

**A SURVEY OF THE REPTILES AND  
AMPHIBIANS OF BLACK RIVER TOWNSHIP,  
HARNETT COUNTY, NORTH CAROLINA**

**BY**

**NATHAN REX MATTHEWS**

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A SURVEY OF THE REPTILES AND AMPHIBIANS OF  
BLACK RIVER TOWNSHIP, HARNETT COUNTY,  
NORTH CAROLINA

A Research Paper  
Presented to  
the Graduate Council of  
Austin Peay State University

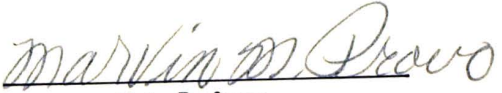
In Partial Fulfillment  
of the Requirements of the Degree  
Master of Science

by  
Nathan Rex Matthews  
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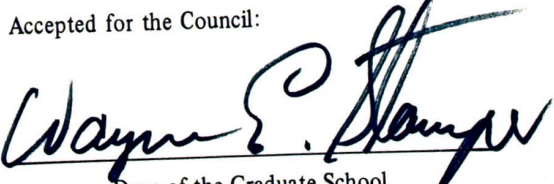


To the Graduate Council:

I am submitting herewith a Research Paper written by Nathan Rex Matthews entitled "A Survey of the Amphibians and Reptiles of Black River Township, Harnett County, North Carolina." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in biology.

  
Major Professor

Accepted for the Council:

  
Dean of the Graduate School

## ACKNOWLEDGEMENTS

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## CHAPTER I

### INTRODUCTION AND LITERATURE REVIEW

Information pertaining to the amphibians and reptiles of the western Coastal Plain region of North Carolina is very limited. Researchers have concentrated their attention on the Great Smoky Mountains and eastern Coastal Plain regions; leaving Black River Township and remaining portions of Harnett County, North Carolina practically unworked. The only account that has appeared is a paper by C. S. Brimley (1943) based on four years of collection in North Carolina. Only ten species of herptiles were reported by Brimley from Harnett County. It could not be determined which of these ten species were found in Black River Township.

#### Purpose of the Study

The purpose of this study was (1) to inventory the herpetofauna of Black River Township, Harnett County, North Carolina; and (2) organize the collection of amphibians and reptiles from this area for study and observation by later researchers, teachers, and students.

#### Limitation of the Study

The study was confined to Black River Township, Harnett County, North Carolina between August 1968 and July 1970.

#### Nomenclature

Order and family names of herptiles which appear in this paper follow those of Schmidt (1953). Generic, specific, and common names follow those of Conant (1958).

#### Definition of Terms

Certain words used in this account are restricted in their use. To avoid any misinterpretation, the following words are defined.

Herptile - any amphibian or reptile.

Herpetofauna- a collective term which refers to amphibians and reptiles which inhabit any given area.

Fixed - the placing of any herptile in a preservative and allowing its body to harden in a given position.

## CHAPTER II

### METHODS AND MATERIALS

#### Collecting

Methods used in collecting herptiles included overturning rocks, logs and other debris in likely habitats, seining small ponds and creeks, and traveling dirt and paved roads at night, especially during and after showers of rain. Frogs, lizards, and some snakes were collected by hand. Turtles were collected by hand and with the use of funnel traps. Venomous and pugnacious snakes were captured with the aid of a snake stick as described by Conant (1958).

Collected specimens were labeled and placed in well ventilated collecting bags and jars then transported to the biology lab at Angier High School. They were kept here until preserved or released. Moisture was added to containers housing frogs and salamanders to prevent desiccation.

#### Killing, Fixing, and Preserving

All species utilized in this survey were killed by freezing.

All specimens were fixed and preserved in 10 per cent formalin. Large amphibians and all reptiles were injected with formalin to preserve the viscera. Amphibians, lizards, and turtles were placed in dissecting trays, pinned in a natural position, partially immersed in formalin and left to harden. Once fixed, the specimens were placed in storage containers and totally immersed in preservative. Snakes were injected with formalin and immediately coiled in a jar or plastic container which was then filled with preservative.

Each specimen was placed in a permanent storage container and given a permanent label. Each label contained the following information: (1) scientific name, (2) common name, (3) state, (4) county, (5) locality (nearest post office), (6) habitat, (7) collector, and (8) date.



### CHAPTER III

#### DESCRIPTION OF STUDY AREA

Harnett County is located on the border of the Piedmont and Coastal Plain Regions of North Carolina. The county is bordered on the north by Wake County, on the east by Johnston and Sampson Counties, on the west by Chatham and Lee Counties, and to the south by Hoke and Cumberland Counties.

Black River Township is located in the northern most part of Harnett County. It is bordered to the north by Wake County, on the south by Rural Road 1403, on the east by the Old Stage Road, and on the west by Neil's Creek. It includes the town of Angier and its voting district; an area four and one-half miles wide and five miles long.

The township is in the Sand Hills line of the Sea Island Section of the Coastal Plain Region (Fenneman, 1938). According to the Harnett Agri-Business Development Commission (1966), the major rock formations consist of unconsolidated sand and clay with some chrySTALLINE.

The topography of Black River Township is generally rolling throughout. Those features that may be of interest to the herpetologist are the few natural and many man made farm ponds used for fishing and irrigation during the summer months. Few creeks exist in the township.

Black River Township lies in the Southeastern Evergreen Forest Region (Braun, 1950). Due to the close proximity of Harnett County with the Oak-Pine Region of the Piedmont, the township exhibits both pine and pine-oak communities.

## CHAPTER IV

### RESULTS

Seventy-nine species of amphibians and reptiles were expected to occur in Black River Township, Harnett County, North Carolina. This estimate was based on range information by Conant (1950). Of the seventy-nine species expected, forty-five were collected. Of all species expected and collected, thirty-four were amphibians and forty-five were reptiles. Five orders, twenty families, and forty-eight genera were represented. The orders containing the largest number of species were Serpentes and Salienta with twenty-eight and nineteen species respectively. Order Chelonia contained nine species and Sauria contained eight species. The family with the largest number of species was Colubridae with twenty-four. Hylidae and Plethodontidae followed with eight species each. The best represented genus was Hyla with six species. Rana followed with five species. Table I compares by orders the number of species expected and the number collected.

TABLE I  
A COMPARAISON BY ORDERS OF THE NUMBER OF SPECIES OF AMPHIBIANS  
AND REPTILES EXPECTED AND COLLECTED IN BLACK RIVER  
TOWNSHIP, HARNETT COUNTY, NORTH CAROLINA

Order	Number Expected	Number Collected	Number expected but not collected	Total
Caudata	15	6	9	15
Salientia	19	12	7	19
Chelonia	9	8	1	9
Sauria	8	5	3	8
Serpentes	28	14	14	28
Totals	79	45	34	79

## CHAPTER V

### SUMMARY

A survey of the amphibians and reptiles of Black River Township, Harnett County, North Carolina was conducted from August 1968 until June of 1970. Due to the lack of information on the amphibians and reptiles in this area, an estimate of their numbers was made based on range information by Conant (1958).

Forty-five of an expected seventy-nine species were collected using standard methods of collecting, fixing, and preserving. Of those species collected and expected, thirty-four were amphibians and forty-five were reptiles. Five orders, twenty families, and forty-eight genera were represented.

All species collected during this survey are now in the care of the Museum of Zoology, Austin Peay State University, Clarksville, Tennessee.

This study was strictly a survey, however, it is basic to any more detailed and specific problems that might be conducted on the amphibians and reptiles of Black River Township, Harnett County, North Carolina.



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## APPENDIX A

### A CHECK LIST OF THE AMPHIBIANS AND REPTILES OF BLACK RIVER TOWNSHIP, HARNETT COUNTY, NORTH CAROLINA

The following is a list of the amphibians and reptiles collected and expected to occur in Black River Township, Harnett County, North Carolina. Those species collected are indicated by an asterisk. The arrangement of this list is based on Schmidt (1953). Common names are from Conant (1958). Based on Osgood (1939), parentheses around names of authors of specific names when these names have been transferred from one genus to another have been omitted.

#### CLASS AMPHIBIA

#### ORDER CAUDATA

##### Proteidae

Necturus punctatus punctatus Gibbs. Dwarf Waterdog.

##### Amphiumidae

\* Amphiuma means means Garden. Two-toed Amphiuma.

##### Ambystomidae

\* Ambystoma opacum Gravenhorst. Marbled Salamander.

Ambystoma maculatum Shaw. Spotted Salamander.

Ambystoma tigrinum tigrinum Green. Eastern Tiger Salamander.

##### Salamandridae

Diemictylus viridescens dorsalis Harlan. Striped Newt.

Diemictylus viridescens viridescens Rafinesque. Red Spotted Newt.

##### Plethodontidae

\* Eurycea bislineata cirrigera Green. Southern Two-lined Salamander.

Eurycea longicauda guttolineata Holbrook. Three-lined Salamander.

\* Plethodon glutinosus glutinosus Green. Slimy Salamander.

\* Desmognathus fuscus auriculatus Holbrook. Southern Dusky Salamander.

\* Pseudotriton montanus montanus Baird. Eastern Mud Salamander.

Pseudotriton ruber ruber Sonnini. Northern Red Salamander.

Stereochilus marginatus Hallowell. Many-lined Salamander.

Manculus quadridigitatus Holbrook. Dwarf Salamander.

## ORDER SALIENTA

## Pelobatidae

- \* Scaphiopus holbrooki Harlan. Eastern Spadefoot Toad.

## Bufonidae

- \* Bufo terrestris Bonnaterre. Southern Toad.
- \* Bufo woodhousei fowleri Hinckley. Fowler's Toad.

## Hylidae

- \* Acris crepitans crepitans Baird. Northern Cricket Frog.
- Acris gryllus gryllus Le Conte. Southern Cricket Frog.
- \* Hyla cinerea cinerea Schneider. Green Treefrog.
- \* Hyla crucifer crucifer Wied. Northern Spring Peeper.
- Hyla femoralis Sonnini and Latreille. Pine Woods Treefrog.
- Hyla ocularis Bosc and Daudin. Little Grass Frog.
- Hyla squirella Sonnini and Latreille. Squirrel Treefrog.
- Hyla versicolor versicolor Le Conte. Eastern Gray Treefrog.
- Pseudacris brimleyi Brandt and Walker. Brimley's Chorus Frog.
- \* Pseudacris nigrita nigrita Le Conte. Southern Chorus Frog.

## Microhylidae

- \* Gastrophryne carolinensis Holbrook. Eastern Narrow-mouthed Toad.

## Ranidae

- \* Rana catesbeiana Shaw. Bullfrog.
- \* Rana clamitans clamitans Latreille. Green Frog.
- \* Rana palustris Le Conte. Pickerel Frog.
- \* Rana pipiens sphenoccephala Cope. Southern Leopard Frog.
- Rana virgatipes Cope. Carpenter Frog.

## CLASS REPTILIA

## ORDER CHELONIA

## Chelydridae

- \* Chelydra serpentina serpentina Linnaeus. Common Snapping Turtle.

## Kinosternidae

- \* Kinosternon subrubrum subrubrum Laeepede. Eastern Mud Turtle.
- \* Sternotherus odoratus Latreille. Stinkpot.

### Emydidae

- \* Clemmys guttata Schneider. Spotted Turtle.
- \* Chrysemys picta picta Schneider. Eastern Painted Turtle.
- \* Pseudemys floridana floridana Le Conte. Florida Cooter.
- \* Pseudemys scripta scripta Schoepff. Yellow Bellied Turtle.
- \* Terrapene carolina carolina Linnaeus. Eastern Box Turtle.
- Pseudemys concinna concinna Le Conte. River Cooter.

## ORDER SAURIA

### Iguanidae

- \* Sceloporus undulatus hyacinthinus Green. Northern Fence Lizard.

### Teiidae

- \* Cnemidophorus sexlineatus Linnaeus. Six-lined Racerunner.

### Scincidae

- \* Eumeces fasciatus Linnaeus. Five-lined Skink.
- \* Eumeces inexpectatus Taylor. Southeastern Five-lined Skink.
- Eumeces laticeps Schneider. Broad-headed Skink.
- \* Lygosoma laterale Say. Ground Skink.

### Anguidae

- Ophisaurus attenuatus longicaudus McConkey. Eastern Slender Glass Lizard.
- Ophisaurus ventralis Linnaeus. Eastern Glass Lizard.

## ORDER SERPENTES

### Colubridae

- \* Carphophis amoenus amoenus Say. Eastern Worm Snake.
- Cemophora coccinea Blumenback. Scarlet Snake.
- \* Coluber constrictor constrictor Linnaeus. Northern Black Racer.
- \* Diadophis punctatus punctatus Linnaeus. Southern Ringneck Snake.
- \* Elaphe guttata guttata Linnaeus. Corn Snake.
- \* Elaphe obsoleta obsoleta Say. Black Rat Snake.
- Farancia abacura abacura Holbrook. Eastern Mud Snake.



- Haldea striatula Linnaeus. Rough Earth Snake.
- Haldea valeriae valeriae Baird and Girard. Eastern Smooth Earth Snake.
- \* Heterodon platyrhinos Latreille. Eastern Hognose Snake.
- \* Lampropeltis calligaster rhombomaculata Holbrook. Mole Snake.
- Lampropeltis doliata doliata Linnaeus. Scarlet Kingsnake.
- \* Lampropeltis getulus getulus Linnaeus. Eastern Kingsnake.
- Masticophis flagellum flagellum Shaw. Eastern Coachwhip Snake.
- \* Natrix erythrogaster erythrogaster Forster. Red-bellied Water Snake.
- Natrix sipedon fasciata Linnaeus. Banded Water Snake.
- \* Natrix sipedon sipedon Linnaeus. Northern Water Snake.
- \* Opheodrys aestivus Linnaeus. Rough Green Snake.
- \* Storeria dekayi dekayi Holbrook. Northern Brown Snake.
- Storeria dekayi wrightorum Trapido. Midland Brown Snake.
- Storeria occipitomaculata occipitomaculata Storer. Northern Red Bellied Snake.
- Tantilla coronata coronata Baird and Girard. Southeastern Crowned Snake.
- Thamnophis sauritus sauritus Linnaeus. Eastern Ribbon Snake.
- \* Thamnophis sirtalis sirtalis Linnaeus. Eastern Garter Snake.

#### Elapidae

Micrurus fulvius fulvius Linnaeus. Eastern Coral Snake.

#### Crotalidae

- \* Akistrodon contortrix contortrix Linnaeus. Southern Copperhead.
- Crotalus horridus atricaudatus Latreille. Canebrake Rattlesnake.
- Sistrurus miliarius miliarius Linnaeus. Carolina Pigmy Rattlesnake.