are a very few records from recent decades to suggest at least a few Gray Whales are making their way from the Pacific into the Atlantic.

Presently found essentially only in the Pacific Ocean, but formerly occurred in the Atlantic Ocean; it has been essentially extirpated from the Atlantic since the 1700's.

ABUNDANCE: Thought for many decades to be extirpated from the state. In 1982, there were four skulls known from the state in several museums (Lee et al., 1982). Former abundance off the NC coast is not known. Even if the 1976 and 1978 records were indeed of recently dead animals, that dates were still nearly 50 years ago, and the species should still be considered as probably Extirpated from NC waters, as opposed to simply Historical. But, there is still hope that the species might again return to our shores.

SEASONAL OCCURRENCE: Not known, but probably mostly in spring and fall, as it is a strongly migratory species along the eastern Pacific.

HABITAT: Oceanic, more likely inshore than in deeper waters, as the behavior of Pacific coast animals takes them along the coast, within a few miles of shore.

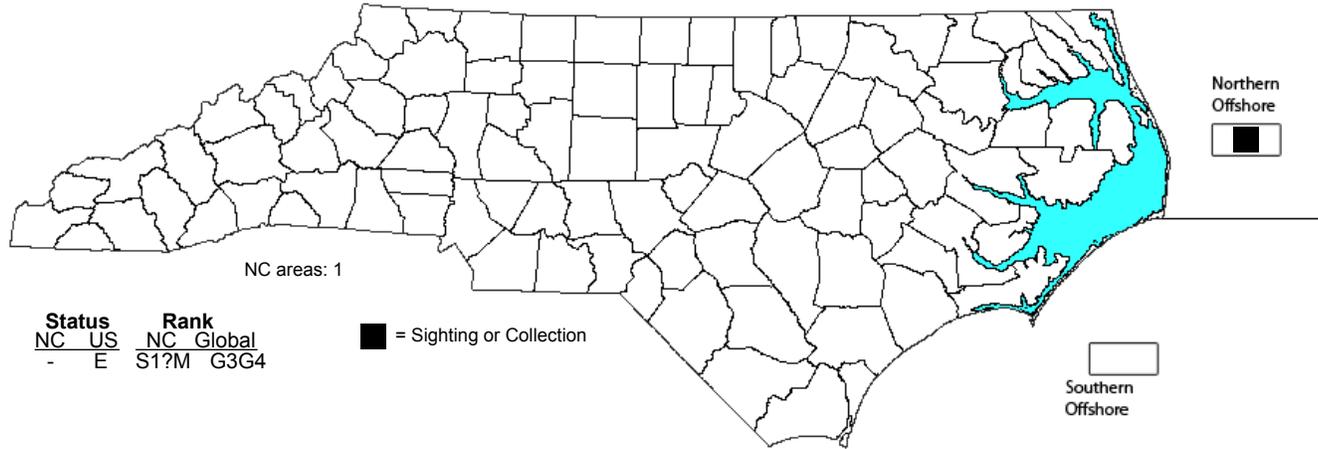
BEHAVIOR: In the Pacific, where well known as a long-distant migrant, the species is quite tame and can be approached closely by boats. There is a major tourist industry in the Pacific States and Mexico for the observation of Gray Whales.

COMMENTS: The whaling industry was the cause of the complete extirpation of Gray Whales in the Atlantic. However, there are a few fairly recent Atlantic records. The species, which is the only species in its family (Eschrichtiidae), is listed as Endangered by the U.S. Fish and Wildlife Service.

STATUS: Extirpated

LIST TYPE: Official

Balaenoptera musculus Blue Whale



DISTRIBUTION: In NC, perhaps just a single report, far offshore.

Occurs in oceans worldwide, but it is very rarely noted off the East Coast of the United States. More frequently noted in the Pacific Ocean than in the North Atlantic.

ABUNDANCE: Extremely rare anywhere off the middle Atlantic Coast, including in NC waters.

SEASONAL OCCURRENCE: Only NC report is from the winter season.

HABITAT: Typically in fairly deep waters, well off coasts, though it can be seen on some one-day Pacific Coast boat trips. Does not necessarily favor cold waters over warm waters.

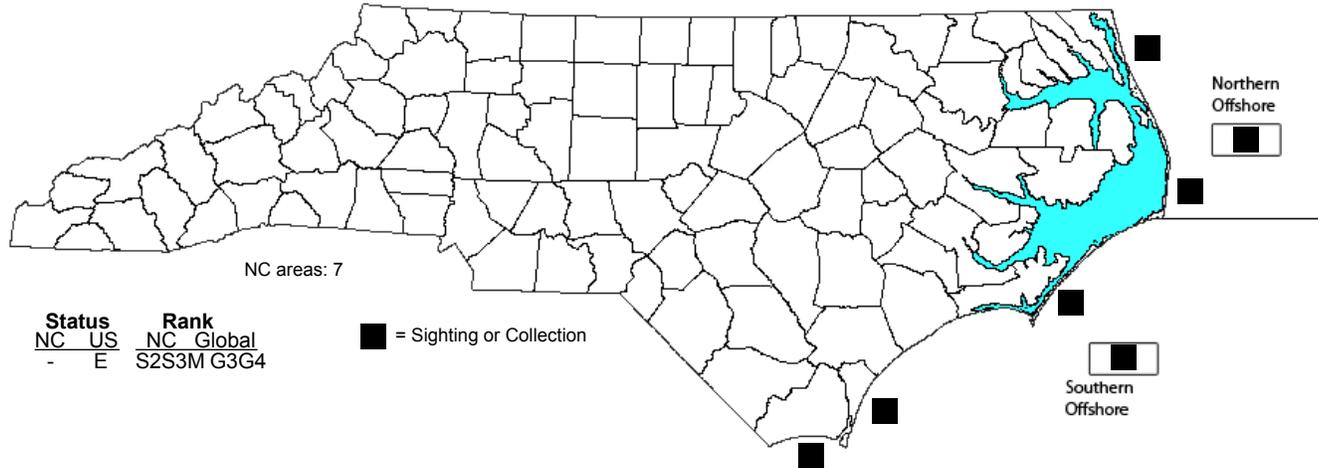
BEHAVIOR: It is a very fast swimmer, though is normally easily spotted and followed from a boat when present owing to its large size, the longest/largest animal species that has ever lived (now or historically). Blue Whales are usually seen alone or in very small pods.

COMMENTS: Wildlife in NC issue by Todd Pusser: "two satellite-tagged female blue whales from the Gulf of Saint Lawrence in Canada were shown to move into waters off the North Carolina coast during the winter months of 2016, one swimming to within 27 miles of Cape Hatteras."

STATUS: Native

LIST TYPE: Official

Balaenoptera physalus Fin Whale



DISTRIBUTION: In NC, occurs offshore all along the coastline, generally away from sight of land. Despite many strandings, they all fall within just four of the eight coastal counties of the state.

Occurs worldwide in all oceans.

ABUNDANCE: Rare to uncommon, but the most frequently seen *Balaenoptera* species in the state, and certainly is the best known of those four species. Occasionally seen from shore, but much less so than is the Humpback Whale. The Smithsonian National Museum of Natural History mammal collections (2021) lists 7 stranding records for NC.

SEASONAL OCCURRENCE: Most frequently seen in winter, sparingly from fall to late spring. There were 14 strandings known in the state as of 1995 (Webster et al., 1995); all but one were from January to May, and one in November. The highest number was in January, suggestive of the peak of occurrence in NC waters. The NMNH collections database also shows this range, with no stranding records from June through October. As with other large whales, it moves north in spring and south in late fall, though it is clearly present in NC waters all winter.

HABITAT: Offshore waters, though can be seen somewhat inshore, within a few miles of the coast.

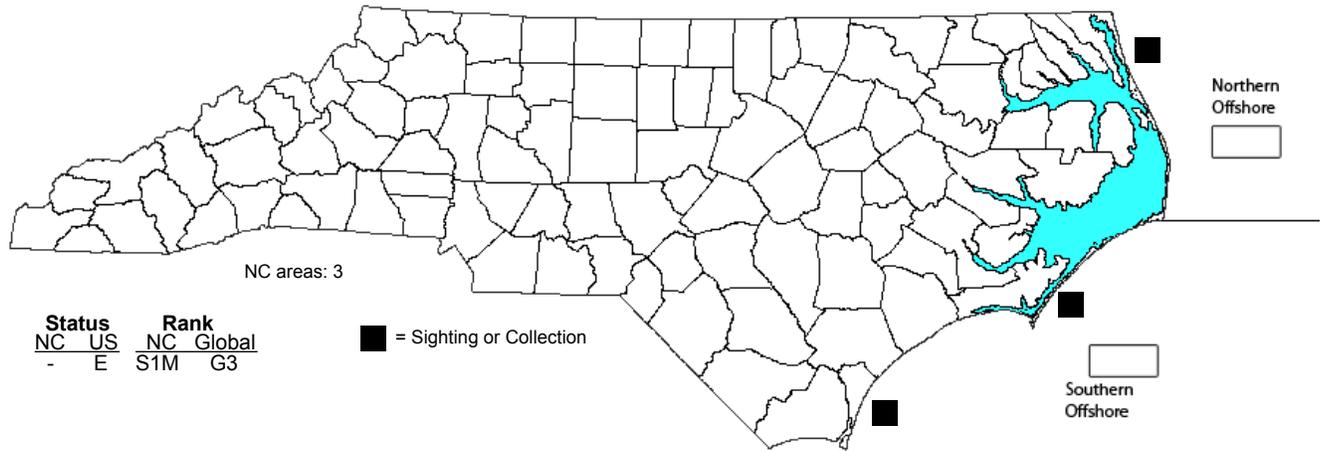
BEHAVIOR: This is one of the fastest swimming whale species, and it is typically wary of boats. Though they can occasionally be seen in moderate-sized pods, in NC it is usually seen alone or in very small groups.

COMMENTS: This is another large whale that is listed as Endangered by the U.S. Fish and Wildlife Service. Fortunately, it is not overly rare in the North Atlantic, though numbers are greatly reduced from a century or more ago as a result of the whaling industry.

STATUS: Native

LIST TYPE: Official

Balaenoptera borealis Sei Whale



DISTRIBUTION: In NC, occurs sparingly offshore, but is seldom seen. There are stranding records for only three of the eight coastal counties.

Occurs in oceans worldwide, thus throughout the western Atlantic Ocean.

ABUNDANCE: Certainly very rare, with only a few records. There are just three known stranding records, on 16 April 1975 (Currituck County); on 29 March 2014 (Smithsonian National Museum of Natural History database, 2016; Carteret County); and on 6 January 2019. Apparently not conclusively identified offshore in NC waters, though certainly must occur as a rare migrant.

SEASONAL OCCURRENCE: Poorly known, as there are only a few state records. It migrates southward in the fall, and northward in spring; thus, it possibly is most likely to be seen in NC waters in spring and fall. Both NC strandings are in the spring season.

HABITAT: Deeper waters offshore; practically never seen from boats on single-day trips from the NC coast -- either because of their great rarity or because of the distance from shore (or both).

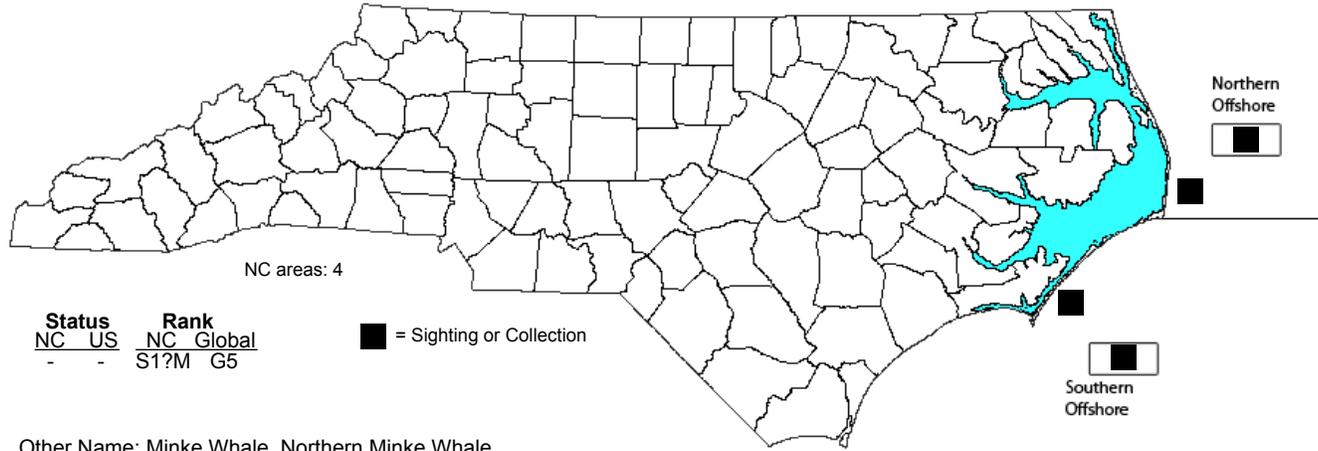
BEHAVIOR: This is another very fast-swimming whale species. Unlike most other baleen whales, the tail flukes are seldom seen when the species surfaces and then dives.

COMMENTS: This whale species can be difficult to identify from the Bryde's Whale, mainly as the latter species was described only several decades ago. Also, at a distance, it can be difficult to separate from the Fin Whale (if the head and jaw coloration cannot be seen). Even so, both the Sei Whale and the Bryde's Whales are very rarely seen in the central and southern Atlantic states. The common name can be pronounced two ways, with the preference being "say", and secondarily as "sigh". As with most *Balaenoptera* whales, it is listed as Endangered by the U.S. Fish and Wildlife Service.

STATUS: Native

LIST TYPE: Official

Balaenoptera acutorostrata Common Minke Whale



DISTRIBUTION: Distribution in NC not well known, but seen essentially only well offshore (away from sight of land). Only two known stranding records, both from the same county (Dare).

Occurs in both the Atlantic and the Pacific oceans.

ABUNDANCE: Generally rare, well off the NC coast. Poorly known for much or most of the 20th Century in the Southeastern states, and the first record for the state was not until 4 April 1978 (sight records at sea). Since then, two strandings have been reported through 1995 (Webster et al., 1995), both in May. There are a few sightings off the coast since 1995, but it still remains a poorly known species in NC waters. The Smithsonian National Museum of Natural History mammal collections (2021) lists just these two stranding records for NC.

SEASONAL OCCURRENCE: Apparently mainly in the cooler months. Seasonal migrations seem to be poorly known, but NC might be somewhat near the southern part of the normal range of the species. Nonetheless, it moves north near the coast in spring and southward off the coast in fall, perhaps even wintering off the NC coast. Both of the known strandings (two) were in May.

HABITAT: Generally in cooler water, but specifics are not well known.

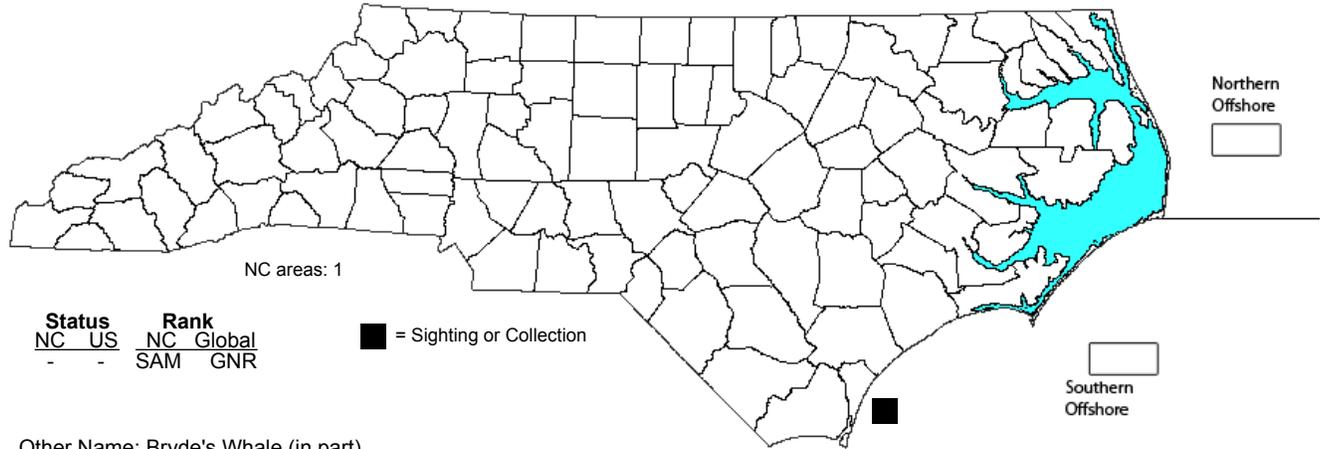
BEHAVIOR: This species is much smaller than the other *Balaenoptera* species in the state. not surprisingly, it can occur in larger pods than others, sometimes up to 30 individuals. Also, perhaps because of its small size, it can be approached more closely in boats than can other baleen whales.

COMMENTS: Unlike a number of other *Balaenoptera* whales, this "small" species is not on the U.S. Fish and Wildlife Service endangered species list. The taxonomy of the 'Minke Whale' complex is a bit unsettled. Originally it was considered a single species occurring in both the Northern and the Southern hemispheres. However, most references now identify two species -- Common Minke Whale (*Balaenoptera acutorostrata*) and the Antarctic Minke Whale (*B. bonaerensis*).

STATUS: Native

LIST TYPE: Official

Balaenoptera ricei Rice's Whale



Other Name: Bryde's Whale (in part)

Synonym: *Balaenoptera edeni* -- Gulf of Mexico type

DISTRIBUTION: A recent paper by Rosel et al. (2021) describes a new whale species, a split of the Bryde's Whale (*Balaenoptera edeni*); the form or population essentially restricted to the Gulf of Mexico is now named as the Rice's Whale (*B. ricei*). However, the paper also shows that the several specimens known from the southern Atlantic Coast of the US, including the one NC stranding -- a specimen that washed ashore at Carolina Beach, New Hanover County, on 13 March 2003 -- have also been confirmed as Rice's Whales. A figure in the paper shows three or four offshore NC sightings of possible individuals of this species -- listed in the paper as "Bryde's", "Bryde's/Sei [*B. borealis*]", and "*Balaenoptera* sp.". Certainly, offshore observations (including photos) are highly unlikely to conclusively document Rice's Whales, especially in the Atlantic, but the authors show that true Bryde's Whales have been documented with stranding specimens only from the southern shores of the Caribbean Sea and farther southward; and thus the authors indicate that: 1) it is unlikely that true Bryde's Whales occur along and off the US Atlantic Coast, 2) Rice's Whale is the only breeding *Balaenoptera* whale species in the Gulf of Mexico, and 3) though Rice's Whale is probably not a breeding species in the Atlantic, individuals from the Gulf of Mexico population can and do stray around FL and northward into the warmer waters off the Southeastern states.

Occurs essentially only in the Gulf of Mexico, but strays have been documented along the southeastern Atlantic Coast of the US.

ABUNDANCE: Though there is just a single definitive record for the state (in 2003), it likely is best considered as very rare well offshore, rather than accidental or casual. Of course, the three or four sightings offshore -- the fourth lies well off the NC/SC "state line" -- might well be Rice's Whales, but are impossible to pin down to species level.

SEASONAL OCCURRENCE: Breeds in the Gulf of Mexico only, as far as known. NC lies at the northern edge of the range for dispersing individuals, and perhaps most likely to be expected in NC from spring to fall.

HABITAT: Offshore waters of the Gulf Stream or other warm waters south of Cape Hatteras.

BEHAVIOR: Not well known, but limited essentially to the Gulf of Mexico, and thus is a species of warm waters all year round.

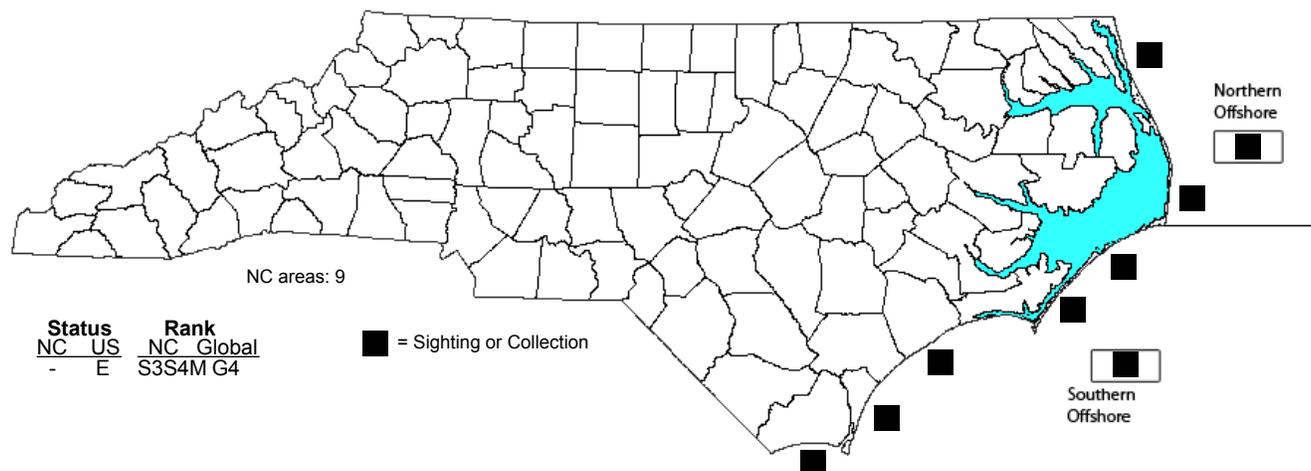
COMMENTS: For more information about this newly described species, see the article below. The reference is:

Rosel, P.E., L.A. Wilcox, T.K. Yamada, and K.D. Mullin. 2021. A new species of baleen whale (*Balaenoptera*) from the Gulf of Mexico, with a review of its geographic distribution. *Marine Mammal Science* 2021:1-34.

STATUS: Native

LIST TYPE: Official

Megaptera novaeangliae Humpback Whale



DISTRIBUTION: In NC waters, found both inshore and offshore from the VA line to the SC line. There are stranding records for seven of the eight coastal counties.

Worldwide in all oceans.

ABUNDANCE: The most frequently seen large whale in NC waters from shore. Generally uncommon to fairly common from Cape Hatteras northward, and rather rarely seen south of this cape, perhaps because of a north-south migration that carries it farther offshore south of the cape. Often seen from shore from the VA line to Cape Hatteras. However, it is quite rarely seen more than a few miles offshore. The Smithsonian National Museum of Natural History mammal collections database (2016) listed 49 records for NC, but essentially all were sightings or strandings and not specimens in their collection; the 2021 version lists just a single collection.

SEASONAL OCCURRENCE: Primarily from late fall to spring. There were nine strandings reported up to 1995 (Webster et al., 1995), with all being from December through April (covering all five months). The great majority of the sightings and strandings in the 2016 NMNH database are from October through April; there are none at all in July or August. The species breeds in warmer waters in the subtropics during the winter and migrates north to Arctic waters, where it spends the summer.

HABITAT: Oceanic, both inshore (within a mile or two of shore) and well offshore. By far, the most frequently seen whale from shore in NC.

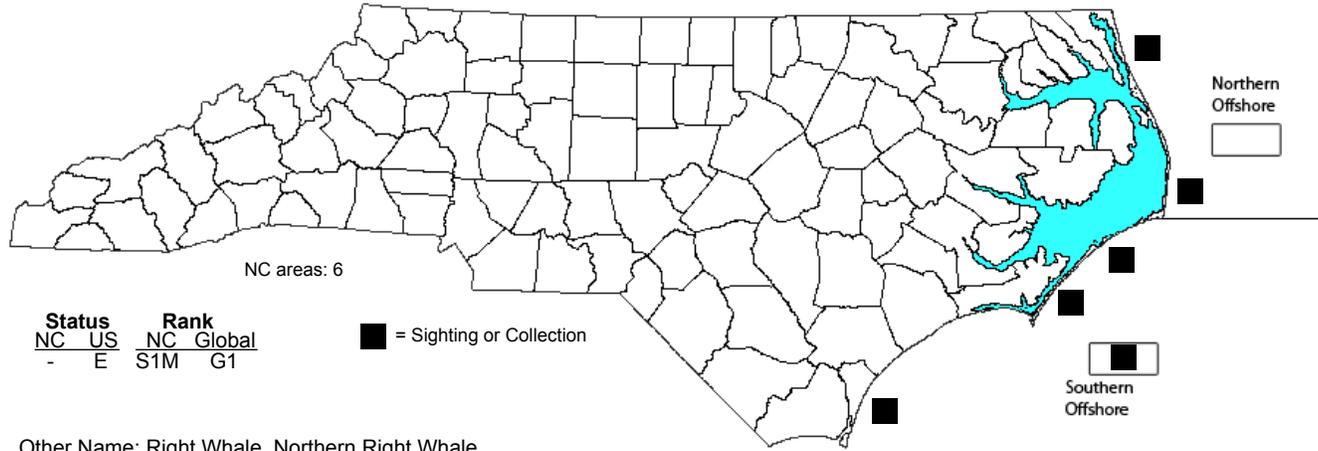
BEHAVIOR: This species is known for its spectacular acrobatics, especially for such a huge animal. They often breach, and because the underside of the tail flukes is mostly white, individuals can be identified from photographs of the tail flukes (from below). It is one of the frequent target species of nearly any whale-watching boat off the coasts of North America, as well as in various polar waters.

COMMENTS: This is another whale that is listed as Endangered by the U.S. Fish and Wildlife Service. This seems surprising, considering its relative abundance compared with most other large whales (except Sperm). However, as with nearly all large whales, considerable numbers were harvested in earlier centuries, though the population in the North Atlantic is rebounding, at least slowly.

STATUS: Native

LIST TYPE: Official

Eubalaena glacialis North Atlantic Right Whale



DISTRIBUTION: Occurs off the entire length of the NC coastline, as it is essentially migratory past our state. There are stranding records for five of the eight coastal counties.

Restricted to the northern portions of the Atlantic Ocean, from the Bahamas and FL northward to Newfoundland and Labrador.

ABUNDANCE: Globally endangered; listed by the U.S. Fish and Wildlife Service as an Endangered Species. In strong decline, with perhaps only 300 individuals in its entire range, as of 2013. Along and off NC, it is very rare and declining in observation; only a few NC records in the past 10-20 years. The Smithsonian National Museum of Natural History mammal collections (2016) listed 31 sighting and stranding records for NC; but the 2021 version lists just seven specimens in their collection.

SEASONAL OCCURRENCE: Primarily between late fall and early spring, off NC. It breeds in the warmer waters off GA and FL in the winter, and moves northward to summer off the Maritime Provinces, for the most part. It then migrates southward in late fall. Interestingly, the four strandings along the NC coast, as of 1995 (Webster et al., 1995) were from February to April. Most of the dates in the 2016 NMNH database fall between December and April, with a few into June, and one in October; there are no stranding records from July - September.

HABITAT: The offshore ocean, seldom seen from shore.

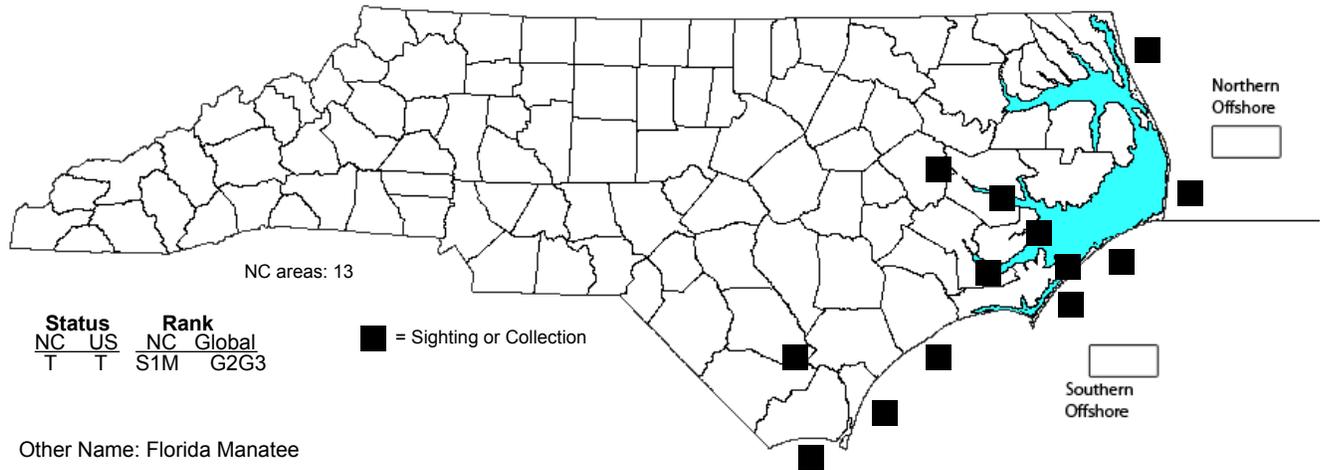
BEHAVIOR: This is a slow-moving species, which unfortunately made it easy for early whalers to kill. It is relatively sluggish and non-acrobatic, though the tail flukes are often seen as it dives.

COMMENTS: The main threats currently are entanglement in fishing lines and collision with ships/boats; formerly, it was heavily hunted, the main reason for the precipitous decline in the past 100-200 years. This is a somewhat recently "split" species, as for most of the 20th Century this was called the Right Whale, found in both the North Atlantic and the South Atlantic, as well as the Pacific oceans. The complex now consists of the North Atlantic Right Whale (*Eubalaena glacialis*), the North Pacific Right Whale (*E. japonica*), and the Southern Right Whale (*E. australis*).

STATUS: Native

LIST TYPE: Official

Trichechus manatus West Indian Manatee



DISTRIBUTION: Occurs essentially annually along the coast of NC, mainly along the southern third of the coast (Carteret County southward). Manatees tend to be seen inshore of the ocean, such as along the Intracoastal Waterway or other bays, estuaries, and lower portions of large rivers (at bay mouths), sparingly upriver as far as eastern Pitt County (Tar/Pamlico River), New Bern (Neuse River), and Bladen County (Cape Fear River). It has occurred also along the entire NC coast (including Currituck County), again typically seen inward of the ocean itself.

Occurs in warm waters along the Atlantic coast, sparingly as far north as the Chesapeake Bay area, but mainly from FL southward.

ABUNDANCE: Rare but essentially annual along the southern coast, with a few sightings in a given year. More frequent the farther south along the coast; not seen annually north of Cape Hatteras (where best considered very rare).

SEASONAL OCCURRENCE: Almost always in the warmer months of the year, as a visitor/stray northward from FL and other tropical waters.

HABITAT: In NC, favors brackish waters of estuaries, bays, and large river mouths; probably does much migration up and down the Intracoastal Waterway. Less frequently seen in the inshore ocean. Seldom or never seen up-river farther than the embayed portions, such as New Bern.

BEHAVIOR: This is a very tame and sluggish mammal, not afraid of swimmers or scuba divers. A moderate number are killed by speeding boats, farther southward.

COMMENTS: The species is also called the Florida Manatee. It was formerly listed as Endangered by the U.S. Fish and Wildlife Service, but in recent years (2017) has been downlisted to Threatened at the Federal (and thus also the State) level. However, there have been massive and very concerning numbers of fatalities in FL in the past few years, making this downlisting to Threatened perhaps premature or "hasty".

STATUS: Native

LIST TYPE: Official

North American Porcupine *Erethizon dorsatum*

Lee et al. (1982, p. 7) state that "There is some reason to suspect that the Porcupine and Fisher may have once occurred in the mountainous portions of North Carolina, but their presence in historic times cannot be substantiated." Kellogg (1939), in an "Annotated List of Tennessee Mammals", says "Mercer ... found the dried feces and quills of a porcupine in Bigbone Cave near Elroy, Van Buren County, Tenn. During the recent rearrangement of the mammal collection in the National Museum, a left mandible of an immature porcupine labeled as coming from 'a Tennessee cave', but with no other data, was found." Linzey (1995) says "Hall (1981) indicated that its range may extend through the mountains as far south as the Smokies. Jawbones of porcupines have been recovered from archaeological [sic] sites west of Chattanooga in Marion County, Tennessee".

Thus, though there is some evidence that Porcupines might have occupied the mountains of Tennessee into the 19th Century, there seems to be nothing on record of even sightings from North Carolina, much less reports of specimens or carcasses.

Swamp Rabbit *Sylvilagus aquaticus*

Unlike with the Porcupine, Snowshoe Hare, and the Fisher, there actually is an existing specimen of a supposed Swamp Rabbit. Lee et al. (1982, p. 39) state "We recently discovered in the collection of the North Carolina State Museum (NCSM 843) a male specimen of *S. [= Sylvilagus] aquaticus* from Clay County, N.C., which was erroneously labeled *S. floridanus* [= Eastern Cottontail]. The specimen was collected on 18 August 1956, 11 miles E of Hayesville by Tom Beadles (total length 429 mm, tail vertebrae 49 mm, hind foot 96 mm, ear 63 mm, weight 1042 g; skull not saved.) The specimen appears to be molting into adult summer pelage, but no other information is available."

The above information, from a species account for Swamp Rabbit in "A Distributional Survey of North Carolina Mammals", would seem to be a "slam-dunk" case for inclusion on the North Carolina state list. However, Dr. David Webster, at UNC-Wilmington, studied the specimen in the mid-1980's, and found it to be in very poor condition, such that he was unable to tell what it was. As a result, this species has not appeared on the N.C. Scientific Council on Mammals list of rare species. The N.C. Natural Heritage Program supports the decision of the Scientific Council in not considering the Swamp Rabbit to be convincingly documented for the state.

Snowshoe Hare *Lepus americanus*

Kellogg (1939), in an "Annotated List of Tennessee Mammals", says "Information received from local residents suggests that varying hares [i.e., Snowshoe Hares] were formerly present in the mountainous district extending from Mount Guyot to White Rock, Cocke County. These residents inquired if Perrygo had seen any of the rabbits that turned white in winter and made such long jumps when chased in the snow by dogs. He was told that they were usually 'jumped' from rhododendron thickets near the summits of the peaks. From repeated inquiries, Perrygo learned that these rabbits were very rare now but formerly were often seen during winter months by local hunters."

Several recent field guides and reference books not surprisingly include North Carolina and/or Tennessee as being at the southern edge of the species' range. However, neither state considers the Snowshoe Hare as being conclusively documented in the region, and the species certainly is extirpated over the past 150 to 200 years, if not longer.

Fisher *Martes pennanti*

According to Powell, in an article in the 1991 "Wildlife in North Carolina", "John James Audubon and the Reverend Bachman talked to hunters and trappers who had killed fishers in the North Carolina and Tennessee mountains; Bachman apparently saw carcasses or pelts of such fishers." He states that the "last records of fishers in the southern Appalachians date from the 1830s."

Though there seems little reason to doubt these excellent biologists, no specimens of Fishers from North Carolina or Tennessee are known to reside in any museum collection, and thus we have no conclusive evidence of their presence in these states.

**Listing of NC Mammals
by number of species (out of 124) per county**

Sorted Alpha		Sorted Numeric	
Alamance - 26	Madison - 46	Buncombe - 69	Chowan - 33
Alexander - 27	Martin - 25	Swain - 63	Union - 32
Alleghany - 32	McDowell - 38	Haywood - 62	Sampson - 32
Anson - 33	Mecklenburg - 51	Macon - 58	Montgomery - 32
Ashe - 42	Mitchell - 48	Watauga - 53	Alleghany - 32
Avery - 49	Montgomery - 32	Wake - 52	Randolph - 31
Beaufort - 42	Moore - 41	Mecklenburg - 51	Stanly - 31
Bertie - 36	Nash - 22	Henderson - 49	Robeson - 31
Bladen - 46	New Hanover - 45	Avery - 49	Tyrrell - 31
Brunswick - 45	Northampton - 21	Gates - 49	Pasquotank - 31
Buncombe - 69	Onslow - 41	Transylvania - 49	Guilford - 31
Burke - 42	Orange - 37	Mitchell - 48	Granville - 31
Cabarrus - 31	Pamlico - 24	Yancey - 47	Cabarrus - 31
Caldwell - 34	Pasquotank - 31	Clay - 47	Iredell - 30
Camden - 45	Pender - 40	Dare - 46	Rockingham - 30
Carteret - 41	Perquimans - 23	Madison - 46	Gaston - 29
Caswell - 19	Person - 17	Jackson - 46	Rowan - 27
Catawba - 34	Pitt - 39	Bladen - 46	Alexander - 27
Chatham - 35	Polk - 38	Brunswick - 45	Stokes - 27
Cherokee - 39	Randolph - 31	New Hanover - 45	Alamance - 26
Chowan - 33	Richmond - 24	Camden - 45	Lee - 26
Clay - 47	Robeson - 31	Graham - 44	Vance - 25
Cleveland - 21	Rockingham - 30	Craven - 43	Scotland - 25
Columbus - 36	Rowan - 27	Rutherford - 43	Martin - 25
Craven - 43	Rutherford - 43	Durham - 42	Richmond - 24
Cumberland - 36	Sampson - 32	Burke - 42	Pamlico - 24
Currituck - 39	Scotland - 25	Ashe - 42	Lenoir - 23
Dare - 46	Stanly - 31	Beaufort - 42	Perquimans - 23
Davidson - 22	Stokes - 27	Moore - 41	Wayne - 23
Davie - 14	Surry - 35	Carteret - 41	Davidson - 22
Duplin - 22	Swain - 63	Wilkes - 41	Warren - 22
Durham - 42	Transylvania - 49	Onslow - 41	Hertford - 22
Edgecombe - 36	Tyrrell - 31	Hoke - 41	Franklin - 22
Forsyth - 37	Union - 32	Pender - 40	Nash - 22
Franklin - 22	Vance - 25	Cherokee - 39	Duplin - 22
Gaston - 29	Wake - 52	Currituck - 39	Yadkin - 22
Gates - 49	Warren - 22	Pitt - 39	Cleveland - 21
Graham - 44	Washington - 33	Polk - 38	Northampton - 21
Granville - 31	Watauga - 53	McDowell - 38	Caswell - 19
Greene - 12	Wayne - 23	Forsyth - 37	Wilson - 18
Guilford - 31	Wilkes - 41	Orange - 37	Person - 17
Halifax - 34	Wilson - 18	Jones - 37	Davie - 14
Harnett - 34	Yadkin - 22	Bertie - 36	Lincoln - 14
Haywood - 62	Yancey - 47	Hyde - 36	Greene - 12
Henderson - 49		Johnston - 36	
Hertford - 22		Edgecombe - 36	
Hoke - 41		Columbus - 36	
Hyde - 36		Cumberland - 36	
Iredell - 30		Chatham - 35	
Jackson - 46		Surry - 35	
Johnston - 36		Caldwell - 34	
Jones - 37		Catawba - 34	
Lee - 26		Harnett - 34	
Lenoir - 23		Halifax - 34	
Lincoln - 14		Washington - 33	
Macon - 58		Anson - 33	

Number of Counties = 100
Totals as of March 31, 2022